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Improvement in Molding and Pressing Bricks, The machine represented in the accompanying engravings will arrest the attention of brick makers and other mechanics, from its compactness and its ingenious application of mechanical movements. It is direct and absolute in its action, dependent upon neither springs nor weights for correctness, and built of iron, so that there is but little wear and tear.

The machine is driven by the pulley, A-horse, steam, or

any other power being used-the shaft having on its further end a gear, B, and a roller, C, which latter revolves in a hopper, D. The gear on the driving shaft engages with a larger one, E, which drives a corresponding roll, F, that, of course, turns slower than the roller, C. The clay-properly moistened --putinto the hopper, D, passes between the rolls, being subjected to a comminuting or pulverizing process, in consequence of the abrasive action of the two rolls, the surfaces of which travel at varying velocities. From the rolls the fine clay is carried through a horizontal cylinder under roll, C, by means of a shaft driven by the gear, G, on which shaft are a series of spiral blades. H, Fig. 2, each of which forms a section of a screw, those at the discharge end, however, forming a complete screw extending entirely around the shaft. By this means the clay is carried from the mill to one of the press boxes, seen at I, Fig. 2, which are within a cylinder or disk, J, which revolves on a fixed hub secured to one of the standards of the machine, and through which the main shaft passes loosely. The press boxes, or brick molds, are placed at equal distances apart in the cylinder, which is revolved by a shaft driven by the gear, K, that is rotated by means of a pinion on the driving shaft. A crank, L, on the upper shaft, carrying the gear, K, having a friction roller on its wrist end, gives an intermittent motion to the cylinder, J, by means of recesses in the cylinder or disk; the rotation of the disk to produce a complete revolution, being assured by two gear teeth cut

gaging with similar teeth on the periphery of the disk.

On the outer end of the shaft carrying the gear, K, and crank, L, is a cam, M, which drives a plunger, N, Fig. 2, against the press piston, O, same figure, compressing the clay in the mold and forming the brick. At the same time, and tion grow. At the poles there is no carbon, and there is no plunger, that throws out the pressed brick

upon a table, Q, Fig. 1, from which it is removed to the yard or other convenient place for drying.

The lever and clutch, R, are for disconnecting the mill and the press, so that the former can be run without operating the latter. The boss of the crank, L, after the disk containing the molds has been moved, so that the plungers and mold boxes are in line, traverses around a half of a revolution without imparting motion to the disk, thus affording time for the action of the plungers. It will be seen that at the same time that one mold box has received a charge, another is being carried to the plunger, the plunger is compressing a third, while the fourth is being these is called "The Correlation of Mental and Physical Force," which phrase we were afraid to put at the head of this article, lest the reader should be frightened by its apparent abstruseness and skip it over; for all like the kind of reading best which requires the least thinking; the newspapers, civil, religious, and mongrel, have found this out, and load weak as water and as wishy washy as cold soup; but publish- the reader with this long rigmarole, unless we could derive

self to the same altitude, and away he goes, as fast as his legs will carry him ; this is the result of "mental force," and now the reader sees the connection between physical and mental force, that they accomplish the same result, and by the use of the same agency, heat, obtained from carbon, or charcoal. That is to say, the vital force of the body and of the vegeta their columns with all sorts of impossible fabrications, as ble, is generated by carbon. It would be useless to bother



## HAYDEN'S IMPROVED BRICK MACHINE.

in what may be considered the hub of the crank, and en-|ers know that "there is money in it," the thoughtless public | latter its vigor. Farming or any other active out-door life tends are pleased, and down we are going, at railroad speed "ad infernum."

Carbon represents heat; vegetation grows by absorbing carbon; and the hotter the climate, the faster does vegetaby the operation of the same cam, a lever, P, actuates another | vegetation. When a tree is growing, it absorbs as much | reaches maturity in Paris; scarcely a dozen of the same



from it some practical lesson, by which we can be made better or happier. The largest specimens of vegetation and animals, grew in the earlier ages, in parts where the atmosphere was a furnace; and as the crust of the earth cools, both grow more slowly, and the time for dying comes before they reach as great a stature as of old; and so it must be with man, the more carbon he absorbs, the more food he can eat and appropriate healthfully to the bodily uses, the larger or stronger will he be, according to whether the greater amount of carbon is absorbed by the brain or muscles; it is the stomach which is to prepare the food for the elimination of the carbon contained in it; this process is called "digestion," hence, the more perfect, the more vigorous; the more healthful a man's digestion is, the more vigorous will he be in mind or body, if not both; so whatever we do to weaken, to disease the stomach, we do that much toward impairing mind and body; toward depraving the race ; degrad ing it toward the mere animal and the idiot. If we eat just enough, both mind and body are invigorated; if we eat too little, both become weak and faint; the body trembles, the mind is inefficient ; if we eat too much, the stomach cannot eliminate the material which is to give out a pure carbon, and it then gives out an impure article, and mind and body are oppressed;

the former loses its activity, the to perfect digestion ; city life, with its inactions and its intemperances impairs the digestion, then follows the startling truth,

and known to be truth, the world over, that families in cities, whole family names, die out in two or three generations; it has been stated that it rarely happens that a grandchild

prominent family names are found in the New York City Directories of 1868, which were in the directory of 1802-just two generations ago; and but for the replenishment of lads from the country, the progeny of hard out-door workers vigorous of stomachs, eliminating carbon largely, so as to give power to produce children of robust health, New York would be almost depopulated in a comparatively short time. These are serious truths, and to antagonize such results, let every child born in New York, and whose father and grandfather were born in New York, be sent to the country during the first month of its life, to be brought up to outdoor labor, so as to renew the constitution. The intelligent reader will feel a very deep interest in these statements, and will regard them as general truths, to be modified by antagonizing circumstances, but not the less true and practical for all that. Let us recapitulate. As much heat or carbon is absorbed by a tree during its growth, as it will give out when it is burned, so as much bodily and nervous energy will be given out by a

discharged upon the table.

Patent pending through the Scientific American Patent Agency. Address all inquiries to the inventor, Peter Hayden, Pittsburgh, Pa.

## MIND AND CHARCOAL.

Doctor Hall, in his Journal of Health for June, has the following instructive article

which we hope every one will read notwithstanding its length :-

The diamond, the most valuable thing in Nature, so sparkso as to make steam, that steam, if economized, will raise a man to the top of Mount Washington. But if a man wants ling, so beautiful and bright, whose luster does not pale a to go to the top of Mount Washington, he can raise himself particle in the lapse of ages, is but another condition of carbon, or charcoal, which you cannot touch without soiling your fingers; beautifully shadowing to us that greater change which shall come over the frail tenement of man, body, and to do that, carbon must be supplied to it; this carbon is obtained from the food we eat; and unless we eat when it shall be raised "a spiritual body," fit for the heavenly mansions, and destined to a beatific existence when time food which contains carbon, we will soon die, as the body gets cold; in a sense, freezes. Thus we see that carbon, acting on shall be no more. But the human mind cannot act without the agency of carbon, and by this same agency do the trees water, will raise a man sky high; this is called "physical force;" carbon feeding the brain, enables a man to will him grow, and the flowers bloom, and the connection between

man, as the carbon contained in the food which he eats will carbon as it will give out, when it is cut down and burned; if a pound of carbon, or wood, is burned and applied to water, supply.

But it does not follow that the more a man eats the more carbon will he absorb, and, consequently, the larger, stronger, and more intellectual will he become; these depend on the up there by the force of his will, acting on his feet; but in healthful vigor of his digestion, because it is this which preorder to do this, the brain must act upon the muscles of the pares the food for the separation of the carbon in it, previous to its absorption into the system; and as an active out-door life is the best means known for securing a perfectly healthful digestion, the inference is fair, logical, and legitimate, and observation will prove its truthfulness, that out-door activities, for the first thirty years of life, at least, are very certain to be followed by high health, bodily power, intellectual

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ability, and long life; this intellectual activity being greater or less, according to the greater or less size of the brain proper, which is that portion which lies in the front and upper region of the head.

The mind acts on the body through the brain, making the brain in the nature of a machine, whose working involves waste, and the necessity of repair or renewal, as oil to the wheels of vehicles of locomotion; this renewal is made from the food we eat; the faster a physical machine runs, the faster will it wear out, and there is no help for it; but the human machine had Divinity for its architect, and it does not follow that the faster or more vigorously it works, the more intense the thoughts and sensations, the sooner will it decay; but it only follows that the harder a man works, or thinks, or the more intense are his sensations, the more nourishment must be given to the muscles which work, and to the brain, through which comes our sensations; that is, the more carbon must be supplied to the system; and as was before noticed, that the greater the amount of carbon supplied, the larger was the tree, the greater the animal, the more vigorous the action of the brain-the mental work, it therefore follows that the human machine increases its physical and mental capabilities by the very increase of its activities; that the more a man works, the more and better he can work ; the more he thinks, the more and better he can think; hence, the busiest men live the longest, whether it be physical or mental industry; thus, Newton, and others of the greatest intellects in physics, in theology, and in ethics, have lived to a good old age

But it is a beautiful thought, and suggestive, too, that man expends his carbon in two directions; through the muscles, enabling him to work a great deal; and through the brain, enabling him to think a great deal; if expended equally in these two directions, a man becomes a good worker and a good thinker; but if he would become the best worker, the excess of carbon must be expended through the muscles; if, on the other hand, he desires to excel in the world of thought, he must expend the greater share of his carbon through the brain.

But another beautiful thought must not be omitted. A good digestion takes the carbon out of the food eaten and throws it into the circulation, the blood : but throwing coal into a furnace will not warm the house, the fire must be kindled; the coal must burn, and its burning gives out heat; this is called combustion ; the body is the furnace, the carbon put into it by eating, is its coal or fuel, but it must be kindled, must be set on fire by having oxygen introduced : we know that a fire will not burn unless the air can get to it and supply it with its oxygen ; so, also, will not the carbon in the blood kindle into warmth and heat, unless a plenty of good air is introduced into it, which is done by breathing it into the lungs, where all the blood goes, and so, being brought into contact there, the oxygen of the air and the carbon of the blood join, and combustion is the result, giving out heat, fire, warmth; and as the out-door air is the purest, freshest, and best, the more we are out of doors, the more oxygen we get, the more perfectly the carbon is burned, and the greater the amount of healthful heat is there in the system.

We all know that the harder we work, the sooner we get tired and the more hungry we become; and students at school, and academy, and college, know very well that they grow weak by hard study; and that their appetites become so imperative and exacting sometimes, late at night, that remorseless contributions have been made on neighbors' corn cribs, dairies, orchards, melon patches, and henneries. Who does not now feel that we have made "the correlation of the mental with the physical forces" as plain as a pikestaff, and very interesting, too; that shows our genius Reader, don't you feel that it is a plain matter, after all? Any body can make an egg stand on end, after a Columbus has shown him once how to do it !! But O, how little of the immeasurable world of truth does any man know, do all men know! Balloons for ordinary traveling purposes may vet be contrived; some may think that a man may, some time, travel as fast as a telegram, and who knows but that the science of "mind and charcoal" may be so systematized, that a man may prepare himself for a specified amount of labor by eating a specific food of a specific quantity, may graduate the intensity of his sensations by the measure of his meat; and when conscience reproves him for the meanness of marrying that pretty girl for her money, he may excite a pure and disinterested and raging love, by the articles ordered from Professor Blot!!

POMADES AND OILS.

According to ancient writers, unguent, pomatum, ointmen

called yombo, and this mixture is then applied in great quan-I tities upon their wool (i. e., hair). They think it gives out a pleasant fragrance, but I differ from them.'

Now, oiling the hair, besides making it glossy and soft, has the infinite benefit of rendering it "uninhabitable;" a consideration too often neglected in schools, and similar institutions.

The name of pomatum is derived from pomum, an apple, bccause it was originally made by macerating over-ripe apples in grease.

If an apple be stuck all over with spice, such as cloves, then exposed to the air for a few days, and afterwards macerated in purified melted lard, or any other fatty matter, the grease will become perfumed. Repeating the operation with the same grease several times produces real "pomatum."

According to a recipe published more than a century ago, the form given is:

"Kid's grease, an orange sliced, pippins, a glass of rose water, and half a glass of white wine, boiled and strained, and at last sprinkled with oil of sweet almonds."

The author, Dr. Quincy, observes, that "the apple is of no significance at all in the recipe," and, like many authors of the present day, concludes that the reader is as well acquainted with the subject as the writer, and therefore considers that the weights or bulk of the materials in his recipe are likewise of no significance.

Perfumers, acting by experience or Dr. Quincy's advice, pay no regard to the apples in the preparation of pomatum, but make it by perfuming lard or suet, or a mixture of wax, spermaceti, and oil, or some of them or all blended, to produce a particular result, according to the name that it bears.

The most important thing to consider in the manufacture of pomatum, &c., is to start off with a perfectly inodorous grease, whatever that grease may be.

Inodorous lard is obtained thus :

Take, say, 28 lbs. of perfectly fresh lard, place it in a well glazed vessel, that can be submitted to the heat of a boiling salt water bath. or by steam under a slight pressure; when the lard is melted, add to it one ounce of powdered alum and two ounces of table salt; maintain the heat for some time, in fact, till a scum rises, consisting in a great' measure of coagulated proteine compounds, membrane, etc., which must be skimmed off; when the liquid grease appears of a uniform nature, it is allowed to grow cold.

The lard is now to be washed. This is done in small por tions at a time, and is a work of much labor, which, however, is amply repaid by the result. About a pound of the grease is now placed on a slate slab, a little on the incline, a supply of good water being set to trickle over it; the surface of the grease is then constantly renewed by an operative working a muller over it, precisely as a color maker grinds paints in oil. In this way the water removes any traces of alum or salt, also the last traces of nitrogenous matter. Finally, the grease, when the whole is washed in this way, is remelted, the heat being maintained enough to drive off any adhering water. When cold it is finished.

Although purifying grease in this way is troublesome, and takes a good deal of time, yet, unless done so, it is totally unfit for perfuming with flowers, because a bad grease will cost more in perfume to cover its mal odeur than the expense of thus deodorizing it. Moreover, if lard be used that "smells of the pig," it is next to impossible to impart to it any delicate odor; and if strongly perfumed by the addition of ottos, the unpurified grease will not keep, but quickly become rancid. Under any circumstances, therefore, grease that is not perfectly inodorous is a very expensive material to use in the manufacture of pomades.

In the South and flower-growing countries, where the fine pomades are made by enfleurage, or by maceration, the purication of grease for the purpose of these manufactures is of sufficient importance to become a separate trade.

The purification of beef and mutton suet is in a great measure the same as that for lard; the greater solidity of suets requires a mechanical arrangement for washing them of a more powerful nature than can be applied by hand labor. Mr. Ewen, of Garlick Hill, who is an extensive lard and fat purifier in London, employs a stone roller rotating upon a circular slab; motion is given to the roller by an axle which passes through the center of the slab, or rather stone bed. upon which the suet is placed; being higher in the center than at the sides, the stream of water flows away after it has once passed over the suet; in other respects the treatment is the same as for lard. These greases used by perfumers have a general title of "body," tantamount to the French nomenclature of corps; thus we have pomades of hard corps (suet), pomades of soft corps (lard). When drawing extraits from

water, and about five ounces of powdered gum benzoin; it is allowed to boil gently, and all scum that rises is to be removed, until it ceases to be produced; finally the grease is put into deep pans, and when cold taken carefully off the sedimentary water; it is then fit for use, and may be kept for an indefinite period, without change or turning rancid.'

It will be observed that the principal feature in this process is the use of benzoin.

Dr Redwood has recently directed the attention of chemists to the fact that certain ointments, particularly zinc ointment, will not become rancid, if a little gum benzoin, or benzoic acid, is added to it when made; that such is the case there is little doubt, for it has been remarked that the prepared fat used by the flower farmers in the process of enfleurage will remain sweet for some years, provided that it be digested for a time over gum benzoin, in the process of its purification,-a practice that has been generally worked for this century at Grasse, Cannes, and Nice. It therefore only becomes only a question of experiment, to determine whether benzoin be a true antiseptic to all fatty bodies.

POMADE CALLED BEARS' GREASE - The most popular and original" bears' grease is made thus:-"Huile de rose, Huile de fleur d'orange, Huile d'acacia, Huile de tubereuse and; jasmin-of each, ½ lb; Almond oil, 10 lbs.; Lard, 12 lbs. Acacia pomade, 2 lbs.; Otto of bergamot, 4 oz.; Otto of cloves, 2 oz. Melt the solid greases and oils together by a water bath, then add the ottos." Bears' grease thus prepared is just hard enough to "set" in the pots at a summer heat. In very warm weather, or if required for exportation to the East or West Indies, it is necessary to use in part French pomatums instead of oils, or more lard and less almond oil.

CIRCASSIAN CREAM.-Purified lard, 1 lb.; Benzoin suct, 1 lb.; French rose pomatum, # lb.; Almond oil, colored with alkanet, 2 lbs.; Otto of rose, ‡ oz.

BALSAM OF FLOWERS.-French rose pomatum, 12 oz.; French violet pomatum, 12 oz.; Almond oil, 2 lbs.; Otto of bergamot,  $\frac{1}{4}$  oz.

CASTOR OIL POMATUM.-Tubereuse pomatum, 1 lb.; Castor oil,  $\frac{1}{2}$  lb; Almond oil,  $\frac{1}{2}$  lb.; Otto of bergamot, 1 oz.

MARROW CREAM .--- Purified lard, 1 lb.; Almond oil, 1 lb.; Palm oil, 1 oz.; Otto of Cloves, ½ drachm ; Otto of bergamot,  $\frac{1}{2}$  oz.; Otto of lemon,  $1\frac{1}{2}$  oz.

MARROW POMATUM.—Purified lard, 4 lbs.; Purified suet, 2 lbs.; Otto of lemon, 1 oz.; Otto of bergamot,  $\frac{1}{2}$  oz.; Otto of cloves, 3 drachms. Melt the greases ; then beat them with a whisk, or flat wooden spatula, for half an hour or more; as the grease cools, minute vesicles of air are inclosed by the pomatum, which not only increase the bulk of the mixtures, but impart a peculiar mechanical aggregation, rendering the pomatum light and spongy; in this state it is obvious that it fills out more pots than otherwise, and hence is more profitable.—Piesse.

## THE CLOCK .--- HOW TO USE IT.

A clock is a machine composed of wheels and pinions, to keep up the oscillations of a pendulum.

The wheels of a clock are made to revolve by means of a weight or spring called the maintaining power. This power must be sufficient to overcome the resistance of friction, to move the wheels, and to maintain the motion of the pendulum. The wheels of the clock are connected to the pendulum by pallets, which, at the same time that they check the impetus of the wheels, receive their impulse to keep up the mo tion of the pendulum.

The escapement of a clock is that part by means of which the rotary motion of the escape wheel is made to produce an oscillating motion in the pendulum. Clocks are made with different kinds of escapements: the recoil or common pallets, the dead beat, and the free or detached. They are also made with the lever and pallets similar to watches, for clocks subjected to different motions, such as for ships' use, railroads, etc.; but these last are never made with a pendulum, but with a balance. Ordinary clocks, to which attention has been paid to the proper action, measure time more accurately than watches, the continuance of motion in the pendulum being better understood, and its irregularities more easily corrected than those of a balance. Long pendulums are preferable to short ones, for the greater the length the slower the motion. therefore error is less in a long pendulum. Heavy pendulums are the best, from being less under the variable influences of the impelling power, they are also less liable to be effected by external motion.

A light pendulum shows a clock badly constructed, or deficient in the power necessary for good performance. On selecting a clock, it should be observed whether the pendulum occupies the whole available length of the case : if not, it shows inattention to this advantage. The only exception to this

is preferable to spring as a maintaining power, yet fashion,

perhaps, more than convenience, has caused a greater demand

are synonymous terms for medicated and perfumed greases. Among Biblical interpreters, the significant word is mostly rendered "ointment;" thus we have in Prov. 27:9, "Ointment and perfume rejoice the heart;" in Eccles. 9:8, "Let thy head lack no ointment." "The sons of the priests made the ointments of the spices "(1 Chron. 9:30); "Hezekiah was glad, and showed them his treasures, his spices, and the precious ointment" (Isa. 39:2).

Oiling and greasing the hair is a custom pretty nearly universal among the people of all civilized nations. There are oil-glands on the scalp, but their power of secretion is very slight, except in a few rare instances; in these cases the hair is said to be naturally moist and soft. The general rule is, that the hair grows harsh and "dry" for the lack of natural as "necessary," from the court beauty of St. James's to the belle of equatorial Africa. M. Du Chaillu, speaking of the use of njavi oil by the natives of Goumbi, says:

the enfleuraged grease, such as extraite de violette, jasmin, the pomades of hard corps are to be preferred; but when scented rule is regulators and clocks which have the pendulums beatbomade is to be used in the fabrication of unguents for the ing seconds, and measuring three feet three inches in length; hair, pomades of the soft corps are the most useful. this length is sufficient to insure accuracy. Although weight

The following process of purifying grease prior to enfleur age has been expressly written for this work by M. Auguste Bermond, of Nice:

for spring clocks. Those which require to be wound oftener "Take one hunredweight of perfectly fresh grease, either of than once a week, having a less marked time, are objectionlard or beef suet; cut the grease into small pieces, and pound able from the same cause. Clocks are frequently made to go it well in a mortar; when it is well crushed, wash it with only thirty hours, on account of cheapness, and will keep tolwater repeatedly, so long, in fact, until the water is as clear erably good time; but those going eight days are to be much after withdrawing the grease as before it was put in. The preferred, as in winding it will frequently alter the time a grease has now to be melted over a slow fire, adding thereto trifle. Small clocks have short pendulums, and from their about three ounces of crystallized alum in powder, and a lightness are liable to be stopped; they should therefore be oily secretion, hence the instinctive application of an artificial handful of sea salt (common salt); now let the grease boil. made as heavy as convenient, and when lead can be put into oil, a practice hallowed by its ancient custom, and sanctioned but allow it to bubble for a few seconds only; then strain the the case to add to its weight, there is less risk of it being grease through fine linen, into a deep pan, and allow it to moved accidentally. The additional weight also steadies the suspension, and produces more equal motion in the pendulum, stand, to clear itself from all impurities, for about two hours. The clear grease is then again to be put into the pan, over a but when the expense can be incurred, it is better to have "They mix the njavi oil with a kind of odoriferous powder bright fire, adding thereto about three or four quarts of rose small clocks made with a balance, as they can be moved without disarrangement. In moving a clock without a pendulum, be particular after you have placed it where you wish it to stay, to listen if the beats are regular; if not, you must make them so by either raising or lowering one side of the clock. Should it be a hanging clock, something should be put at the sides to keep it steady, and in its place, otherwise frequently in winding it, it may get disarranged from its beats, and stop. The heavier the pendulum is, the better it must be in beat. Clocks on brackets, or on feet, for mantels, etc., can be put in beat by raising or lowering one side to make it beat regular. Clocks are regulated by lengthening the pendulum to make them lose, and by shortening it, make it gain. This is done either by the insertion of a key to turn an arbor or square, which lengthens or shortens the pendulum, or by turning a nut for the same purpose. Nearly all the French clocks have the pendulum hung on a fine spring; these mostly regulate by a square at the top of the dial; others have them hanging on a piece of silk, with one end fastened around a wire, which is turned either from the back of the clock by a knob at the end of the wire, around which the silk winds itself, or else by a square, to which a key is fitted in the front part of the clock.

All clocks, whether regulated from the back or front, are made to gain by turning the key or nut to the right, the way in which the hands are set forward, and the contrary to make it go slower. When the screw is under the weight of the pendulum, it is also turned in the same direction ; but when the screw is above the weight, the rule is reversed. Do not move the hands of your clock back past the twelve, or you will disarrange the striking; the hands can be moved rapidly forward until they are made to correspond with the hour struck ; or the minute hand may be advanced to within two or three minutes of the hour, and then brought back sufficiently to allow the clock to strike, this is repeated until the hour struck is the same as shown by the hands, which should be set forward to show the proper time, suffering each intervening hour to be struck progressively. This applies to French clocks, and to most of the American ones; some, however, are made with a small rod in the case, under the dial, which, by being pushed or pulled, will make the clock strike; in this case, make it strike each hour separately, until you get it correct. But should the hours not strike regular in succession, then show it to some clockmaker, for there is a defect which he can correct.

The hands of English clocks may be turned either way without injury, the same as with a watch, except when having an alarm.

This is all that suggests itself to me as being useful to the public, except this caution : if there is any thing that you do not understand when a clock is out of order it is better to apply to a clockmaker than to attempt to correct it yourself, as by so doing you make bad worse, and increase the cost of repairing.—H. F. Piaget.

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NECESSARY PRECAUTIONS AND ADVICE TO PERSONS WEARING WATCHES

The watch requires care, and it is not enough that the maker is one of character, and that a proper price has been given for it, unless necessary precaution is taken to insure good performance. The watch should be regularly wound up as nearly at the same time as possible, since few springs are so equally adjusted as to pull with the same force during the whole time of action, which is usually about thirty hours; therefore by winding every twenty-four hours, it will leave six hours for the weakest part of the spring to remain idle.

Always have a key with a good pipe or square, and one that fits properly on the square of your watch, for if it does not fit good and firm, it will be apt to slip, often breaking either the chain, the ratchet, or the click. If the square of your watch is too short, or worn nearly round, get a watchmaker to repair it, or make a new one. Be particular to wind your watch the proper way. English watches, or those with fusee and chain, usually wind to the left, and almost all the Swiss ones, or those with the going barrel, wind to the right. While being wound, the watch should be held steadily in one hand, so as to have no circular motion, which always produces variation of the vibration of the balance, and sometimes considerable derangement in the escapement. It is better to keep a watch continually going, than to lay it by and wind it up occasionally. The going of the watch keeps the oil in a 1 mpid state, and the watch keeps its regulation whole movement, or at least many parts may be saved. If better. Many will (when their watch is first wound up, after having lain by for some time) say, "I have not wound or used it for so long." They do not consider that the oil will thicken or evaporate, and cannot be in the same state as if the watch was kept going regularly. Always wind steadily and slowly, holding on the key to hold the spring while the click slips from one tooth to the other, otherwise there is danger of breakage of chains, clicks, ratchets, etc. The click chain or spring is sometimes broken by winding a watch too fast. When a watch stops in winding it, if in one with a chain, it is frequently by the going fusee works not being ing correct, or it may stop by the (scapement not being correct. In a watch without a chain, it may also be by some defect in the escapement, or by the stop works on the barrel being out of order; in either case, take it to a watchmaker.

enced by the sudden changes of the weather. Therefore, if the spring of your watch breaks, do not blame the watchmaker, as they often break from the same cause while the watch is in his care. I have frequently, on taking watches out of the safe in the morning, that had been put in, in good order on the previous evening, found several with the springs broken in that case, it is generally more loss to the workman, than to the wearer of the watch.

Be not afraid that your watch will not go as well after a new spring has been put in as before; if a good new spring has been properly put in, your watch will go as well as ever.

English, or watches with chains, will usually wind about four and a half turns to every twenty-four hours, while those with a going barrel about three and a half turns; this will partly serve as a guide to ascertain if your watch winds right.

If the springs or chains break frequently, be sure there is some defect in the stop work, which must be corrected by a watchmaker.

Many persons say, "I have overwound my watch;" it may be possible to do it in winding very fast, and in a hurry. If

the stop works of a large and thick watch, or one with a chain are in order, it will take a strong key to resist the strain that you can give to overwind it. If not in order the chain will break. In a flat watch, or one with a going barrel, if the stop works are not in order, or there is only one, or perhaps none, and you force it, you will break the spring, or some of the teeth of the wheels, or pinions, and sometimes both; if when the spring is broken you keep winding, you are likely to break or injure some other parts of the works.

Be particular never to trifle with a good watch, or use it as a toy, but as a piece of delicate and complicated mechanism, requiring great care; by so doing, you may preserve your watch, and avoid a great deal of expense for repairs.

Before winding or setting your watch, it is advisable to see that the key and the inside of the pipe contain no dirt or dust that may get on the winding or setting square, and from thence to the wheels or escapement.

When a watch is hung up, it should be perfectly at rest. If hung on a round hook without further support, the motion of the balance will generate a pendulous motion of the watch, and will cause much variation in the time. Powerful watches should never be laid horizontally, unless placed on a soft substance ; if placed on a smooth flat surface, from the convexity of the glass or case, the watch only rests on a point, and the vibration of the balance alone is sufficient to produce motion in the watch.

Should a watch stop, see if the hands rub on the dial, and are free of each other, if they are caught together you may free them yourself by taking the point of a small knife blade and disengaging them ; your watch, if there is nothing more the matter with it, will then start by giving it a slight shake.

Frequently after a watch has had a new glass put in, it will stop; that is through the glass being too flat, and touching either on the center pinion, or by pressing on the hands; in that case, blame the person who put the glass in, and let him put another in; if there is not, as in very flat watches, room enough for the hands to work free of each other, it will often be advisable to have the cover of the case raised a little; in thin watches, the case may have been pressed flat in the center by wearing.

If anything is the matter with your watch which you cannot discover immediately, do not try to put it in order yourself, and meddle with the works, but show it at once to a good watchmaker. I have had watches to repair in which the wearer thought he could detect the defect himself: in opening it, he would see the spiral spring, and think that it was some hair which had no business there, and in trying to remove it, would spoil or break it.

Many watches are injured by the wearers thinking that hey can make them go by opening, winding, and shaking them.

Watches should be opened as little as possible, merely to wind, set, or regulate them. By continually opening them, particularly in the inside cap, opportunity is offered to minute particles of dirt from the case, or otherwise, to intrude into the works. I have known many watches which had been recently cleaned, stopped by some small particle of dirt sticking fast between the teeth of some of the wheels, particularly near the escapement.

Should a watch get wet by falling in the water or otherwise, if you are not near a watchmaker, as soon as possible open it, and pour in some oil, any kind will do in an emergency, but olive oil is the best ; as soon after as convenient place it in the hands of a watchmaker, and if attended to in time, the

When the hands of a watch set from the back, which can be easily ascertained by there being two holes to the inner back of the case-one to wind the watch, the other in the center for the hands-take your key, and putting it on the square in the center, you then can turn the hands as you wish. But do not open the glass, as, in very flat watches, it will frequently break or fall out, and will cause trouble to replace it.

In independent seconds watches, there are four holes in the back-one to wind the regular time or watch part, one to set it, one to wind the seconds part, and one to set that also.

Many persons think it injures a watch to set it back; it is a mistaken idea, as a watch will not be injured by it unless the pinion which carries the hands turn hard, in which case it would injure it as much to turn it forward as to set it back ; and recourse must be had to a watchmaker.

Sometimes the pinions of the hands are too loose, and are too easily moved; the watch will then continue to go, but the hands will not mark the correct time. This can be easily remedied by a watchmaker, who will correct it without taking all the watch apart. Where the case opens at the inner back, care must be taken to close it well, as otherwise the outer back will not shut down properly, and thus dust will be allowed to accumulate in the works.

In English watches, if you have to take off the cap to regulate them, or for any other purpose, in replacing it be sure to put it on straight or flat. I have seen many watches that, by the cap being put on sideways, the chain has been pushed flat on the barrel; the consequence being, that in winding, the chain will either slip off the cone of the fusee, or break. After it is in its place, be sure to fasten it properly by the spring at the top of the cap. If the spring does not hold it down properly, recourse must be had to a watchmaker. If the cap is not properly fastened in its place, the watch will be in danger of stopping by the balance touching it. Sometimes the chain will slip off the cone of the fusee in winding. This is a very bad defect, as the more it happens the more it wears the groove out in which the chain works. In this case, recourse must be had to a watchmaker to correct it, or to put on another chain; at other times, the chains, particularly in cheap work, are too brittle, and continually break. It is useless to mend them. It would be better to put on chains of better quality. The English chains are the best, and not so brittle as the Swiss ones.

Particular care should be taken to keep the works of a watch clean, even though perfectly free from dust; they ought to be taken to pieces and cleaned when the oil has become dry, as, without this precaution, the best watches would be spoiled. They are good watches that will continue to go, until friction and wear prevent their going any longer; they are the most liable to be neglected.

Watches, under ordinary circumstances, should be cleaned every second or third year at furthest. Those that are small and flat, or have complicated works, require cleaning more frequently. Neglect in this particular is the reason why many imported watches are injured by not being attended to in time, and having the oil changed. They may have been made some time previous to being sent out; then the journey here, then from the importers to the dealers, where they may lie for a long time before being sold ; so that years may  $\mathfrak{v}$  ssibly elapse before the wearer has it in his pocket. These ore, is it to be expected that the watch can perform correctly? If it does, all the time you keep it going, you are only causing it more injury.

No good watchmaker will allow a watch to go too long without changing the oil.

When an accident has happened to a watch, or even if it simply requires cleaning, care should be taken to place it in the hands of an honest and competent workman.

The possessor of a good picture would doubtlessly inquire into the ability of the artist before he entrusted it to him to retouch. This caution is equally necessary for a watch, as many of the best construction have sustained irreparable injury at the the hands of unskilled workmen. Even inferior watches, which are by far the greater number, require the aid of better hands to repair than those that constructed them. A good watchmaker may, in some cases, by judicious alterations, and giving a due proportion, make a watch perform tolerably well, which a bad workman never can do, as he does not understand the principle of the machinery he is working at, and will more frequently make such alterations only to make bad worse.

If the watch does not go its full time, from twenty-eight to thirty hours, there may be some defect in the stop work which prevents it winding up in full, or sometimes the hook

Watches frequently stop by the springs breaking, owing to the changes of the atmosphere, particularly in cold weather. That is one of the accidents which cannot possibly be avoided by the best workmen, and in the very best watches. It is

left too long without oil, to prevent rusting, particularly if wet with salt water, the steel works will be past repair. If a watch is not regular in its vibrations, which can be discovered by any one having a good ear, take it to a watchmaker, and let him correct it. This only applies to the verge, ylinder, anchor, or lever watches; in the duplex and chronometer escapement, the beat or vibrations being very different, none but an experienced watchmaker will know if they are right; with these last escapements, the ear is not to be depended upon entirely.

In setting your watch to time, be particular to do it as follows :--When the hands set from the front part, which may be known by noticing a square above the minute hand, always set them with the key on the square; never do it by pushing the hands, as in most cases you would break or bend them. In Lepine watches, or in any of those setting from the back, the minute hand is fitted on a round pivot instead of a square, and by pushing it you would be sure either to loosen, break, or disarrange the minute from the hour hand, impossible to make a main spring which will not be influ- iso that they would neither perform together, nor point right. Iregulator of your watch. I have often asked persons when

at the end of the spring may break and the watch still continue to go for some time after. If the spring is broken toward the center, the watch cannot go; hence the difference. You must apply to a watchmaker, who can soon find out the difficulty. Frequently, after being repaired or cleaned by even the best workman, a watch will, when worn, require a little attention to its regulating. The watchmaker cannot wear all the watches he has to repair; neither can he know the different habits of his customers.

Many persons will say—"I have had my watch repaired, and it does not keep time." It is often an injustice to a good workman who may regulate a watch very closely while in his hands, but when worn by the owner, and the different way in which he uses it, causes it to vary; therefore, it will be necessary to attend to it, and, should it vary, alter it according to the wearer's use of it.

Almost every careful person can regulate his own watch as well as the watchmakers, who frequently alter so many, that they may forget how much and when they altered the

## Scientific American.

your watch? The answer frequently is-" I forget exactly; it may be about a week or ten days." In that case, how is it possible to know how much to move the regulator? It is essential, in order properly to regulate a watch, to do it at stated times.



If your watch is a French or a Swiss one, and loses time move the curb or regulator towards the F or A to make it go faster; if it gains, towards the S or R to make it go slower. These letters are engraved on every French or Swiss watch, F signifying fast, and A advance, and S signifying slow, and R retard, although on most of those made now, they are engraved in full, slow and fast. In English

Swiss Regulator, watches with caps, the regulator is either on the cock or on the plate, and you will generally find them engraved on the plates in full-Slow and Fast. Move the reg-



London Regulator



Liver

ulator but very little at a time, until you get it right, but be sure and set it by the same timepiece, and by one that can be depended upon.

The correct time can always be found at any respectable watchmaker's. If you have moved the regulator or curb as far as it will go, and your watch is not regulated, you must take it to your watchmaker, who will either lengthen or short en the hair-spring, and put the curb in the center, where it ought to be. A watch regulated to keep time in the pocket will, when not worn, gain a minute, and perhaps more, per day. The regulator must not in this case be altered, as the watch, when again worn, will lose as much as it had previously gained. Should a watch which has gone well for some time suddenly vary a little, without change in the tem perature, the hands only should be set, as the irregularity may have been produced by some external motion.

Few watches are correctly compensated for the effects of heat and cold, and changes of the temperature will produce corresponding variation in the rate of going. If, therefore, a watch has been exposed to a greater degree of heat or cold than usual, the hands may be set to time, but the regulator should not be altered. A watch should be made to go to time at the ordinary temperature of the season. Cold will cause it to gain, and heat will cause it to lose; thus a little attention will enable the wearer to know when it is necessary to alter the regulator.

Should your watch suddenly gain from one to two hours a day, which is sometimes the case after a watch has had some very severe motion, such as a fall, a blow, or a sudden jerk, let a good watchmaker see to it, and he will show you that two turns or coils of the spiral or hair spring have come together between the pins of the curb, and giving the balance a very quick and short motion, has caused it to gain so suddenly.

The same jerk, or falls, etc., may, on the contrary, have caused the spring to get out of the regulating pins, and then the watch would lose considerably. Any honest watchmaker will correct it for you in a few minutes at a trifling charge. But if this defect happens frequently, or a slight jar causes it. there is a defect either in the curb or in the spiral spring, which must be corrected; or, if the curb moves too easily that, too, must be corrected, as it may be moved by external motion; then it would be impossible to regulate your watch

Watches that stop when being worn, and go on again when taken out of the pocket, without any apparent cause, have sometimes a defect in the escapement which none but a good workman can correct. Another fault with some watches particularly with cheap ones-is, that the balance is too heavy for the power of the main spring after the watch has gone for some time. The proper manner, and which I consider the only effectual means of remedying the defect, is to lighten the balance and put in a new spiral spring that will regulate the watch. Other means are frequently used, such as new main springs, etc., but, after a time, they will again have the same defect, although frequently, if the main spring is not properly tempered, it will set in the barrel and lose its power. In that case, the defect can be remedied by putting in a good new main spring. I do not by this advocate light balances for good time-keepers. For correctness, they must be as heavy as possible, so that the balance can have a good motion; they regulate better, but all the other parts must be well proportioned, and made on good principles. Some watches, even though uninfluenced by a change of temperature, are liable to a variation from the change of position. There are some so favorably disposed to their watches a to describe them as keeping time within a minute for months under all the circumstances of change of place, temperature, and irregular motion. They are excelled by others who say that their watches keep exact time with the sun, notwith standing its well known irregularity.

they wished to have their watches altered, when did you set cept sometimes in the spiral sping), from which they differ but in size.

> Marine chronometers are only required to show equal time whether they gain or lose is of no consequence, provided they are regular and keep their rate.

Sir John Herschell has well said: "From the great perfection of the art, we have a right to expect wonders, but not miracles." If, therefore, a watch which measures time from the equal and undisturbed vibration of the balance, were to perform correctly under all the jerks and various motions to which it is liable when carried in the pocket, it would be more than wonderful. Many accidents and unavoidable derangements may happen to a watch, which could not be explained here without extending this essay far beyond its prescribed limits, and which can only be detected by a good and practical workman.

## Commencement of the University Law School

The annual commencement of this institution was held on Thursday evening, May 28th, in the chapel of the University building, Washington square, New York city. There was a large attendance, and the proceedings, which consisted of music by Dodworth's band, addresses, and other exercises usual on such occasions, were very interesting and attractive Among the ten graduates upon whom degrees were conferred by the venerable Chancellor Ferris, were Messrs. A. V. Briesen and W.F. McNamara, employés in the Patent Solicit ing Department of this office.

## New Method of Converting a Reciprocal or Oscillatory Motion into a Rotary Motion.

Some years since, a gentleman of our acquaintance had occasion to devise some way of converting the motion of an os cillating arm into a rotary motion, and for certain reasons he could make use of none of the known devices. A flywheel was out of the question. The ratchet and pawl movement made too much noise in working. The rotary motion required was very slow, and not desired to be perfectly continuous and uniform, so long as a rotation could be depended upon for each oscillation of the arm.

After much thought he at last invented the movement which we now, with his permission, give to the public, as it may prove a useful contribution to the stock of devices for generating circular motion from reciprocal. The device has been in operation for more than two years, and has been found to answer the required purpose perfectly, the object being to impart to a registering train of clockwork, and to record the number of oscillations of the arm alluded to. The invention has not been patented, and may be used by any one who may find it serviceable.

Fig. 1 is an illustration of the apparatus for converting a rectilinear reciprocating motion into a rotary. A A are guides for the reciprocating block, B, in which is cut the slot, C, in which slides the crank pin, D. The slot is so cut that no portion of its sides can ever be a tangent to the circle described by the crank pin. The directions of the motions of the crank and block are shown by the arrows. If the position of the

center of the crank should be at least three times the diameter of the circle described by the crank pin, and the inclined planes of the slot should be in length, at least, about the distance between the center of the crank and the center of the crank pin. The angles included by these planes and the other portions of the side of the slot need to be more obtuse when the oscillating arm is used than when the reciprocating block is employed, at least enough so to bring those portions into planes parallel with a line drawn from the center upon which Fig. 2



the arm makes its oscillations to the center of the crank pin. When the crank pin is fitted with a friction roller, the movement takes place without noise and without much friction : certainly much less than the ratchet and pawl movement. It also has this advantage over a fly wheel, that it can never permanently stop on the center.

The principle of this movement is, that the force is constantly applied in a line which forms a considerable angle with the radius passing through the crank pin. We have never met with this movement elsewhere, and believe it to be new. Perhaps, at some future time, we may give the mathematical relations which exist between the different parts of the device, together with rules for drawing it so that it shall work with maximum power and with the least possible friction.

## A Look into Vesuvius,

At a recent meeting of the Royal Institution Professor Tyndall was invited to state what he saw during his recent visit to Vesuvius, and he stated that he had just returned from Naples, where Sir John Lubbock and himself had been examining the phenomena of the eruptions. The country all round Naples is very smoking and hot, showing the existence of extensive subterranean fires, but they had gained no information of scientific value. On different occasions they ascended the mountain from different sides, and in one instance, when a hurricane of wind favored them, they went further than the guide would lead them, and had a look down the fiery tube of the crater itself. The wind was so strong, that on the way Sir John Lubbock was blown down flat on his face. They also explored some hot subterranean galleries in the side of the mountain, and visited the Grotto del Cano, the well-known cavern, where the floor is covered several feet deep with carbonic acid gas. The heavy invisible gas, in fact, runs out of the cavern in a great stream, and will in the open air put out torches when they are held near the ground. He repeated some of the commoner experiments with the carbonic acid gas, by collecting some in his hat, and carrying it away a little distance from the cave, where it was poured over lighted matches, and put out the flame. A little dog is kept near the cave to be half suffocated by immersion in the gas when visitors arrive; and Professor Tyndall protested against the cruelty of the experiment, which, he says, serves no useful purpose, and ought to be stopped.



block were reversed, the direction of the rotation would be reversed. To work well in any position, the crank should be balanced so as to have no tendency to turn by its own weight.

By inspection of the figure it will be seen that there is no

Watches have been known to keep their rate for many months, even when subjected to jolting, hard riding, etc., but accuracy under such circumstances is accidental.

The extreme accuracy of marine chronometers is partly produced by their being constantly kept in a horizontal position.

point in the revolution of the crank where it will not be moved by the motion of the block; that it will pause at the end of each semi-revolution, but that it can rotate only in one direction.

Fig. 2 represents the modification of this device for an oscillating arm. The arm, A, is shown moving in the direction indicated by the arrow at the right of the figure. The crank pin, D, is passing over an inclined portion of the slot; when it has reached a vertical position it will pass down the same side of the slot until the slotted arm has passed through its arc of oscillation, when it will pause at the point, D. When the arm reverses its motion, the inclined plane of the slot opposite D presses upon the upper side of the crank pin, and sliding along it, depresses it past the center. The crank pin passes down the same side of the slot until the crank has assumed a vertical position below its center, then up along the same side again until the arc of oscillation has been again described, when it pauses at the angle, having completed its revolution. To work well, the distance between the center, Their construction is the same as a pocket chronometer (ex- upon which the oscillating arm performs its motion, and the

An English gentleman, by means of a mile of insulated wire, sustained on poles one hundred feet high above the tall trees of his park, has collected, during a heavy fog, enough free electricity from the atmosphere to charge and discharge a battery of fifty jars and seventy-three square feet of coated surface, twenty times in a minute, with a report as loud as a cannon

THE ear cannot distinguish one sound from another, unless there is an interval of one ninth of a second between the arrival of the two sounds. Sounds must, therefore, succeed each other at an interval of one ninth of a second to be heard distinctly.

In several mines in Cornwall, England, there are galleries which extend under the sea, where the sound of the waves is clearly heard when the sea is agitated, rolling the pebbles and boulders over the rocky bottom of the ocean.

## POST'S IMPROVEMENT IN OX YOKE BOWS.

The mortise through the bow of an ox yoke greatly weak ens that part, and the key sometimes gets misplaced and lost, even though attached to the yoke by a leather thong; the thong may break, and just when the key is most needed it is non est inventus. To remedy this is the design of the improvement shown in the illustration, patented through the Scientific American Patent Agency Aug. 13, 1867. It is so simple as to be readily understood without extended explanation. Two hinged plates are secured to the top of the



yoke, as seen, the free ends engaging with notches cut in the bow and holding it securely in place until it is forcibly raised by hand. The object and construction of the device is easily understood from the foregoing. For particulars Charles H. Post may be addressed at Guilford, Conn.

## Correspondence.

The Editors are not responsible for the opinions expressed by their cor respondents.

## Pyrites as a Source of Sulphur.

MESSRS. EDITORS :- At present, when, in consequence o the general dullness of business, the price of sulphuric acid is extremely low, it is to be regretted that manufacturers persist in the use of costly, imported brimstone, to the neglect of the excellent and cheap pyrites so abundant in this country. Their case is similar to that of the British chemical manufac turers, who persistently ignored pyrites till compelled to adopt it by the brimstone monopoly attempted by the King of Sicily, but since they have adopted it, find the benefit resulting from its use so great, that every large producer of sulphuric acid in Britain now uses pyrites as the source of sulphur.

During my experience of fifteen years in England, I have used an average of one hundred tuns of pyrites weekly, and had at least twenty different varieties of the mineral to work. and have usually found that each kind required, to some extent, a special mode of treatment to ensure the best results. When pyrites was first adopted in England, this was not un derstood, and, in consequence, it was no uncommon thing to find from ten to fifteen, and even more, per cent of sulphur left in the burnt ore; but as the subject was studied, and improved modes of burning adopted, this was reduced, till from one to four per cent of sulphur became the range, with an average of two to three per cent in well conducted factories This point was not reached till much time and money had been spent in experiments, and I regret to learn that one or two manufacturers near New York have lately attempted to burn pyrites with poor success, in my opinion, owing to the to the badly constructed kilns they employed. I have seen a good deal of American pyrites, and have no doubt that those acid manufacturers who first adopt its use will obtain a great advantage over competitors in trade who continue to use brimstone. The proper apparatus for burning pyrites is not very costly, while by using it sulphur may be obtained at from one fourth to one third the cost of sulphur derived from brimstone. The quality of the sulphuric acid produced from pyrites is as good as that from brimstone, provided proper precautions are adopted to separate the arsenic, which may be easily and cheaply done. In short, the numerous objections to pyrites at present urged here, are the same phantoms which formerly haunted British manufacturers, and have been so successfully laid by a closer acquaintance with the A. G. HUNTER. subject.

Fair Haven, Conn.

## Foreign Matter in Wood.

MESSRS. EDITORS :--- I have noticed in your publications several interesting facts under the above head, and wish to add two which came to my notice. About sixteen years ago, three English bayonets were found in a tree on Staten Island. The tree was about two feet in diameter, and the bayonets were found nearly in the center, and about five feet below where the body of the tree was forked. About the same time, I saw a musket ball exposed in a pine board. The ball fitted perfectly close, the wood was solid around it, the fiber was not ruptured, neither was there the least sign of it before the board was planed, and it was evident to all who saw it that the ball could not have entered since the board had been cut from the log. The tree from which the board had been cut could not have been less than two and a half feet diameter, and the ball was about eight inches from the cen-J. NADER. ter.

old-time and obsolete notions rather than give our inventors and mechanics a chance to help themselves and benefit the public, railroad directors and stockholders included?

It would seem that it would be the part of policy to have such an oversight of a track as to keep the road bed and rails in good condition : and that it would be better to use good iron and steel rails in preference to poor ones, even if the former did cost more at first. Do not our railroad companies lose by using heavy locomotives and cars and by drawing almost incalculable loads over their insufficient roads? I think it would be better to employ locomotives of from eight to twelve tuns, with cars corresponding in weight, and smaller trains, rather than to crush the rails with the enormous weight now put upon them.

"The times are out of joint." A reform is demanded, or we must all stay at home. D. P.

## The Wave Theory.

MESSRS. EDITORS :- In the American Journal of Science and Arts for May, there is a description of a new wave apparatus, invented by Prof. Lyman, to illustrate the modern wave theory, viz, "that in wave motion all the particles of a liquid are revolving synchronously in vertical circles." The author of the article alluded to, states that, "in teaching this theory, however, it is often difficult to make pupils understand how the infinitude of simultaneous revolutions, which it supposes, can take place without mutual interference, and in such a way as to produce the observed phenomena." Now, Messrs. Editors, when I read the last quotation I was glad, for I myself have had difficulty in comprehending the new theory, and I was really beginning to depreciate my own mental capabilities, when this timely paragraph set my mind at rest. There are others who are "at sea" upon this wave theory as well as myself, and I should certainly find some in a New England University who find its comprehension difficult. It is not then, because I read my Silliman's Journal in a shop, or exercise my muscles at the work bench rather than in rowing or at football, that I find difficulty in comprehending the modern wave theory. There seems to be something in the theory itself which is difficult to comprehend, and that necessitates the in vention of special apparatus.

If you will kindly grant me space, I will here transcribe the cut and description of the apparatus from the journal referred to, and afterward explain to you the difficulties which my friends at Yale and Harvard no doubt, in common with my self, find in comprehending it. I am well aware that in your estimation an opinion, provided it be based upon sound logic, is as valuable propounded by a man in his shirt-sleeves, as though he wore a professor's gown. The mechanics esteem you as the champion of practical ideas in America, and no



doubt the Journal of Science is the leader of theoretical science on this continent, and we respect it and bow to it as such; but in this case I have found a conflict between the theory and the facts (at least I am so convinced), and my experience has taught me in such conflicts to always stick to the facts.

"In front of a plane surface are two series of revolving arms or cranks, the length of the lower ones being half that of the apper. Two elastic wires connect the crank-pins of each series; upright wires also connect each pair of cranks, and pass down through a plate into the base. The cranks all revolve synchronously; they thus keep their relative position, and come into any given position successively, each in its turn. The relative position of the cranks of each horizontal series is such, that the directions of any two, in regular perborean blast. In order to enable myself to see the internal order, differ by the same fraction of a whole revolution, that the distance between their axes is of a whole wave length. the eye could easily distinguish, and distributed them pretty Thus, in the apparatus, the wave length is supposed to be uniformly through the water. divided into eight equal parts, and hence the common difference between the directions of adjacent crank arms is oneeighth of a circle, as shown in the figure. The cranks in each vertical set have their positions always alike. The number of cranks, whether taken horizontally or vertically, is arbitrary-a matter of convenience in construction. The synchronous revolution of the cranks is effected by means of any suitable mechanism, such as equal toothed wheels on the several axes, with alternate idle wheels connecting them; or, equal rag-wheels, with endless chain, or metallic ribbon; or, equal cranks, with a rigid connecting frame, or plate. The first method is used in the original machine, the third in the model for the natent office, the second and third in the larger and smaller sizes, respectively, for the market. "The crank pins represent as many liquid particles; the circles on the background their orbits. The transverse wires represent continuous lines of particles, which at rest would be horizontal, and be represented by the lines on the back ground drawn just below the centers of the orbits; the upper

cles one-ninth of a wave's length down. The upright wires represent lines of particles which at rest would be vertical. Every point in these moving lines describes its own distinct

orbit. The apparatus is constructed to a scale, and so, represents a wave of given length, hight, and period; but equally. represents, also, a wave of any other length and proportionate hight, though of period proper to its length, according to the law of that relation, as stated further on. In the original instrument, for example, the wave length is 36 inches; hight from trough to crest, 4 inches; and period for that length, 0s 76; but it equally represents a wave whose length is 36 feet, and hight 4 feet, with period 2s 63; and similarly for other proportional dimensions.'



I felt that it was presumptuous in me to entertain a doubt that this apparatus was all that was claimed for it, and that it illustrated so many characteristics of wave motion; but a habit of overlooking authority and thinking for myself (a habit, by the way, which has injured my reputation among the good orthodox people who are my neighbors) led me to examine it, and my examination led to doubts, which my experiments made with a similar apparatus, extemporized for the occasion, confirmed. I give a drawing of the apparatus which I constructed.

Conceiving that the apparatus constructed by Prof. Lyman was deficient, in that it showed only one horizontal and one vertical line of particles traversing the orbits of the particles represented by the crank pins, I made my apparatus with two cranks for each orbit, and connected them with strips of india rubber. I was not surprised when, upon attempting to arrange these cranks as in Prof. Lyman's apparatus, so as to represent the form of a wave, I found the result indicated in Fig. 3.

Clearly a case of interference ; one which I could not reconcile with the modern wave theory.

After all, thought I, what is the use of such apparatus, when I can have the "real thing?" If I could only dig a vast pit by the ocean, and erect a shore of transparent glass and look through it at the motion of the water, I might see what the real motion is, and thereupon I set to work to construct an ocean with glass shores. It is eighteen feet in length and 12 inches from shore to shore, and its depth sixteen inches. It was a little more difficult to make a gale of wind; however by the aid of an old blacksmith's bellows, I contrived to simulate all the phases of wind, from the



"zephyr softly breathing" to the steady breeze and the hymysteries of my ocean, I sought for some fine particles which

Sandy Hook.

## Improvement Needed in Railroad Management.

MESSRS. EDITORS :---Can I say a word about railroads, or is the verdict of a coroner's jury all that can be allowed, how ever softly worded, against the management of our railroads Why is it that with all our inventions and improvements looking to the safety of railroad travelers and the property of shippers, the directors of our lines choose to adhere to their one of these being the surface line, the lower a line of parti-lequal length, but interfering with and crossing each other, in

Experiment 1.-Steady and continuous but moderate breeze in a direction nearly horizontal upon the surface. Result-A surface current in the same direction as the wind, with undertow in the opposite direction. Current well defined.

Experiment 2.-Steady and continuous but very strong blast, in the same direction. Result-As in first experiment, except that the current was more rapid, and involved more of the mass of the fluid.

Experiment 3.-Sudden gusts at regular intervals. Result -Distinctly marked waves of apparently equal length, except at the extremity opposite the bellows, where the waves were changed into well-marked breakers, upon the vertical end of the tank. Seen through the sides of the tank the particles floating in the water gave no sign of revolution, but danced up and down with the undulations of the surface, the motion growing less toward the bottom, where there was comparatively little motion.

Experiment 4.-Sudden gusts at irregular intervals and of different degrees of force. Result-The waves no longer of each other and coming in contact, but showing no sign of revolution.

Now, Messrs. Editors, it may be perhaps justly considered as proof both of my own weakness and boldness, to assert that I do not believe in the modern wave theory, but I have al ways been so unfortunate as to differ from somebody about something, and having been called by hard names in consequence, have got to be somewhat indifferent to such things. But while writing to you my work has got into arrears, so I will drop the pen and resume my ordinary occupation. CARPENTARIUS.

## Wine Production of the United States.

MESSRS. EDITORS :- The United States pay annually to Eu rope several hundred million dollars for wines and brandies which could be made here of as good a quality from the product of our own soil. This is the result of two serious evils in the management of our wine production.

One evil consists in the improper treatment of the wine in the manufacture now prevailing, but which will be corrected by the universal adoption of the air treatment or air fermentation. The other evil is caused by the mistaken notion that the producers of the grape should be also the manufacturers of the wine, and even the dealers in the manufactured article. Nearly all such attempts so far have proved disastrous failures, averted only in few cases by large capital invested, yielding nothing like fair returns. Experience in all branches of manufacture has taught that it is more advantageous to leave the production of the crude material to certain parties, while capitalists undertake the manufacture and others attend to its exportation to the various markets of the world. This is nothing more than recognizing a proper system of division of labor, the application of which has proved of incalculable advantage to those engaged in the production of grain, sugar, cotton, tobacco, as well as of copper, iron, and other metals. Why should wine be an exception? There should be growers of grapes, as there are of grain, tobacco, cotton, etc., and in the midst of the wine growing districts capitalists should establish their presses, vats, and stills, purchase the grapes, and dispose of the manufactured article to shippers to foreign ports. The manufacture carried on in this manner will yield certain, fair remuneration to all parties concerned, and steadily increase the profits, which in the present mismanaged way are either reduced to a minimum or, as we have occasion to know, enter on the wrong side of the ledger.

Growers of grapes will cheerfully contract to furnish grapes at the rate of seventy-five cents to one dollar per hundred pounds, equal to a gross yield of about \$100 per acre. Manufacturers of wine and brandy, purchasing the grapes in sufficient quantity, may be certain of fifty per cent or upwards per year on the money invested; shippers will find sure profits, and consequently all the parties interested will be bene fitted by reducing this branch of industry to a system, unlike what it is at present, always supposing the air treatment is employed, by which the wine is ripe and ready for shipment the same year it is made, and the trouble and expense of storage ripening avoided. Here is suggested an inexhaustible source of wealth, by which the country may be enriched and improved to an extent inferior to that of no other branch of industry. There are planted now upward of thirty millions of vines in the valley and foothill counties of California alone, which this year could produce 15,000,000 gallons of wine under a system as proposed; as it is, the produce is mostly wasted, profitable to none, and rather injurious to the whole country.

The eastern slopes of the Rocky and Alleghany mountains are equally well qualified for wine production, now dormant,

The annual demand for wine, which is not only constant but steadily increasing, would exceed 1,000,000,000 gallons, if it could be supplied, and every sensible man will grant that the United States should cease to import, and rather export, what could as well be produced at home.

Capitalists will find it worth their while to attend to this matter in season. R. D'HEUREUSE,

San Francisco, Cal.

### Replacing Drawn Teeth.

MESSRS. EDITORS :- Noticing an article on teeth in Vol. XVIII., No. 21, induced me to send this. In the year 1853, 1 had three teeth extracted at the same sitting; the first tooth extracted was sound. At my request the doctor replaced it, and laughingly remarked that it would not take hold, as it was out too long and had become cold, thereby losing its

the wildest confusion. Particles beneath the surface crossing | To grind an old file on the grindstone takes considerable time, especially a small file, and to set apprentices to that work is doing them injustice, for it is certainly teaching them WM. TROWBRIDGE. how to work and yet be idle.

## New Orleans, La.

## Divisibility of Matter.

Gold can be beaten into leaves 00004 of a millimeter thick. Silver wire, gilded with '00277 of its diameter of gold, can be drawn so fine that one meter weighs only eight milligram mes. The gold film of this wire is now only '00000125 of a millimeter thick. By placing a short piece of this wire in nitric acid, the silver core is dissolved out, leaving a tube of gold, having a wall only the 00000125 millimeter thick. Now under the best microscopes, we can discern a surface of 00025 millimeter in diameter, and 0000012 millimeter thick; yet each of these parts has all the physical and chemical properties of a large mass, as can be determined by testing it under a microscope.

Dr. Wollaston drew platinum wire so fine that its diameter was only 000833 millimeter (000033 of an inch): and although platinum is the heaviest of the metals, yet it took 200 meters of this wire to equal one centigramme in weight; or, in other words, one mile of this wire weighed about one grain. Dr. Wollaston accomplished this by wire drawing a cylinder of silver 2 of an inch in diameter, having in its axis a platinum wire 01 of an inch in diameter, and after having obtained a very fine wire-having in its interior a platinum wire of still greater tenuity-he dissolved with nitric acid the silver coating, and thus obtained an almost invisible platinum wire.

The thickness of a soap bubble, in the dark spot which is formed on it just before it bursts, is 00001 millimeter.

One grain of carmine tinges ten pounds of water, which we can divide into about 617,000 drops, If we suppose that 100 particles of carmine are requisite to produce a uniform tint in each drop, it follows that one grain of carmine has been divided into 62,000,000 parts.

The thread of a spider is composed of more than 1,000 separate threads.

The diameter of the red disks contained in human blood is .00025 of an inch; while the diameter of the blood disks of the Java musk-deer is only the .000081 of an inch, so that a drop of this deer's blood, such as would adhere to the point of a fine needle would contain 150,000,000 disks.

It has been calculated that some of the siliceous plates which cover and give rigidity to the minute vegetable cellplants called diatomaceæ, weigh only the 0000000005 of a grain yet the surfaces of these plates are covered with the most exquisite tracery of siliceous stria or bars, often not more than 0000117 of an inch in width and thickness. Now we can discern a surface of '000011% of an inch in the best microscopes, and a portion of one of these silicious disks of that area would weigh only about '0000000002222 of a grain.

A portion of musk will give off a powerful odor during a year, and yet its diminution in weight has not been sufficient to be detected by the most delicate balance.

"In order to offer an inexact idea of the minuteness of the particles of musk which are still capable of imparting some odor, we state, after a well known experimenting physiologist, that a certain liquid, containing as much of an extract of spirit of musk as '000000005 part of its whole weight, was at this time still distinctly odorous. A grain's weight of a liquid of which .0000005 part was of that extract, spread an intensely penetrating odor. Next after musk are to be mentioned certain flower ethers, especially the oil of roses, a little drop of which is sufficient to fill with odor an immense atmosphere. The same physiologist states that a certain space filled with air, of which, at the highest, only '000001 part was vapor of oil of roses, still diffused a distinct odor of roses."—Prof. Mayer.

## The Dust Bins

There is not one particle in the heap the scavenger removes from our houses that is not again, and that speedily, put into circulation and profitably employed. No sooner is the dust conveyed to the vard of the contractor than it is attacked by what are called the "hill women," who, sieve in hand, do mechanically what the savant does chemically in his laboratory, separate the mass, by a rude analysis, into its elements. The most valuable of these items are the waste pieces of coal, and what is termed the "breeze," or coal dust and half-burnt ashes. The amount of waste that goes on in London households in this item of coal can hardly be conceived, unless the spectator sees the quantity that is daily rescued in these yards. It may be measured by the fact that, after selling the larger pieces to the poor, the refuse "breeze" is sufficient to bake the bricks that are rebuilding Londón. Most of the dust contractors are builders as well, and the breeze is used by them for the purpose of imbedding the newly-made bricks into compact square stacks, which are seen everywhere in the suburbs of London. The breeze having been fired, the mass burns with a slow combustion, aided by the circulation of air, which is kept up by the method of stacking; and in the course of two or three weeks the London clay is converted into good building material. Thus our houses may be said to arise again from the refuse they have cast out, and not only are the bricks baked by their aid, but they are built in part with mortar made from the road scrapings, which is pounded granite, and combines very well with the lime and ashes of which the mortar is composed. Nay, even the composition with which some of the smaller houses are faced is very large-

## MANUFACTURING, MINING, AND BAILROAD ITEMS.

A locomotive designed for the use of the Mount Washington railway, which has been building for four months past, at Franklyn, N. H., is now ready for service. As illustrated on page 145, Vol X., SCIENTIFIC AMERICAN, this en gine, in ascending the mountain, is coupled to the rear end of the train, and pushes the cars before it. The boilers of the locomotive are upright, with five hundred square feet of heating surface; cylinders, ten inches in diame ter with sixteen inches stroke : total weight, about seven tuns.

The Nevada papers report that a turquoise mine has been discovered in the Columbus district, and that, in addition to its silver mines, their territory may lay claims to notice for its gem riches. The turquoise, although not strictly a precious stone, is greatly prized as a gem. It is quite hard, and is susceptible of taking a high polish. The choicest specimens are brought from Persia, and are of a sky blue and greenish color. The occidental turquoise, found in Siberia, Languedoc in France, and a few other places, is either dark, light, or greenish, blue, and is of organic origin consisting, probably, of colored teeth of antedeluvian animals. Little attention has yet been paid to this deposit in Nevada, but, judging from the fact that specimens varying insize form a small shot to an almond have been discovered, it is not improbable that a small amount of labor might be generously rewarded.

The rails on the Troy and Greenfield railroad are now laid to Charlemont station, and passenger trains will be running to the Hoosac tunnel, within the time limited by the contract, July 15, 1868. A White Mountain stage contractor has engaged to run a fast line of stages in connection with the railroads across the mountain, in one hour and forty minutes, and an express train will accomplish the whole distance from Boston to the Hudson river in from eight to ten hours.

Several engines, especially designed for running heavy express trains, have recently been put upon the Great Northern Rullway of England. These locomotives, drawing a train of twenty heavy English coaches, make the journey between King's Cross and Peterborough, a distance of seventy-seven miles, in one hour and twenty-eight minutes: averaging fifty five miles per hour, although contending with heavy gradients torty miles of the distance. One half this speed per hour is considered very fast traveling on our most level railroads.

The mineral produce of Mexico is remarkable, even when compared with that of the richest countries in the world. Her vast silver resources, however, are yet substatially in a state of embryo, the richest district probably in the republic-Sonora-being almost an unknown land. Mining is carried on in the crudest manner, the natives abandoning operations whenever the water level is reached, preferring the chances of discovering shallow deposits to the more laborious and undoubtedly more profitable explorations in deep mining. Time and experience will remedy this state of things, and another half century may find mining enterprise carried on with all the modern improvements and imported mechanical skill.

In 1829, but three miles of railway existed in the United States; to day, there are 38,500 miles, costing with their equipments and rolling stock \$1,700,-000,000. If extended in a straight line, the rails would go around the glo be more than once and a half times. The passenger cars, if placed in a row. would more than reach from Boston to New Orleans, and they annually carry about 145,000,000 passengers, or four times the entire population of the country, men, women, and children. At the average rate of building for the past thirty years, there are employed some 75,000; in the work of renewal. 145,000 more; and in operating our roads, 200,000 more; making a total of 420,000 men in the railroad business in the United States.

Fast freight cars have recently been transported from New Orleans to this city, a distance of 1,825 miles, in six days' running time. The trip was accomplished at a rate of speed never before attained, but which, with the increased facilities for freighting, and the improvements of the roads, it is expected will soon be greatly increased.

Lead has been found in more than five hundred localities in Missouri; the veins run through twenty counties, and intersect an area of more than 6,000 square miles. The average of assays of ore from all parts of the State, is seventy-five per cent of pure lead. Coal has been found underlying thirty counties of the State, the deposits amounting in the argregate to 26,887 square miles, with a mean thickness of eight feet. Dr. Litton thinks the iron  $mountains \, of \, Missouri \, contain \, enough \, metal \, above \, surface \, to \, afford \, an \, annual$ supply of 1,000,000 tuns for two hundred years. The ore is almost exclusively ecular, and yields 56 per cent of pure iron, strong, tough, and fibrous. Zinc is very abundant, thousands of tuns being annually thrown away by the miners as a vexatious and worthless impediment to their progress. Copper has been found in fifteen counties, but very little attention has been paid to the zinc or copper deposits, because of the large profits derivable from the working of lead and iron mines. These wonderful facts we gather from a pamphlet on the "Resources of Missouri," just issued by Mr. Sylvester Waterhouse, of St. Louis.

### American and Loreign Latents. **Becent**

Under this heading we shall publish weekly notes of some of the more provi nent home and foreign patents.

RING.-Alexander Goodhart, Newvill, Pa.-This invention is a neat and substantial ring or link which can be used in place of a hook for connecting two chains, and, when in place, will present the appearance of a common link.

PROCESS FOR TANNING HIDES AND SKINS .- F. J. Burcham, Racine, Wis .-The nature of this invention relates to an improved process for tanning hides and skins, which cannot be readily described in brief.

TAYLOR'S T SQUARE .- Daniel Tierney, New York city .- This invention relates to an instrument which is designed to facilitate the drawing of designs apon cloth in obedience to actual or computed measurements.

PRESS.-B. S. Norris, Ripley, Ohio.-This invention consists in providing, in a suitable frame, a vertical presser, which is worked in a downward direction by a ratchet on the same, and a pawl on a lever, which is worked by hand, a spring-holding pawl is also provided for preventing it from sliding backward, and a weight for balancing the same.

WINDING AND SETTING APPARATUS FOR WATCHES.-Louis Victor Piguet. New York city.-This invention relates to a pendant winder and setter, and consists in the use of a key which fits through the pendant, and which has at its inner end a hooked crownwheel that gears into a pinion fitted in the movement; the latter pinion gears into two other toothed pinions, of which one is mounted on a swinging bar, and gears into the barrel ratchet.

ICE CALK.-G. W. Farley, Manchester, N. H.-This invention relates to an improvement in the construction of an ice calk or creeper, and consists in attaching to the device a button provided with a spiral spring, or its equivalent, for holding the button and preventing it from turning when the calk device is in place on the heel of a boot or shoe.

natural heat. I returned home, took the tooth out and again replaced it myself; it remained there until the year 1866, when it became so loose that it was an annovance to me when eating, and I extracted it. The above are facts.

C. E. WHITMORE.

New Orleans, La.

Use of Old Files.

MESSRS. EDITORS :- In Vol. XVII., No. 20, page 313, is an article on files and the uses to which old files may be put. Allow me to give some of my experience. I am a machinist but I do mostly brass work ; a great many of my tools I make out of old files. My mode of working is as follows · The files must be first annealed from end to end, then they are heated to a very low red heat, then hammered briskly; this flattens the teeth to a thin scale, which each successive heating will cause to peel off. This must be repeated until the file marks are obliterated, when the file can be worked like ordinary steel. By this method I am able to make thin springs from old files and I venture to say you will hardly find a flaw. Iy adulterated with this particular refuse.-Quarterly Review.

LATHE FOR TURNING WOOD.-A. J. Van Ornum, Hartford, Vt -This invention consists in providing a sliding sleeve on the mandres of the lathe, having a square socket in one end, which, in combination with the spurs in the end of the mandrel, serve to hold the shaft of wood while it is being turned from the other end by the sliding tool of ordinary construction, until the said tool comes in contact with the end of the said sleeve, when the latter will be shoved back by the tool, whereby the whole length of the shaft may be turned.

PLOW.-John Koffend, Appleton, Wis.-This invention has for its object to furnish an improved attachment for plows, by means of which the landside of the plow may be adjusted to cause the plow to run deeper or shallower according to the character of the soil to be plowed, and which shall at the same time be simple in construction, cheap, easily adjusted, and readily ap plied to any plow, whether new or old.

AGRICULTURAL STEAM BOILER .- Louis S. Robbins, New York city .- This invention relates to improvements in boilers which are used for agricultural purposes, as for steaming and boiling feed for cattle, horses, or other live stock, heating water, and generating steam for other purposes.

FRUIT CAN.-John R. Williamson, Bethlehem, N. J.-This invention relates to a device for holding down the cover of a fruit can and consists of a cam working in grooves in the sides of the can, and provided with a lever by means of which it can be operated. The grooves in the sides of the can are semi-annular, so that the can can be inserted from either side and applied on either side of the cover.

MITERING MACHINE.—John J. Sanders, Jr., New York city.—This invention relates to a machine for mitering moldings and other articles, and consists in a new manner of combining planing knives with circular saws, so that the edges of the moldings which are being sawed may, at the same time and by the same instrument, be planed.

POTATO DIGGER.—John W. Burnham and Wilson Coulon, Middletown Point, N. J.—This invention relates to a potato digger which is so arranged that the scoop may be placed at any desired angle, and may be raised and lowered at will, inpependent of the irame to which the lower roller, holding the endless apron, is secured, although the latter frame may also also be raised or lowered at will.

PIPE WRENCH.—Nardo F. Loi, New York city.—This invention relates to a wrench which is so arranged that it can be adapted for clamping all sizes of pipe, from the smallest to the largest, and also for clamping plates or other articles of suitable shape. It is infact a universal wrench, useful in every machine shop, and wherever wrenches are required.

UNIVERSAL HOLDER FOR CARVING MACHINES.—Isaac Hall, New York city. —This invention has for its object to furnish an improved holder for holding the pattern and work for carving machines, designed especially to be used with the improved carving machine patented by the same inventor March 10, 1868, and numbered 75,413, but equally applicable for use with other machines for similar purposes.

AIR-CHAMBERED SHIPPING CASE.—Moses H. Nichols, Hancock, N. Y.—This invention has for its object to furnish an improved shipping case, designed especially for shipping butter and honey, but which may be used with equal advantage for other similar articles.

CONSTRUCTION OF QUILTED SHOES, SLIPPERS, ETC.—Marie L. Hill,NewYork city.—This invention relates to a manner of constructing quilted shoes, boots, and slippers, and consists in arranging between the filling and outer covering of the quiting a layer of flannel or other suitable materal, of the same color as the outer covering. The object of the invention is to produce a shoe which, after the outer covering is worn at some places, will still appear whole, and will not be made useless by the exposing of the generally white filling.

BRICE MACHINE.—John S. Wood, Hartford, Conn.—This invention relates to certain improvements in brick machines, by means of which the pressure upon the clay in the molds can be regulated at will, by means of which the machine can be interrupted at once, whenever desired, without, stopping the motion of the main driving shaft, whereby the 'grate will be enabled to yield to stones or other obstacles that may project from the molds, and whereby the gate in front of the mold box will also be aucomatically raised by such obstructions.

WATER WHEEL.—Patented May 5, 1868. Alonzo J. Hall, Derry, N. H.—This invention consists of an inner reacting wheel acting in conjunction with an outer wheel, together with a governor and valve for regulating the quantity and force of water. The inner wheel is constructed with four arms, through which the water is conducted to the outer wheel, where the water issuing from each arm impinges against two of the floats at once, and at such an angle as to produce greater effect than if the whole volume of water were directed againstone float at a time. The outer wheel is supported upon a body of water, whereby the friction is greatly reduced, and at the same time the water acts as a lubricant to the bearing surfaces.

HAY FORK.—M. H. Pope, Susquehanna Depot, Pa.—This invention consists of the arrangement and operating devices of the lifting tines, which latter are thrust out horizontally from the main shank and case containing it, through suitable slots.

GAS REGULATOR.-S. F. Mathews, Mechanicsburgh, Pa.-The object of this nvention is to provide means for governing and controlling the flow of gas from the main pipe in a house before it is distributed to the burners, and it consists in arranging an adjustable thimble on the end of a gas-pipe nipple, the position of which thimble is regulated by the pressure of the gas, and determines the quantity which is allowed to pass through to the burners.

WINDMILL.—Hiram M. Shaw and Geo. G. Tindall, Fremont, Ohio.—This invention consists in an arrangement for pumping or raising water by the power of the wind, and in controlling that power by the weight of the water so raised, whereby many advantages not hitherto secured by the application of such power are obtained.

GLOBE AND CHECK VALVE.—John B. T. Van Patten, Sing Sing, N. Y.—This invention relates to an improvement in globe valves, whereby they are made to operate as check valves.

WOOD CLEAVER.—John Van Winkle, New York city.—This invention relates to an improvement in implements used for splitting the wood used in cities and other places for kindling fires, and for other purposes.

BROOM HOLDER.—F. B. Batchelder, Prairie du Chien, Wis.—The object of this invention is to furnish a cheap and convenient articleforholding brooms, mops, brushes, and other articles of a similar nature, and for household or other purposes.

SAFETY VALVE.—F. Harden, Conshokocken Pa.—This invention relates to an improvement in safety valves, whereby they are made much more sensitive and sure in their operation than those hitherto in use.

BRICK MACHINE.—Lewis M. Vansickle, Woodbridge, N. Y.—This invention relates to a machine for molding and pressing brick, tile, etc., and it consists in a new and improved construction of the soraper of the mud mill, whereby the scrapers are rendered less liable to break than; those of ordinary construction. It consists in a peculiar mechanism for molding, pressing, and discharging the brieks, whereby said work may berapidly performed, and in a perfect manner.

SEEDING MACHINE.—E. P. Harris, Conneautville, Pa.—This invention reates to a machine for sowing seed of various kinds, and may be adapted for planting potatoes. It consists in a peculiar construction of certain parts, whereby an exceedingly simple and efficient device for the purpose specified is obtained.

HAND AND BENCH DEILL.—Charles G. Miller, Brattleboro, Vt.—This invention relates to a hand and bench drill, and consists of a peculiar construction and arrangement of parts, whereby an exceedingly convenient and desirable article for the purpose specified is obtained.

SAWING MACHINE.—James R. Logan, Rolla, Mo.—This invention relates to improvements on cross-cut sawing machines, and is more especially designed to be applied to a mackine of that kind for which Letters Patent were grant-

CONVERTING CAST IRON INTO WROUGHT OR MALLEABLE IRON.—Alexander Lisk, Philadelphia, Pa., and Adam Woolever, Allentown, Pa.—This process consists in commingling with melted cast iron certain chemical substances, which, being decomposed by the intense heat of the iron, produces the requisite chemical change and quality in the latter which is known as malleable or wrought iron.

COOKING STOVE.-B. Newbury, Coxsackie, N. Y.-This invention has for its object to improve the construction of cooking stoves so as to make them more convenient in use.

ANIMAL TRAP.-John C. McClamrock, Edina, Mo.-This invention has for its object to furnish an improved self-setting animal trap, which shall be simple in construction, durable and reliable, which will require little attention, and with which any desired number of animals may be caught without the trap being visited.

FOLDING STOOL.-W.E. Cameron, Green Island, N. Y.-This invention has for its object to furnish an improved folding; portable stool, so constructed and arranged that it may be folded into a very neat and compact form for storage or transportation.

BILL POSTER.—A. H. Fatzinger, Washington, N. J.—This invention relates to a device for securing bills in position or holding them against a wall or other fixture. The invention consists of a series of clips, of peculiar construction, attached to a cleat which is nailed or secured to the wall or other fixture, so that the upper end of the bill may bereadily inserted in the clips and retained or held thereby.

GRATE BAR.—Henry King, Waterbury, Conn.—This invention relates to a method of constructing the grate bars of furnaces, fire boxes, etc., whereby air is more freely admitted to the burning fuel.

TAPE BOX.—A. J. Fellows, Meriden, Conn.—This invention relates to the catch by means of which the drum of the box having the tape wound arour d it, is held or released, as may be desired.

GAS APPARATUS.—James McCleish, New York city.—This invention relates to a gas apparatus for lighting steamboats, railway cars, and other conveyances and movable structures. The object of the invention is to obtain a means for the purpose specified, which will be compact, so as not to monopolize much space, efficient in its operation, and, especially as regards pressure, simple in construction, and not liable to become deranged by use.

SUBCINGLE.—Stephen Hyde, New York city.—The object of this invention is to provide a surcingle or girth for horses, which will yield sufficiently when the animal breathes, or lies down, or exerts himseli in any unusual manner. It consists in the inter position of two rubber straps or joints on each side of the buckle, these joints being sewed to the ends of the girth or surcingle and to the buckle strap. The tongue strap is sewn to the other rubber joint in the same manner, and the joints are inclosed in \_leather sheathes for protection.

## Answers to Correspondents.

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- CORRESPONDENTS who expect to receive answers to their letters must, in all cases, sign their names. We have a right to know those who seek in formation from us; besides, as sometimes happens, we may prefer to address the correspondent by mail.
- SPECIAL NOTE—This column is designed for the general interest and instruction of our readers, not for gratuitous replies to questions of a purely business or personal nature. We will publish such inquiries, however, when paid for as advertisemets at \$100 a line, under the head of "Lusiness and Personal."
- E All reference to back numbers should be by volume and page.
- G. W. A., of Mass.—Excellent emery wheels which may be used with water, as are grindstones, are made by dissolving gum shellac in alcohol, mixing the emery with it and pouring and pressing in molds. Good wheels may also be made by a mixture of glue. dissolved, and i emery, treated in a similar manner. Ordinary wheels are made by covering the periphery of a wooden disk, suitably secured to a mandrel, with folds of woolen or Canton flannel, and covering the whole with leather or strong cloth. Upon this is placed a coating of emery secured by glue.

P. B. C., of Ind.—For car or other axles plumbago—blacklead-mixed with the oil prevents heating and insures smoothness of rota-

J. E., of Mass.—This correspondent is entirely mistaken in supposing that we ridicule what are called spiritual manifestations. But before we open our columns to the discussion of this subject we wish to see some evidence that it may be 'made useful,' as our correspondent seems to think. We are always ready to advocate and present the useful, but not to devote the columns of our paper to discussions annoying to most and valuable to none of our readers.

W. P. H., of Mass., asks "why are the cones of fly frames convex and concave? Some contend that straight cones will produce the same result, which is not correct. I think the necessity for this form is because of the position the belt is inclined to occupy, in changing places on the cones." We were not aware that cones were so made, but if so it is evident the concave coneshould be the driver and the convex the driven , as a belt will always seek the highest place on the pulley face, as is well known.

S. A. M., Jr., of Pa.—" Can you give me the titles of works or papers on aluminum?" We cannot. Better refer to D. Van Nostrand, corner of John street and Broadway, New York city, or to H.C. Baird, 406 Walnut street, Philadelphia.

E. H. C., of Iowa.—Kalsomining is simply a species of distemper painting, the ingredients being whiting, glue, and water, with such colors added as will give the required tint, if any but pure white is desired.

J. H. M., of L. I.—" Is there more power gained by a long belt than a short one? What shall I put on leather belts to keep them soft? What is the best work on stationary engines?" A long belt adheres with more force to the face of a pulley than a short one because of its superior weight. As long belts may be run slacker than short belts, millwrights and mechanics prefer a considerable distance between shafts driven by belts running from one to the other. Neatsfoot oil is the best softener and preserver of leather belts with which we are acquainted. "Bourne on the Steam Engine," and "Bourne's Catechism" are among the best treatises on the subject. Castor oil is perhaps the best oil for greasing belting; see Vol. X.V., p. 357.

J. K. P., of Miss., asks what is the best water wheel for a small stream, one that will give the most power, suitable for a corn mill. He says, "I have a small stream that will afford a body of water only three feet wide, and three inches deep, with six text fall; what is its power with the best wheel, and what the cost of the wheel?" The proper persons to refer to in regard to power and cost of wheels are our advertisers. H. C. Baird, Walnut street, Philadelphia, will furnish you with the latest edition of Pallett's "Miller and Millwright'" and D. Appleton & Co., New York city, will furnish their encyclopedia.

J. R. N., of Pa.—That your fruit did not keep in glass jars with "thin corks" as well as in tin cans with "tin covers" is very natural. Sealing with wax even does not make a cork proof against the penetration of oxygen when it is dry; therefore whice bottles must lay down and a champagne or beer bottle kept in a position that the cork remains dry, they will surely be spoiled in a week even with the best style of corking. For iruit even the inversion will not do, as all air must be prevented from coming in contact with the liquid even in the pores of a cork.

W. H. G.—Tobacco ashes would be good for manuring soil where tobacco grows, only they cannot be obtained in sufficient quantity; they are also recommended for tooth powder, and sometimes contain small quantities of the rarer new metals, rubidium and cæsium. We have in our possession a bottle with pure white salt, crystallized out of a lye made from tobacco ashes sent us by a correspondent. However we do not now any use for it.

H. M., of S. C., sends us a few algebraical problems with the answers and partial solutions, and states that he will "disclose them in full, for an adequate remuneration;" we do not feel inclined to pay a man for solving his own puzzles.

S. S., of Ind.—Lemon juice may be preserved by making an almost saturated solution with sugar; likewise all other extracts of truits. It is, in fact, the way by which all the flavoring sirups for soda water are preserved. Flavoring extracts are preserved by the addition of a small quantity of alcohol.

W.C.W., of Ala —Rubber coming in contact with fruit in airtight preserving jars may in some cases communicate its peculiar odor to the fruit; the fruit will set less on the rubber, but it must be kept in view that all soft rubber in the course of time (some years) always becomes rotten, infact oxidizes by atmospheric influences.

P. C. D., of Pa.—The latent heat of vapors of different liquids has been determined by Andrews, Despretz, Favre, and Silberman. (See Quart. Jour. Chem. Soc., Vol. 1, p. 27). Brix found that for water, alcohol, ether, and turpentine, the latent heat of the vapors was for equal weights respectively 1000, 420, 194, and 167, and the specific gravity of these vapors is as 0.45, 1.26, 2.28, and 3.2, the latent heat ior equal volumes therefore is 600, 635, 509, and 500. Alcohol therefore contains the greatest amount, and ether the least amount of heat for equal volumes, of course under the ordinary atmospheric pressure. (The boiling points are 212°, 172°, 95°, and 315° respectively.) For all these reasons vapor of ether is theoretically the most economical and several years ago a large ether engine was built and experimented with at the Novelty Works, New York city; practical difficulties, however, caused the utter abondonment of this principle.

T. W. B., of Ky.—A very good white soft metal that may be rolled into sheets is that used for the plates music is engraved upon, and may serve your purpose; it is analloy of block tin with 10 per cent of antimony.

## Lusiness and Zersonal.

The charge for insertion under this head is one dollar a line.

For breech-loading shot guns address C. Parker, Meriden, Ct. For Improved Lathe Dogs and Machinists' Clamps, address, for Circular, C. W. Le Count, South Norwalk, Conn.

Brick Machine.—Lafler's New Iron Clad has more advantages than any other ever invented. For descriptive circular address J. A. Lafler & Co., Albion, Orleans county, N. Y.

Wickersham's American oil feeder-the best and will lead. For proof, see advertisement.

See Wheeler & Wilson's buttonhole attachment, minking one hundred buttenholes an hour. The desideratum for families, dressmakers, and manufacturers. No. 625 Broadway, New York.

Mill-stone dressing diamond machine, simple, effective, and durable. Also, Glaziers' diamonds, and for all mechanical purposes. Send stamp for circular. John Dickinson, 64 Nassau st., New York.

Funston's electric toy.—See advertisement.

Wanted--the address of plow makers everywhere. Address J. E. Jinkins, Milton, Fla.

Wanted--a practical brass cock maker--to conduct and take an interest in the brass finishing business. One that can furnish from \$1500 \$2000. Good reference required. For full particulars address postoffice box 446, Richmond, Va.

Wanted-Wood-working machinery. Illustrated priced lists of wood-working machinery, such as for making buckets, chairs, bedsteads, etc. Also, spoke and hub lathes, and bending fellies, shafts, plow handles, etc. And a steam engine, with and without boiler, about 12-in dim. and 30 in. stroke, and a muley saw mill. Address A. B., Columbus, Ga.

Employment for all at \$5 50 to \$8 75 per day. Send two stamps to P. & K., Box 2359, Cincinnati, Ohio.

Lubricators for valves and cylinders, Broughton's are far the best. Made by Broughton & Moore, 41 Center st. They make, also, the bes gage cocks.

Two valuable patents for sale—now in successful operation, and sold only to close an estate. Inquire of S. N. Muir, 123 Waverly Place New York.

All genuine Bartlett sewing machines are provided with a guarantee bearing the trade mark and signature of J. W. Bartlett, the pitentee, from the depot, 569 Broadway, New York. Beware of bogus ma chines and agents.

Winans' Boiler Powder (11 Wall st., N. Y.) A positively un injurious remedy for incrustations, 12 years' references. Beware of fraud s

## NEW PUBLICATIONS.

ATLANTIC MONTHLY. Ticknor & Field, Boston.

ed to this inventor Dec. 19th, 1865. It consists in a novel manner of applying the wheels, on which the machine is mounted to the axle thereof, whereby they may be adjusted in a plane parallel with the log, to ensure the ready adjustment of the saw to the log, after each cut. It also consists in an improved means for suspending the saw, or keeping it in an elevated state when the machine is not in use, or is being drawn from place to place.

CORN PLANTER.-W. R. Clark, Indianola, III.-This invention consists in certain devices which conduce to a more perfect and satisfactory operation in planting corn or other grain of similar character.

NECROSETEE.—Mary E. Mott, Rouses' Point, N.Y.—The object of this invention is to preserve a corpse from decomposition before burial. It consists of a rubber case or envelope for holding ice, and is provided with a discharge tube of the same material for conducting off the water as the ice is melted. It is filled with ice and laid upon the abdomen of the corpse, and a tube conducts the water from the sack into any suitable vessel.

Hosz.-Edwin M. Chaffer, Providence, R. I.-This invention consists in the employment of Grenoble hose as a means of sustaining the pressure of the water within the waterproof or inner hose. The two hose being cemented together by rubbery by a suitable process.

PLOW.—Gabriel Utley, Chapel Hill, N. C.—This invention has for its object to furnish an improved plow so constructed and arranged that the moldboard and point may both be detached from the plow when desired and so that the said parts may not be weakened by having bolt holes formed in hem.

J. P., Jr., of R. I.—We are not responsible for the published opinions of correspondents. The information you seek can undoubtedly be obtained by addressing the writer of the article to which you refer.

A. N. C., of Mass.—Rubber does not dissolve easily enough to give you a varnish by simply placing it in a bottle with the solvent. Ether is one of its regular solvents, but then it must be real ether and not the mixture of ether and alcohol which is sold for ether in many drug stores. It also must be pure rubber, and not the sulphur-vulcanized article; then this pure rubber must be cut into small pieces, soaked in the eth cr in a warm place for aboat twenty-four hours until they are swollen up, and then it must be kneaded in a mortar, In such a way rubber varnishes may be made and are made even with common benzine.

R., of Md.—Your method of covering glass with a crystallization of some salts of course is old, as you suggest. Salts of soda absorb too much the moisture and therefore will not last. Sulphace of zinc is better, to be dissolved in some gum water, which is as good or perhaps better than beer.

the masterly manner which characterizes most of the articles in that journal but the subjects lack the usual interest. Price \$4 a year; 35 cents for single numbers.



EXTENSION NOTICES.

Daniel Hailaday, of Batavia, 111., formerly of Ellington, Conn., having pe titioned for the extension of a patent granted to him the 29th day of Au gust, 1854, for an improvement in governor for wind mills, for seven year from the expiration of said patent, which takes place on the 29th day of August, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 10th day of August next.

Abner Whiteley, of Springfield, Ohio, having petitioned for the extension of a patent granted to him the 22d day of August, 1854, and reissued the 8th day of January, 1856, for an improvement in track clearers to grass har vesters, for seven years from the expiration of said patent, which takes place on the 22d day of August, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 10th day of August next.

Phillippine S. Brackenridge of Natrona, P.a, administratrix of the estate o Edward Steiren, deceased, having petitioned for the extension of a paten granted to the said Edward Steiren the 12th day of December, 1854, for an improvement in process of treating the mother-water of salines, for seven years from the expiration of said patent, which takes place on the 12th day of December, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 16th day of November next.

## [JUNE 13, 1868.

## Improved Hand Sawing Machine.

No labor is more exhaustive to the wind or requires more he has constructed a neat and portable machine, which, if it does not make wood sawing

a pleasure, greatly diminishes its labor.

The machine is a frame with a braced upright, to the top of which is pivoted a segmental swinging frame, holding between its lower ends a curved saw plate. The movement of the frame and its saw is like that of a pendulum, and it is produced by a handle attached to the wrist pin of a crank, which pin carries a sliding box traversing between vertical slides the length of which is equal to the full stroke of the crank. The shaft that carries the crank has on its other end a balance wheel to equalize the reciprocatory motion of the saw.

: In the engraving, A is the sliding box and handle, and B the balance wheel. The lever, C, is for elevating the saw and its appartenances by means of a sliding bar, D, traversing between two uprights. This lever is weighted at the end opposite the handle, C, by a weight that may be moved toward or from the center to act as a means of forcing the saw into the wood. The bar, E, with the toothed catch, F, is intended to hold the stick or log while being sawed.

This simple machine will saw wood much more rapidly and with less labor than the work can be performed by hand, and it is cheap and durable. It is the subject of a patent obtained through the Scientific American Patent Agency, dated Nov. 6, 1866, and an application for improvements is now pending. Further information may be obtained by addressing H. A. Daniels, at Thomaston, Conn.

## **Burying Alive.**

A method for determining when death has taken place without that of actual decomposition, which in very cold weather might be delayed for weeks, has always been a desideratum. The fear of being buried alive, which has undoubtedly occurred in many instances, has proved a source of anxiety to

ing friends. It is said that it has been recently discovered that if the skin of a deceased person is blistered, as by holding the flame of a candle against the body, when punctured the blister will give out only air, whereas if death has not taken place the flame causes inflammation and a watery serum will be deposited under the blister. It is claimed that this is a certain test when inability to feel the pulse, cold skin, no deposit of breath on glass, and other methods fail.

## Device for Replacing Cars on the Track.

Notwithstanding the frequent accidents from the displace ment of locomotives and cars from railways, the use of the

jack screw and frequently other less mechanical and still cruder means are employed to replace them. Even the former is not always carried on the train, and the latter demand the oversight of some well balanced and executive mind to make their use effectual. A portable and convenient device for remedying the annovances attending these almost unavoidable accidents seems to be really a desideratum. It would seem that the one repre, sented in the engraving accompanying this article was well fitted to answer this want.

The pieces to be used are only

On the other side of the road, or on the other rail is placed a curved plate, D, secured to the rail as the plate, A, is, monotonously muscular exertion than that of sawing wood  $\mid$  by a key or wedge, which assists the wheel of the car to for fuel by the old-fashioned buck saw. It may be excellent assume its normal and proper position. These comprise all exercise for those of sedentary habits and others of a dyspep. the appliances of this device. They are simple in constructic tendency, but we never heard of any one choosing the | tion, can be easily carried on any engine tender or street car, wood sawyer's as his vocation, however agreeable it may be and the pieces composing them can be readily handled by one to officiate as a "wood sawyer's clerk." The inventor of the man in case of accident. It will be seen that while the machine shown in the engraving evidently agrees with us, as | flanged incline, A, pilots the flange of one wheel to its posi- | we detected a bunch which occasioned some annoyance, as



DANIELS' PATENT WOOD SAWING MACHINE.

smooth incline, D. The device is as well adapted to street their clothing in the slightest degree. cars as to steam cars. It is recommended by Franklin Peal of the Baldwin Locomotive Works, Philadelphia, Robert H. Sayers of the Lehigh Valley Railroad Co., and other prominent engineers and railroad men.

It was patented through the Scientific American Patent Agency, April 14, 1868. Railroad companies and others desirous of purchasing rights may address B. K. Jamison, 301 Chestnut street, Philadelphia, Pa.

Vitality of Insects' Eggs.

The Troy Times says: "A gentleman who lives on Ida Hill

and dealers in paper will not hear of it with much surprise. The Cimex Lectularius or common bedbug is very tenacious of life, as all our neat housewives know. He will stand boiling water, oil, soap, and even some of our patent bug destroyers, and rather seems to enjoy his rough treatment, as we superior animals enjoy the rough usage of the Russian bath. But his embryo offspring seem to be still more tenacious of life. Some years ago, in writing on unprinted news paper,

> such an obstruction will to a writer, and opened it with the point of a pen, when a veritable cimex made his appearance, apparently as fresh as though he had just awaked from a long winter nap. Subsequently, under similar circumstances one fairly cut through his paper envelope and walked out before our eyes. In both cases the enveloping film of paper appeared to be whole, and we could not resist the conviction that the embryo had passed through all the stages of the paper manufacture-the sorting and washing of the rags, their grinding, steaming, pulping, manufacture into paper, calendering, and putting up for the market.

## A New Life Saving Invention.

Last summer public interest was excited in watching the success of two trans-Atlantic ex cursions undertaken by certain foolhardy individuals who were willing to stake their lives against a short-lived notoriety. It having been demonstrated that the ocean passage can be made in an ordinary sail boat, or raft, with a fair share of safety, we should not be surprised if some future adventurer desirous of creating a sensation and rendering himself famous in this line, should undertake a trip, or rather swim, to Europe, the feat being possible with the life-saving apparatus of Captain Stoner, exhibited in this harbor on the 27th ult. The apparatus, whose design is for service in case of shipwreck, consists of an indiarubber suit, in one piece and made large enough to put on over the ordinary clothing of the wearer. The buoyant power resides in a cork jacket worn inside the rubber suit. A covered framework fastened to the hands furnishes propelling or swimming device, and a light metallic case serves as a reservoir for provisions, holding enough food and water to last. for a month or more. The trial on Wednesday was under the auspices of the National Life Saving and Ship Ballasting Company, who chartered a government steamer for the occasion. Two persons dressed in this suit re-

persons 'during life and of sad conjecture to their surviv- | tion on the rail, the other is assisted to its place by the | mained in the water for nearly two hours without wetting

The apparatus is somewhat similar in construction, and for the same purpose, as an india-rubber suit with an air bag on the back, making the wearer when in the water, resemble a porpoise, which was exhibited by the inventor in our harbor several years ago, much to the amusement and consternation of great numbers of persons who gathered upon the docks to witness the exploits of the exhibitor. Similar apparatus has been experimented with on the Continent for a number of years, but we have never known of their useful application except for wrecking purposes.

> Petroleum in Parliament. The English journals notice the introduction of a bill into parliament imposing additional restrictions upon the sale and use of petroleum. The billwhich by this time has undoubtedly become a law-while serving as an amendment to what is known as the Petroleum Act of 1862, is still more stringent in its provisions, and virtually puts an end to the sale of all lamps using the light hydrocarbons, and also the various styles of portable illuminatinggas machines which have proved themselves of great service in



three in number, and are not so heavy but that either of them can be readily carried by one man. They consist of a grooved plate-A, with side projecting flanges to slip over the rail and to be held in place by means of wedges, or keys, B, fitting between the flanges of the plate and the web of the rail. This plate has a gradually opening or expanding groove, guarded on each side by flanges. It is so constructed

JAMISON'S CAR REPLACER.

that from the forward end it declines to the road way, form- | informs us that ten years ago he bought a piece of enameled | " patent non-explosive oils " will not find much encourageing an easy incline for the wheels of a car. To further assist the car in its progress to the track, a bar, C, is used, one end of which fits in a proper socket in the plate, A, and the other end of which is curved so as to fit either one track or the other, as the run-off cars may be. It can be easily reas ever." versed so as to suit either contingency.

cloth for a table cover, on which there was at that time and ment for driving a very extensive trade in England. has been ever since a small knot or bunch, apparently in the THE French towns of Narbonne and Passy, near Paris, have make of the cloth. A day or two since a child of his scraped the bunch with a knife, when out crawled a bedbug, as lively been lighted at night, for several years past, by illuminating gas made by passing the vapor of water over incandescent

This case may be a remarkable one, but newspaper men coal.

many localities in this country, but of whose value, it seems, the Britons are never to be acquaint. ed. The test for lawful petroleum is placed, by this bill, at one hundred and ten degrees Fah., the commercial test for kerosene in this country, and any person selling, or exposing for sale, oils giving off inflammable vapors below that point, is subjected to a fine of five pounds sterling. Venders of



### NO LIMIT TO INVENTIO

That the mechanical arts have reached a very advanced stage of improvement, as compared with their status in me dieval ages, cannot be denied. How far modern civilization dependent upon progress in those arts, exceeds that of a more ancient period, is a difficult question to answer satisfactorily. The remains of Egyptian, Roman, and Greek architecture, to gether with such knowledge as can be gathered from a few Latin and Greek writers, and the discoveries recently made in the excavations among the ruins of Herculaneum, indicate that in many things the ancients were not inferior to us of the present day, while in others they probably possessed knowledge that was superior to that at present possessed upon the same subjects. The arts of stone cutting, fresco painting, and sculpture, the mathematics, and speculative philosophy, were cultivated by them with great success Could the books and manuscripts lost in the wanton destruction of the Alexandrian library be restored, there is no doubt that many mathematical theorems and mechanical devices, considered as belonging to the present age, would be found to have their prototypes in the ages whose records were lost in that ever to be lamented conflagration.

However, it may not only be fairly presumed that we have regained the greater portion of the art knowledge of the past, but that we have explored vast fields of knowledge, the very existence of which was not even suspected by the ancients. As progress in the sciences has been made, the scope of mechanical invention has been also enlarged, until the number and variety of machines which have been produced, and applications of substances discovered in chemical research to the supplying of the necessities and luxuries of mankind, are beyond computation.

The questions naturally arise, how much further the inventive powers of the human mind can find scope; whether there is not a limit to progress in mechanical construction; or if not limited by want of materials, or subjects upon which to operate, whether the constant increase of labor saving machinery, and the increasing supply of fabrics, will not at last reach a point where the wants of the human race will be so fully supplied that demand will cease, and thus, the necessary stimulus to further attempts at improvement no longer existing, the epoch of invention will not forever terminate. The discussion of these questions forms the subject of the present article.

The development of new resources is constant and increasing. Chemical research is being almost daily rewarded by important discoveries which add to the already vast resources washed and then compressed until dry. It is then exposed to

That these deficiencies will be supplied we have not the slightest doubt, and their discovery will commence a new era in hydraulics, aerostatics, photography, and the construction of electro-motive engines. But could all such requirements be placed at once within our reach, we should find that in their utilization new and hitherto unsuspected necessities would arise for other materials and processes, which would in their turn become objects of research for the chemist or the metallurgist. Such discoveries would give rise to numerous inventions developed by the same gradual march of improvement that has characterized the history of the steam engine, navigation, and other departments of mechanical engineering.

Nor is it probable that the wants of the human race will ever be so completely supplied that demand for improvement will cease. Man, in a state of barbarism, has but few wants except those possesses in common with the animal creation. As he advances in the scale of civilization his wants increase in a far greater ratio than his progress. He is no longer an animal, satisfied with sufficient food, and warmth, and rest his mind and affections begin to assert themselves, and to not only modify those wants which are purely physical, but to create new ones. Even if man could for a space find his every desire completely satisfied, the craving for variety, which is an attribute of the human intellect, would create new desires, and novelties in dress, in food, in amusements, would become not certainly essentials to his existence, but most surely they would be necessary to a refined and cultivated existence. "The eye is never satisfied with seeing, nor the ear with hearing ;" and this universal truth is a sufficient guarantee that while skill can supply it shall always find a demand for its

## WIND WHEELS ... SOME OF THEIR ADAPTATIONS.

It is somewhat surprising that while in other countries the wind mill, or wind wheel, is extensively employed to save the labor of man and beast and the eating expenses of the steam engine, there are so few of them used in this country as stationary motors. No one, not even those who make its manufacture or sale a specialty, pretend that it can supersede either the steam engine or water wheel; but they claim, not without reason, that where neither of the others are available, or where the expense of their establishment and care precludes their employment, the wind wheel may be econom ically used. Our western prairies afford no water powers, and as they are not overburdened with fuel, the use of the steam engine is almost interdicted. In this respect parts of Holland and Belgium resemble these portions of our own country, as they are level and not wooded, but the wind mill is a prominent feature in the landscape. It is so also in other parts of Europe.

The wind wheel is not well adapted to such mechanical work as requires a steady, uniform motion, owing to the variable and unreliable character of the power; although it has been and still is employed to run the stones for grist mills. But for some of the services needed on the farm, especially for pumping water for cattle and for household use, it seems to be admirably adapted. It would appear, also, that while the wind wheel can elevate water for domestic or irrigating purposes, or for the draining of mines, it might be employed to produce a reservoir of that fluid to be used on a small turbine or water motor, to give motion to a sewing or knitting machine, a loom, or churn, and for various other purposes that will readily suggest themselves. Its first cost is light and its after management requires but little care.

## ROUGE---ITS COMPOSITION AND USES.

In the mechanical arts rouge is used for polishing purpose It is entirely different from the cosmetic known by the same name, which is a vegetable preparation and used only for the complexion. But the rouge used by machinists, watchmakers, and jewelers is wholly a mineral substance. In its preparation crystals of sulphate of iron, commonly known as copperas, are heated in iron pots, by which the sulphuric acid is expelled and the oxide of iron remains. Those portions least calcined, when ground, are used for polishing gold and silver. These are of a bright crimson color. The darker and more calcined portions are known as crocus and are used for polishing brass and steel. For the finishing process of the specula of telescopes, usually made of iron for large in struments-although lately cast of steel-crocus is invaluable; it gives a splendid polish. Lord Rosse prefers for the production of rouge the peroxide of iron precipitated by washed and then compressed until dry. It is then exposed to

a platinum wire connecting with the mercury in the bulb. Through the other end of the tube is inserted another platinum wire capable of being elevated or depressed. These two wires are in connection with the poles of a battery, and in the circuit is an electro-magnet whose armature controls the opening or closing of a valve for the admission of hot air. If it is desirable that the temperature of the air should not rise above sixty degrees Fah., the free end of the movable wire is brought to the required number on the tube. When the heat is such as to cause the mercury to rise to that degree, the electrc circuit is completed, the armature closes the hot-air valve until the temperature is diminished, when the circuit is broken, and the valve again opened.

## To the Disciples of Icarus.

From the number of letters received elaborating various plans for navigating the air, we are aware that there is a large class of our readers who are intensely interested in aeronautics, and for their benefit we announce the prizes to be awarded by the English Aeronautic Society at their approaching exhibition in the London Crystal Palace:

For the best form of kite or other aerial contrivance for establishing communication between ship and shore in the case of a wreck, or between two vessels at sea, \$250.

For a machine whatever may be its motive power, which shall sustain itself in the air at a hight not less than ten feet from the ground for a period of twenty minutes, \$250.

For an apparatus (not a kite or a balloon) that shall ascend with a man to the hight of 120 feet, \$500.

For the lightest engine in proportion to its power, whatever the power may be, \$250

Competition is free for citizens of every nationally, and let our boasted ingenuity display itself to the amazement and gratification of our British cousins.

## Meteors and Comets.

Professor Pepper, in his Lenten Lectures on "physical astronomy," at the London Royal Polytechnic, stated that fourteen years ago, Dr. Bedford discovered the relation between meteor and comet, and announced their actual identity; that at the time, and long since, it was regarded as mere theory; but within the last two years astronomers have proved tho truth of Dr. Bedford's discovery, which was made by a careful comparison of recorded phenomena from the earliest times. The Professor said that it had been proved by five mathematical elements of the orbits of five several councts and meteors, and that the discovery is regarded as one of the grandest additions to astronomical science; and stated that Dr. Bedford has propounded entirely new theories of astronomy, which are most profound and very interesting, and well worthy of being studied.

## A NEW TELEGRAPH PATENT FOR OLD INVENTIONS.

In March last an act was passed by Congress and approved by the President authorizing the issue to Charles Grafton Page of Letters Patent for alleged inventions in the science of electro-telegraphing, the position of Prof. Page as Examiner in the Patent Office disqualifying him from either taking out a patent or acquiring any interest therein without special legislation. Prof. Page died on the 5th instant, but prior to his decease, under the pretended authority of this law, a patent was granted to him which virtually hands over to his representatives the whole control of American telegraphy, entirely ignoring the claims of other recognized inventors, and taking from the public, rights they have enjoyed for years by the expiration of former patents. The heirs of Prof. Page now step in and insist upon securing to themselves the profits promised by this singular law.

The direct claim of Professor Page, as set forth in the law, was for the invention of the induction-coil apparatus known among telegraphers as the Ruhmkorff coil; but the patent covers much more than this. It embraces the "employment of one electro-magnetic instrument to open and close the circuit of another electro-magnetic instrument, using either one battery for both or separate batteries for each," which is, in fact, the famous "local circuit" years ago patented to Prof. Morse; the "combination of an automatic or mechanical circuit breaker with either a primary coil alone or a primary and secondary coil combined," invented and patented by Royal E. House ; the "employment of separate and independent batteries to operate an electro-magnetic circuit breaker and the circuit which is broken by it," which is the famous "repeater" patented by Mr. Hicks; and, indeed, covers all automatic closers, repeaters, local circuits, and all points of value known in the electro-telegraph business.

The bill and the patent founded upon it are outrageous impositions upon the public, and will not for a moment stand the test of the courts. It is singular that Prof. Page's name should never have been known and associated with these important inventions, and that as Examiner of Patents for many years he should have passed favorably upon the claims of those who have secured patents for these very discoveries, which he afterward claimed to have originated with himself. The Morse and House patents have expired long since, and by limitation of law their inventions have for years been public property. The Hicks patent has yet some years to run. The truth is, the bill bears upon its face evidence of having been the work of lobby legislation, and the patent is glaringly absurd, unjust, and illegal. We understand that an effort is being made to induce some of the telegraph companies to buy up the pretended rights of Prof. Page's heirs ; but we advise them to keep their money in their pockets and to take no notice whatever of the claim. The passage of such a law shows how careless and stupid our legislators at Washington have become since the small amount of brains they possess

of materials available for mechanical purposes. To the ordinary observer, it might seem as though these resources were sufficient already; but to show the fallacy of such an opinion, we will state a few of the wants now seriously felt in the mechanical arts, and the supply of which would give a powerful impulse to invention:

A substance perfectly flexible, impermeable to fluids or gases under heavy pressure, and not acted upon chemically by ordinary substances in general domestic use, oils, liquors, etc. A substance which can be produced in large quantities at a cheap rate, of as low a specific gravity as the body of a goose-quill, and with equal strength, that shall be easily molded into required forms. A substance having, or capable of having imparted to it a surface as smooth as the surface of water at rest. A method of producing the galvanic current in large quantity, as cheaply as heat is obtained from the combustion of coal. We might enlarge the list greatly, but our object is simply to illustrate the fact, that extensive as the mechanical resources in material might seem to be at first glance, there are still many deficiencies to be supplied.

a low red heat and ground to powder.

To Deposit Copper, Silver, or Gold by the Electric Battery on Paper and other Fibrous Material.

The whole question is to make the paper a good conductor of electricity without coating it with a material which may peal off. One of the best methods is to take a solution of nitrate of silver, pour in liquid ammonia till the precipitate formed at first is entirely dissolved again, and place the paper, silk, or muslin for one or two hours in this solution. After taking it out and drying well, it is exposed to a current of hydrogen gas, by which operation the silver is reduced to a metallic state, and the material becomes so good a conductor of electricity that it may be electroplated with copper, silver, or gold in the usual manner.

## An Electrical Thermometer.

One of the most interesting adaptations of electro-magnetism is an English invention for making electricity in connection with a thermometer regulate the temperature of a room. An ordinary mercurial thermometer is provided with

they can now do is to repeal the act and take care that they are not hoodwinked into such absurd legislation in the future.-N. Y. Herald.

[In connection with this subject we present a letter written by Prof. Page, only a few months before his decease, to the editor of the London Scientific Review, in which he frankly in some cases tested them. Pepin, Savery, the Marquis of admits that priority of invention in respect to the circuit breaker belongs to Prof. McGauley.-EDS. SCI. AM.]

Prof. Page, of the United States Patent Office, in a pamphlet recently published on the history of the induction coil, shows clearly, by documentary and other evidence, that Ruhmkorff has no claim whatever to any merit in respect to the invention of the coil which bears his name. Not only were all the principles on which the action of the coil depends, discovered long before Ruhmkorff embodied them, but even the details of the apparatus had all been invented and described, and not only so, but a complete, nay, a more powerful apparatus, had been made and exhibited in Paris. This apparatus was constructed by an American, Mr. Ritchie, who modestly attributes its merits to the researches and discoveries of Faraday and others, who had made electro-magnetism their study. It was exhibited in Paris to many scientific men, and was actually taken to pieces by M. Ruhmkorff, an instrument maker, so that its construction might be thoroughly understood. A lew years afterward M. Ruhmkorff obtained the Imperial Prize of 50,000f. awarded by a commission of men eminent in science, to the author of the most important discovery concerning the applications of electricity. Among the members of this commission were gentlemen who had seen Mr. Ritchie's coil, but who found it convenient to forget it. The French journals awarded to Ruhmkorff all credit for the invention, and refused to publish explanations of the real facts of the case, forwarded to them from scientific gentlemen in America. Du Moncel. Ganot. and other French writers on the subject of this invention, though they were all fully conversant with the truth, and though some of them were present at the experiments with Ritchie's coil, and even at its dissection, have carefully ignored any apparatus of the kind as a competitor in merit with Ruhmkorff's.

In pleasing contrast to conduct like this, we turn to Professor Page's frank and honest acknowledgment of merit to those who had anticipated himself in some very valuable inventions relating to induction apparatus. Among the gentlemen credited with such inventions, the late Professor Mc-Gauley, who was so long connected with this journal, and whose recent death created so much and so well-merited sympathy among scientific men, is prominently mentioned. We remember that on several occasions Prof. McGauley mentioned in his modest, unassuming way, that he had invented what was called the Ruhmkorff coil, but we never had an opportunity of ascertaining the details of his claim. Now, some months after his death, information comes to us across the Atlantic, which connects his name with the history of induction apparatus, for it appears from the evidence furnished by Professor Page, that Professor McGauley was the first to invent and apply the automatic contact breaker, the type of all now employed in such apparatus. A coil fitted with such a contact-breaker, was exhibited by Prof. McGauley, at the meeting of the British Association in 1837, and a description of it was published in 1838, among the proceedings of that body. It appears that Prof. Page, who was himself engaged in working out induction apparatus, independently invented a similar but more complete contact-breaking appara tus early in 1838, having had no information as to McGauley's invention. Yet Prof. Page, with the true modesty of science, frankly awards to Prof. McGauley all the honor of priority in this matter. Not only so, but having heard of that gentleman's death, and of the exertions made on behalf of his bereaved widow and children, he has written to Sir David Brewster, the chairman of the McGauley Memorial Relief Fund, the following letter, which we now publish, and which will be read with the melancholy interest attaching to all connected with the great name of him, now no more, to whom the letter was addressed :---

### UNITED STATES PATENT OFFICE, Feb. 6th, 1868

UNITED STATES PATENT OFFICE, Feb. 6th, 1868. DEAR SIR:--Noticing the death of Professor McGauley, mentioned in the Scientific Review, I take the liberty of sending you a book on induction I have recently published, in which I have had occasion to make honrable mention of his name, in connection with an invention of interest and Impor-tance, of which he was undoubtedly the originator. The hammer circuit-breaker, which has been so extensively used in connection with Induction Coils all the world over, has been in England, France, Germany, and Europe, generally a triouted to Dr. Neef, of Frankfort-ou-the-Main. In this country it has always been accredited to me, as 1 invented it at least six months in advance of its introduction by Dr. Neef. My Investigations, however, have traced it to Professor McGauley as the original author, and it appears to me somewhat singular that Dr. Golding Bird omitted to meation theorig mator's name when he brought the apparatus before the London Electrical Society. He simply said "it was not his own invention." It cost me a considerable server in ventor and discoverer his just dues, regardless of perional and na-tional considerations. If the discovery in his favor should be of according to every inventor and discoverer his just dues, regardless of perional and ma-tional considerations. If the discovery in the ele prond that my humb le efforts to do justice to a co-laborer in the cause of science ave met with such a toward.

### Lamiliarly Illustrated. Science

## First Attempts to Propel Vessels by Steam.

Before Fulton made his successful steam voyage on the Hudson others had conceived the idea, proposed plans, and Worcester, and Dr. John Allen, of London, all had proposed, prophesied, or tried steam navigation. The device of using wheels instead of oars, the propelling power being men or animals, is believed to have been employed by the Egyptians and Romans in their war galleys.

In 1737 Jonathan Hulls published a pamphlet describing a method of propelling a vessel by steam, for which he had secured a patent. He proposed placing the wheel at the stern, that being the proper place for it because water fowl pushed their web feet behind them. In 1786 Benjamin Franklin, and also Oliver Evans, suggested the action of steam upon a column of water, forcing it out of the boat at the stern on a line with the keel, the water having been received forward. This plan has many advocates at the present day, and a modification of it, but really the same in all essential respects, has latterly excited considerable attention in England.

About the same time this plan was tried by Mr. James Rumsey, of Sheppardstown, Va., who made a public experiment on the Potomac. His boat was about eighty feet long and was propelled by a steam engine working a vertical pump in the middle of the vessel, by which the water was drawn in at the bow and expelled through a horizontal trunk at the stern. She went at the rate of four miles an hour when loaded with three tuns in addition to the weight of her machinery, one third of a tun more. The whole machinery, including boiler, occupied a space but little over four feet square.

John Fitch, in 1786, made a number of experimental excursions on the Delaware with a boat propelled by paddles worked precisely as those of an Indian canoe. The following is Mr. Fitch's account of it : "The cylinder is to be horizontal, and the steam to work with equal force at each end. The mode by which we obtain what I term a vacuum is, it is believed, entirely new, as is also the method of letting the water into it, and throwing it off against the atmosphere without any friction. It is expected that the cylinder, which is of twelve inches diameter, will move a clear force of eleven or twelve hundred weight after the frictions are deducted this force is to be directed against a wheel of eighteen inches diameter. The piston moves about three feet, and each vibration of it gives the axis about forty evolutions. Each evolution of the axis moves twelve oars or paddles five and a half feet; they work perpendicularly, and are represented by the strokes of a paddle of a canoe. As six of the paddles are raised from the water, six more are entered, and the two sets of paddles make their strokes of about eleven feet in each evolution. The crank of the axis acts upon the paddles about one third of their length from their lower ends, on which part of the oar the whole force of the axis is applied. The engine is placed in the bottom of the boat about one third from the stern, and both the action and reaction turn the wheel the same way."

In 1796 Fitch moved a small boat on Collect Pond, in New York city, by means of a small engine and propeller screw projecting from the stern of the boat. This is probably the first employment of the screw for propulsion.

The Charlotte Dundas was built by Symington in 1801 and used to tow boats on the Forth and Clyde canal three and a half miles per hour. Its use was abandoned from a belief that the action of the wheels washed the banks.

Oliver Evan's dredging machine, built by order of the Board of Health of Philadelphia, being a flat scow with a small steam engine on board for working the mud-raising machinery, propelled itself one and a half miles on wheels to the Schuylkill, and then, by means of a stern paddle wheel, navigated the river to its junction with the Delaware.

We come now to Robert Fulton whose claim to have been the first to successfully introduce steam navigation as feasible and profitable cannot be successfully disputed, although steam for propelling vessels had been used before his first trial on the Seine and his subsequent triumphant demonstration on the Hudson. Reigart, the author of the "Life of Robert Fulton," justly says, "he never attempted to put in practice any improvements in mechanics without having made his calculations, drawn his plans, and executed his models. None of the projectors prior to him, whose claims have been set up to rival his, have left any traces of calculations, or even an account of the principles upon which their machines were contrived. They were among the multitude

York and Albany. From this time forth inland steam navigation was an established fact, and ocean navigation is only an extension of the same principle.

## Wages Before the War and Now.

Among all classes of workingmen in the city the subject of wages is attracting a great deal of attention. With the revival of business much complaint has been made that the pay of mechanics is inadequate for their support, since it has not kept pace with the increase in rents and other expenses of living. In order to show whether or not this is really the case, we present the following comparison between the wages and expenses of workingmen in 1861 and at present, compiled from accurate sources :



Other rates might also be given, but the above are sufficsent to show the general average. It will be seen that while in some trades wages have more than doubled, in others they have remained almost stationary. The pay of bakers, machinists, and boiler makers, for example, is almost the same as before the war; while that of masons, plasterers, and others, is nearly three times what it then was. In the mean time, the cost of living has advanced immensely. Clothes and provisions have doubled in price, and board and lodging also. Before the war, a single man could get board for \$2.50 to \$4 per week, where he would now have to pay \$5 to \$7. In more costly premises the increase is not so great, as some allowance is made for the greater security and regularity of pay. A floor now renting for \$16 per month, could have been leased in 1861 for \$12. The mechanics, also, who occupy these places, are those whose compensation has most largely advanced, and therefore they suffer less than their poorer paid associates. It is to be hoped that employers will take the whole subject of wages promptly into consideration, and that as soon as business is fairly under way, some general movement will be made toward equalizing the pay of workmen with the increase of their expenses.—N. Y. Sun.

## For the Scientific American. TWIN SCREWS.

The practice of propelling vessels by the combined action of two screws, placed one under each counter, has of late received considerable attention. Some of our monitors, and also a number of small vessels, have been fitted with this mode of propulsion, and in most cases the result has been satisfactory.

The twin screw possesses many advantages over the com mon screw. Steering is facilitated, as the rudder acts upon steadier water, and in cases where the rudder is damaged in such a way as to make it useless, the vessel is as capable as ever of continuing her voyage. So great is the power of the double screws, when working in opposite directions, that a vessel fitted with them is enabled to turn almost or quite within her own length. A great advantage is the recovery, in part, of the power expended by the screw in its centrifugal action upon the water. If two vessels be tied stern to stern, one propelled by a common screw, and the other by paddles, the screw vessel will in all cases tow the paddle vessel astern against the full power of her engines. This is explained by the fact that the screw, in its centrifugal action, heaps up a bank of water at the stern, which bank, acting against the vessel, pushes her forward. This shows that under certain conditions the power expended in raising the bank of water can in part be recovered. But when a screw vessel is going through the water at her usual rate, she runs away, as it were, from the bank of water at her stern, and its effects are but slightly felt. As fine pitches, and quick speeds of the propellers, are generally to be found in vessels having negative slip, it is natural that we should in part impute the existence of such slip to the centrifugal action of the propeller, for a fine pitch propeller acts so rapidly that the vessel is unable to run away from the wave.

From what I have stated, it is easy to see how part of the power of the screw lost by its centrifugal action, is recovered. Now, if this be the case, as it certainly is, the twin screw system is admirably adapted for the partial recovery of the power lost by the screw in this way. With a twin screw, the bank of water is raised forward, well under the counter, and is enabled to act with full force on the sloping surface of the run, and thus have a great effect in forcing the vessel forward. Great as the advantage is, it has one serious drawback, and that is, twin screw boats lack the power possessed by a common screw in backing. The only reason I can assign for this lies in the fact that the screw raises the same bank of water in backing as in going forward, and that this bank exerts a great force against the retrogressive motion of the ship. The water, as it is heaped up, meets the flare in the vessel's sides, which enables it to act against a more perpendicular surface. How much this disadvantage of twin screws is to influence their general adoption, remains to be seen. For many purposes, especially in light draft ships, the advantages of the double screw counterbalance the objections, and they are introduced with a good result. Many vessels, especially those not used for towing, are not called upon to exert a great force in backing, having only their own momentum to overcome. ENGINEER.

reward. With great respect and esteem, I am, very respectfully, yours, CHARLES G. PAGE, Sir David Brewster. Chief Examiner of Patents,

SINGULAR ROBBERY .- Recently, at Seymour, Ind., while a railroad train was stopping to take in water, a gang of robbers took possession of the engine, tender, and Adams' Express car, detached them from the train, and started off down the track. The engine and car were found abandoned next day, standing on the track about eighteen miles from Seymour. The robbers threw the express agent out of the window and rifled the Adams' Express safes of over fifty thousand dollars in money.

THE object glass in the great refracting telescope at Cambridge, Mass., with a clear aperture of fifteen inches, cost ummounted about \$15,000. A French artist employed in a Birmingham (Eng.), glasshouse, has succeeded in making a disk of flint glass twenty-nine inches in diameter, two and a half inches thick, and weighing two hundred pounds.

that thought steam might be applied to navigation. They went to work to form a machine, with a crude notion that it might do something, without having attempted to calculate what, and without any precise plan for its execution; when it did not answer their expectations it was abandoned, because they could not perceive the cause of its failure or any mode of improvement upon it."

Fulton succeeded because he knew what he was about. He was a thorough mechanic, a good draftsman, a practical workman, a studious and careful thinker, and a man of persistency. When, in the spring of 1803, he had completed his trial boat on the Seine, and in a gale it sunk before the trial could bismade, he went to work to recover such portions of the wreck as might be made valuable, and succeeded in the ensuing August in making a trial before the members of the French National Institute. This experiment so encouraged him that he ordered an engine from Messrs. Watt & Boulton, of Birmingham, to be built and shipped to him in America. In 1807 his boat was launched, and in September of the same year the *Clermont* made her first trips between New

OFFICIAL REPORT OF PATENTS AND CLAIMS

Issued by the United States Patent Office.

FOR THE WEEK ENDING MAY 26, 1868.

Reported Officially for the Scientific American

PATENTS ARE GRANTED FOR SEVENTEEN YEARS, the following being a schedule of fees: -

| On filing each Caveat  | \$10 |
|--|------|
| On filing each application for a Patent, except for a design | \$15 |
| On issuing each original Patent                              | \$20 |
| On appeal to Commissioner of Patents                         | \$20 |
| On application for Reissue                                   | \$30 |
| On application for Extension of Patent,                      | \$50 |
| On granting the Extension                                    | DC¢  |
| On filing a Disclaimer                                       | \$10 |
| On filing application for Design (three and a half years)    | \$10 |
| On filing application for Design (seven years)               | \$15 |
| On filing application for Design (fourteen years)            | \$30 |

In addition to which there are some small revenue-stamp taxes. Residents of Canada and Nova Scotia pay \$500 on application.

Pamphlets containing the Patent Laws and full particulars of the mode of applying for Letters Patent, specifying size of model required, and much nformation useful to Inventors, may be had gratis by addressing MUNN & CO., Publishers of the Scientific American, New York.

78,173.—CAR COUPLING.—J. W. Adams, Spring Creek, Wis. I claim the arrangement of the lever, h, and rod, j, with the pin, C, and sprinc, D, when constructed as described and operated by the link, D, se-cured substantially as set forth and for the purposes specified. 78,174 —RAILHOAD CAR VENTILATOR.—M. Christopher An-drews Lawrence Mass

(78),174 — KALLROAD CAR VENTILATOR.—VI. CHRISTOPHET All-drews, Lawrence, Mass. I claum the arrangement of the hinges of each two consecutive shutters of a series thereof, so that such two shutters shall open in opposite directions, as explained, and the combination therewith of mechanism as specified, or its equivalent, whereby such shutters may be operated in manner as set forth. Specified, such consisting of the slide bar, H, and its operative lever, I, or necting insta, the whole being arranged together substantially as explained in fact, one does not be slide bar, H, and the operative lever, I, or necting insta, the whole being arranged together substantially as explained surface of the shutters and the slide of the car, whereby such mechanism is all brought within the car when the shutters are closed. 78,175.—LOCK SNAP HOOK.—Wilber F. Arnold, New Brit-ain, Conn.

10,17.5.—LOCK DNAF HOOK. While F. Hinded, Rew Dife ain, Conn.
I claim the lock thumblatch, d, with the latch, c, and hook, b, substantially as and for the purpose described.
78,176 — WRENCH.—Joshua B. Barnes, Fort Wayne, Ind.
I claim the combination of the jaws, A and B, straps, CC, and spiral spring, F, arranger and operating as and for the purposes set forth.
78,177.—TABLE LEAF SUPPORT.—Elwin E. Berry, Farming-ton N. H.

(0,11... I have to not the lever catch D. or its mechanical equivalent I claim the combination of the lever catch D. or its mechanical equivalent with the arm or strut, B, and the staple,  $\psi$ , so as to operate therewith as de-scribed, when they are applied to a table or other like article, substantially in manner as specified.

78,178.—UAKPET-CLEANING MACHINE.—Geo. W. Bishop (as signor to Lafavette Farrington), Stamford, Conn. Antedated May D. 1868, I claim, 1st, In a carpe-cleaning machine, the arrangement on a divided hat of the brooms, J', operaning substantially as herein specified. 2n, The weighted heaters, bc, autached to and in combination with the olicit, H, when arranged spirally around said roller, substantially as herein shaft of 201, T roller,

roller, H, when arranged spirally around said roller, substantially as interim specified. 3d, The arrangement and combination of the rollers, CF G E, for feeding, guiding, and winding up the carpet, in combination with the beaters, b c, and brooms, J J', substantially as herein specified. 78,179.—STEAM ENGINE PISTON.—Cornelius Bollinger, Har-risburg, Pa. Antedated May 14, 1868. I claim the conical nut, H, constructed with a female screw on the inside, to dt the piston rod, and maie screw on the outside, to fit the piston head, in combination with the piston head and rod, as described. In combination with the conical nut, H, provided with lugs, 1 I, the corre-sponding lugs on the head of the cylinder. 78,180.—LANTERN.—Thomas H. Brady, New Britain, Conn. I claim a lantern guard having the upper and lower rings, or either of them, made of cast metal, as described, as a new article of manufacture. 78,181.—HAY AND STRAW. CUTTING MACHINE.—Chas. Brown, Buffalo, N. Y.

78,181.—HAY AND STRAW. CUTTING INACTINE.—One. Last, and Baralo, N.Y. Islami, ist, The combination of the cutting and crushing mechanism, sub-stantially as described, and for the purpose set forth. 24, pire combination of the cutting and cleaning mechanism, substantially as described and for the purpose set forth. 3d The vertical cleaning chambers, with air apertures in the front and back sides thereof, and exhausting fan combined therewith, substantially as described and for the purpose set forth. 4th, The eigending and separating plate, L, arranged in the manner and for the purpose set forth. 5th, The teed table, G, constructed and arranged as described, for the pur-pose set forth.

6th, The rotary feeder, K, arranged and operating as set forth. 78,182.—PROCESS FOR MAKING TRANSPARENT SOAP.—Mor

gan W. Brown. New York city. I claim the means and mode of treating and settling a soluble hard soap, as lerein described, to render the same transparent, substantially as specified ind setforth.

-HARD DRILL.-Wm. C. Burch, Gloucester, N. J. 78.183. I claim the combination and arrangement of the helical brakes with the drill shut aid the head of the operative lever, the whole being to operate sub-stantially as described. drill

78.184.—BED BOTTOM.—Wm.A.Chamberlin, Alexander, N.Y.

(3),194.—BED BOTTOM.—W III.A. Chamberlin, Alexander, A. F. I claim, Ist, The hinge d levers, B. B, supporting cross pieces, C. C. india rub-ber blocks, s. s. and slats, A. arranged and operating substantially in the manner and for the purpose set forth. 2d, Hunging the ends of the levers to the cross piece by means of hook or eye bolts, and extended key rod, g, in the manner and for the purpose shown and described. C. H. Childs, Clorolond, Ohio.

78,185.—GAS APPARATUS.—C. H. Childs, Cleveland, Ohio.

10.100. Other in the perforated tubes, H, surrounded with textile or fibrous material, and chamber, C', in combination with the chamber, E, and annular space, F, substantially as and for the purpose specified. 2d, The pipes, M N, and chamber, C', in combination with the disphragm, G, annular chambers, C, and cover, D, arranged as and for the purpose set

78.186.—CULTIVATOR.— Charles A. Cogswell, Maquoketa,

 101. - Confirvator. - Confirvator. - Cogswein, Inaquoreta, lowa. Antedated May 12, 1868.
 I claim the attachment of the curved rod, A, to the standard and beam of the ordinary shovel plow or cultivator, in the manner and for the purpose specified. 7. — WASHING MACHINE.—Thomas Crane, Fort Atkin-78,187

ADOVE Specifica.
78,157.— WASHING MACHINE.—Thomas UTane, Fort Attains son, Wis.
relation, 1st, The construction of the oscillating cradle with a bottom, c. I claim, 1st, The construction of the oscillating cradle with a bottom, c. Which is independent of the tub, in combination with the stationary partition C, arranged with said cradle, substantially as described.
ad. The cradle, constructed with a bottom, and with its back board closed, and its front board perforated, in combination with a perforated removable partition, C, arranged within the cradle, but connected to the outer tub, substantially in the manner described.
ad. The cradle described.
ad. The cradle due to roughened on its under surface, in combination with the board, A', of the tub, substantially as described.
78,188.—ItalEROAD CAR.—Martin M. Crooker (assignor to himself and Azro B. Allen), Rutland. Vt.
I claim a rail-car in which its doors are flexible, and are arranged to pass

I claim the mode of mounting photgraphic or other pictures produced upon paper, substantially as herein described. -MANUFACTURE OF FINGER BARS FOR HARVESTERS. 78,196

78,196 — MANUFACTURE OF FINGER BARS FOR HARVESTERS. Rufus Dutton, New Yorkcity. I claim constructing the finger bars of harvesters substantially as described, that is, forming by suitable machinery or mechanism a metallic plate of the required thickness for a finger oar, and ot a width sufficient for two bars, and having both of its edges or sites turned up or raised above the general sur-face or plane of the plate, and then dividing or cutting such plate obliquely lengthwise, so that when so tuvided there will be formed two separate plates, each suitable (or a single bar of tapering form, and each having a raised or turned up .dge, for the purpose set forth. 78,197.— METHOD OF CONSTRUCTING FINGER BARS OF HAR-verserens.— Bufus Dutton, New York city.

[78,197.—METHOD OF CONSTRUCTING FINGER BARS OF HAR-vestress.-Eufus Dutton, New York City. I claim constructing the finger bars of harvesters substantially as de-scribed; that is, forming a metallic plate of a breadth sufficient for two bars, such plate having its edges raised or turned uo, and also having ribs or raised portions towards its ce ter, and parallel with its edges, so that when such having two parallel ribs or raised portions, substantially as set forth. 78,198.—DirtoIling MACHINE.—T. B. Fagan, Mendon, Ohio. I claim, ist. In combination with the wheel, F, the arms or supports, D D, provided with adjustable holes, as and for the purpose described, 23, in combination of the ditching wheel, F, chute, E, supports or arms, B, Turnished and for the purpose described. 3d, The combination of the ditching wheel, F, chute, E, supports or arms, D D, and shatt, J, Turnished with plinous, J, arranged and opsile. 78,198.—CHURN.—J. H. Flenning, Groton, Ohio.

stantially in the manner and for the purpose set forth. 78,199.—CHURN.—J. H. Fleming, Groton, Ohio. I claim the dasher, D', constructed as set forth, in combination with the hinged cover, B, with the gearing arranged in connection therewith substan-tially as and for the purpose set forth. 78,200.—MACHINE FOR ROUNDING THE CORNERS OF SLATE

5,200.—MACHINE FOR ROUNDING THE CORNERS OF SLATE FRAMES.—John Flory, Flicksville, Pa. I claum in combination with the disk or arm, G, with its crank pin, the con-tecting rod, H, and the arm. I, on the shaft, J, for vibrating the frame, K, ind cutter, V, substantially as described. [8,201,—DEVICE FOR UPSETTING TIRES.—A. H. Ford, Wil-

78 201 Jamsfield, Ohio. I claim the combination of levers, A A, pivoted together by an eccentric is with adjustable support, E, and sc.ew. I, substantially as described.

I chaim the combination of levers, A A, pivoted together by an eccentric joint, with adjustable support, E, and sciew. I, substantially as described. 78,202.—BRIDGE.—Edward Hamilton (assignor to himself and Matthew D. Rapp), Chicrgo, III. Antedated May 9,1868. I claim, 1st, In combination with the sheets, A, O metailte plates, placed edgewise to sustain the incumbent weight, a system of cross braces, B, to support the same, substantially in the manner set forth. 2d, In combination with the metallic plates, olsposed as set forth, and wooden cross braces for supporting the same, plates for inclosing the spaces between the edges of the sheet, substantially as set forth. 78,203.—CULITIVATOR.—George D. Hart, Muncy, Pa. Ante-dated May 11.1868.

dated May 11, 1868. I claum the above, as set forth, whether used in combination with this ma-chine or separate in any other, reference being had to Letters Patent above referred to.

referred to. 78,204.—LOUNGE.—Wm. C. Hart (assignor to himself and Charles S. Jones), Nantucket, Mass. I claim the improved lounge, as made with the reversible back, and with the connections and supports thereof, applied to and arranged with the two extremes of the body of such lounge, substantially in mancer as specified. 78,205.—STEAM ENGINE SLIDE VALVE.—James Hemphill,

Pittsburz, Pa. I claim the combination of the valve cover, e, with its stem, e', and the dia-phragm, s, and plates, o o', arranged substantially as described, for the pur-pose set forth.

pose set forth. 78,206.—RAILROAD CAR VENTILATOR.—Robert Heneage and F. W. Breed, Buffalo, N. Y. We claim, 1st, The coupling, E, when constructed and operating substan-tially in the manner shown and described. 2d, The pivoted case, H. provided with wings, n n, and vane, l, in combina-tion with the wind wheel, I, screw or fan, J, and register, p, the whole ar-ranged and operating substantially as and for the purposes t forth. 3d, The combination of the two devices herein described, for supplying pure air and w.thdrawing the impure air from railroad coaches, substan-tially as set forth.

78,207.—PARLOR SKATE.—Robert Hewson, San Francisco, Cal

I claim in a parlor skate the use of wheels, B, having their axles, D ng upon the friction rollers, C C C, the whole constructed and arrange tantially as here in described. turn-l sub-

I claim in a parlor skate up to be a state of the state o

78,209,—APPARATUS FOR THE ADDALESS FOR T

pose herein set forth. 78,210.—Axle Box for Railroad Cars.—David Jewett

(assignor to himselt and Albert Leach), Lynn, Mass. 1 claim the construction and arrangement of an axle box, when composed of the parts, C, A, A, and combined with the rollers, D D and grooved axle, D, in the manner and for the purpose nerein described.

D, in the manner and for the purpose nerein described. 78,211.—MACHINE FOR CUTTING HEEL SEATS.—Arza B. Keith, North Bridgewater, Mass. I claum so combining, with a reciprocating or vibrating knife, d, a heel support, k, that relative adjustment may be made between the two, substan-tially as and for the purpose specified. Also, proving the plece, k, to the slide, i, and combining therewith means for changing the angle of k, substantially as and for the purpose described. Also, in combination with the piece, k, a side adjusting screw. substantially as set forth.

78,212.-Machine for Molding Wool Screws.-Edwin H.

10,522.—MACHINE FOR MOLDING WOOL SCREWS.—EdWIII H. Kett, Bridgewater Mass. I claum, 1st, Tue combination, with the perforated table, C, of the screw patterns, g g g s, and the mold board, E, provided with the perforations as described, substantially a, and for the purpose set forth. 2d, The detabable spindles, b, provided with the pattern screws, g, and corresponding guide sbrews, i, substantially as and for the purpose specified. 3d, The perforated table or plate, C, provided with the adjusting strips or garges, e e'' e'', as and for the purpose described. 4th, So forming the molds of the runners, leaders, and sprues, and connecting them with the molds of the screw heads, as set forth. 78 213. METHOD OF FORMING ('Applied' A VIES \_ John Le

be at or near the center of the screw heads, as set forth. 78,213.—METHOD OF FORMING UARRIAGE AXLES.—John Le

78,213.—METHOD OF FORMING CARRIAGE AXLES.—John Le Forre, Charlestown, Mass. I claim the method herein described of constructing a carriage axle. A, namely, by placing the same thoroughly together, then turning down the taper, b, with the shoulder, m, thereon, and the adjusting on said taper, b, and against the shoulder, m, a suitable collar, 6, and washer, 7, all in the manner substantially as set forth. 78,214.—SOAP.—David C. Lincoln, North Vassalboro, Me. I claim the combination of nitrate of potash with a tat, or oil and an alkali combined. to form a soap, as set forth.

combined, to form a soap, as set forth. 78,215.—MACHINE FOR POLISHING WOOD.—John S. Loomis.

Brooklyn, N. Y. Brooklyn, N. Y. Glaim the sand block of rubber, B, cup, D', pipe, T, revolving brushes, W, dusting brush, N, stationary rubber, F, emery cup, D, and adjustable I, G, all combined and operating in the mainer and for the purpose sub-nitally as described. [ claim W W, due 78.216.—SKATE FASTENING.—Halsey B. Lucas, Middletown,

Conn Conn

78,217.—COOKING STOVE.—John Magee, Chelsea, Mass., as-

signor to the Magee Furnace Company. I claim the anxihary flue, L, placed below the bottom of the return flue, K, and provided with suitable perforations or openings, e, in combination with the primore tubes or coundrates M and one or more participation terms has

I claim the arrangement of the pendulum, B, shaft, C, case. A, segmental arm, E, wheel, F, and cock, H, substantially as herein specified. 78,225.—PRESS SPINDLE ADJUSTMENT.—Alanson H. Merri-

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16,225.—PRESS SPINDLE ADJUSTMENT.—Alainson H. Merri-man, New Britain, Conn. I claim the combination of the tool stock or spindle, A A. with the sleeves, 3 and E, and collar, G, arranged and operating substantially as and for the unrove described. 78,226.—POBTABLE OVEN.—F. C. Miller, Evans Center, N. Y. John the combination with the absorber B working of the control head.

purpose ( 78,226.-I claim the combination, with the chamber, B, provided with central heat-ing space, i, and surrounded oy jacket, A, of the pans, made up of two parts, C b, the latter being detached, and in skeleton or open form, for allowing a free passage of air or steam, and covered by sildes, F, the whole operating in the manner and for the purpose herein set forth. 78,227.—PEG FLOAT. -William Miller, John J. Becker, and Abberken Science, devicement of the purpose.

10,221.—FEG FLOAT. - William Miller, John J. Decker, and Abraham Simcox (assignors to themselves and Jacob Miller), Fort Wayne, Ind. Antedated May 15, 1868. We claim the elbow lever, D, and connecting link, d. in combination with the reciprorating cutter, A, and guides, B, the whole being constructed and operated in the manner and for the purposes specified. 78,228.—CHEESE CUTTER.—Marshal Morse and P. W. Saw-

yer, Gray, Me. yer, Gray, Me. Verkam, 1st, The combination of the coil, h, rack, g, slide, k, and knife, 1, as and for the purpose decribed. 21, The slide stop, m, in combination with the self-retracting knife, 1, as and for the purpose described.

and for the purposes described. 78,229.—SHUTTLE.—Elias A. Paine, Sutton, Mass. I claim the combination with the spindle head, formed between the points, 1 and 2, and the points, I and 3, in the manner specified, of the lever, b, and its cam. 4, and the sping for actuating said lever, with or without the bob-bin-holding catch, the said parts being constructed and arranged for opera-tion as herein shown and set forth. 78,230.—WELDING THE EARS OF ELLIPTIC SPRINGS.—Joseph Paume Concord N.H.

billing totally, the said page being constructed and at any other optimality of the said page being constructed and at any other optimality of the said page being constructed and at any other optimality of the said page being constructed and at any other optimality of the said page being constructed and at any other optimality of the said page being constructed and at any other optimality of the said page being constructed and at any other optimality of the said page being constructed and at the same time, for the purpose set forth.
78,231.—COMBINED OVEN AND BATH.—James Perry, Brooklyn, N.Y.
I claim, 1st, The method of utilizing the heat from the interior of a baking oven or furnace for the purpose of warming apartments, substantially as herein specified.
26, The spaces under or by the sides of bath rooms, with their pipes communicating with the open furnace or oven, when the arrangement of the several parts is substantially as and for the purpose of operating in the maner shown.
36, The optimal said of the waste heat from a baking oven, whereby the said waste heat is caused, without coming in the maneful said waste heat is caused, without coming in the maneful said waste heat is caused, without coming in the maneful said waste heat is caused, without coming in the maneful set of the said waste heat is caused, without coming in the maneful set of the said the administration of baths, substantially as breech specified.
4th, The combination, with a system of radiating pipes located in an any partment of the apartment, as bactard back and the as may be required for warming the apartment, substantially as herein specified.
78,232.—APPARATUS FOR APPORTIONING, EXPANDING, AND SHAPPARATUS FOR DEVENTIONING, EXPANDING, AND SHAPPARATUS FOR THE MANUFACTURE OF BREAD.—James Perry, Brooklyn, N.Y.
I claim, ist, The combination, with a kneader, A, of the valve, I, and its chamber, substantially as herein specified, whereby the expansion of dough, prepared u

mixed dough or other hard substances impeding the perfect operation of the valve, 1. 4th, The combination of the hollow arm, D, with one or more chambers and piscons, substantially as herein specified, whereby the dough may be apportioned and shaped as desired. 5th, The morsable cross head, F, in combination with the wheel, E, and reck bars, S S, substantially as described, whereby the capacity of the chambers, H, may be increased or diminished, as desired. 6th, The combination, with the valve, i, of the balance lever, b, and its appendages, substantially as and for the purpose herein specified. 7th, The combination, with the arm, D, and table, J, of the arcs, e' e', substantially as specified, whereby the pans are brought under and away from the chambers, H H, for filling and discharging them.

the chambers, H , for mining and discharging them. 78,233.—CULTIVATION OF THE COTTON AND OTHER PLANTS. —Philip Poullain, Greensboro, Ga. 1 claim, 1st; The improved cup, having taper sides, and both ends open, when adapted and employed for germinating and transplanting cotton, and other small and tender plants, in the manner and for the purpose herein described.

Deal. The improved method herein described for transplanting cotton and plants by means of the device, in the manner and for the purpose a set forth. 2d, The m other plants -WATER GAGE FOR STEAM BOILERS.-Charles Lowell 78.234.

16,254.— WATER GAGEFOR STEAM BOLLERS.— CHARLES LOWEIL Ridgway, Loston, Mess. I claim the water gage, D, attached to a lever or bar, B, provided with passages, I, and arranged in relation to the inlet passages or tube, through which the water and steam are admitted from the boller, substantially as described. Also, the passages, h n i o, in the bar, A, and lever, B, in combination with the adjustable stop, m, or its equivalent, so arranged as to allow the steam to be bown through the gage, substantially as set forth. Also, the passage, i, in the lever, B, in combination with the passage, I, in the lever, B, in combination with the passage, I, in the bar, A, and the stop pin, 6, arranged so as to allow the water in the glass tube, I), to escape when the connections with the boller are cut off, sub-standaily as desoribed. 78.235 — AGRICULTURAL STEAM BOILER.—Louis S. Robbins.

The point of the connections with the boller are cut of, substandally as described.
78,235. —AGRICULTURAL STEAM BOILER.—Louis S. Robbins, New York city.
I claim, 1st, The corrugated plates. H, in the fire box, substantially as and for the purposes described.
2d, The protecting sleeve, K, on the pipe, J, substantially as described.
3d, The supply pipe, J, provided with the cocks. no and L, and connected with the water i everyoir, m, substantially as described.
4th, The method of forming the joint between the cup, C, and the boiler, substantially as described.
5th, The combined vacuum and safety valve, constructed and operating substantially as shown and described for the purposes specified.
78,236.—HARVESTER.—Samuel Rockafellow, Muscatine, Iowa.
I claim the double hinge, G, constructed substantially as described, and other here, B, and I, the said parts being arranged to operat. substantially as and for the purpose described.
78,237.—CORN PLANTER,—Orestes Sampson, Petersburg, III.

78.237.—CORN PLANTER.—Orestes Sampson, Petersburg, Ill.,

78,237.—CORN PLANTER.—Orestes Sampson, Petersburg, Ill., asignor to Sampson and Fracke ton. I claim, 1st, A corn planter, consisting of an axle mounted on wheels, and having the inclined bars. B, attached thereto, with the rear ends provided with seed hoppers, H, snares, u, and covering wheels, h, or their equivalents, arranged to operate substantially as described. 2d, The levers, E, arranged as described, in combination with the frame carrying the seeding mechanism, and proted to the axle or front frame, for the purpose of elevating the seeding devices, as described. 3d, Providing the ba.s. B, with a flat surface on their under side, where they rest upon the ground, in front of the shares, u, for the ourpose of pul-verizing and smoothing down the earth to form a seed bed, as herein set forth.

78,238.—KATTAN MACHINE.—Dyivanus bawyer, Freedows, Mass.
I claim, 1st, The combination of the series of revolving splitting cutters with the series of guides, substantially as described.
20, Combining each revolving cutter and its guide with the other cutters and guides of the series, by means of the gears, 1, so that they shall be made to slau itaneously approach and recede from the center of the stick, substantially in the manner and for the purpose tescribed.
3d. The combination of the series of revolving splitting cutters with the annuar or tubular cutter, substantially as described.
4t. The combination of the splitting apparaus, before described, with a suitable feeding mechanism for carrying forward the stock, substantial as described.

78,239 — Horse Rake.—John Seely, North Java, N. Y I claim a revolving rake, formed of three ranges of times, with their ends inclined or curved, as specified, so that the rake can be drawn along upon the points of two of the ranges of times, and the forward range of times pass at an inclination beneath the hay, as specified.

78,240.-MAIN BOLT OR GOOSE NECK STAY ON CARRIAGES.-

-RATTAN MACHINE.-Sylvanus Sawyer, Fitchburg,

78,238.-

| himself and Azro B. Allen), Rutland, Vt.  | I claim the anxinary flue, L, placed below the bottom of the return flue, K,                         | 10,540 MAIN DOLL ON GOOSE TIECK STAT ON CARMINGES.                                |
|---|--|---|
| nimsell and Azro B. Allen), Ruthand, vo.  | and provided with suitable perforations or openings, e, in combination with                          | Altred B. Sheaffer, Ephrata, Pa.  |
| I claim a rail car in which its doors are flexible, and are arranged to pass  | one or more tubes or conductors, M, and one or more perforated trunks, N                             | I claim the socket, a, in the enlarged curve, R, of the main bolt stay, A         |
| up under the roof and over one another, substantially in the manner and for   | O. or periorated plates, substantially as and for the purpose described.                             | when made substantially in the manner and for the purpose specified.              |
| he purpose described.   | 78.218 - METALLIC DOORS AND SHUTTERS - C K Marshall  |   |
| 8,189LUBRICATING COMPOUNDT. E. Curtiss, Titus-  | No. Onloging La American Mar 14 1009   | 78,241.—IMPLEMENT FOR HARVESTING GRAPES.—J. F. Single,                            |
|   |  | Painesville, Ohio (William Pettingell, administrator.)                            |
| ville, Pa.  | I claim a double cased and double-panelled metallic door or shutter, when                            | I claim, 1st, Constructing the described implement in the manner of for-          |
| I claim the within described lubricating compound, composed of the mate-  | the same is constructed and arranged substantially as described.                                     | ceps or pliers, and providing the broad jaws thereof with correspondingly         |
| rials and su stantially in the proportions set forth.   | 78.219.—Socket BOARD FOR REED INSTRUMENTS.—David   | bees of piters, and providing the broad jaws thereof with correspondingly         |
| 78,190 EYE GLASSESAlbert H. Daniels, Hartford, Conn.  | Marshall, Pittsburg, Pa.   | broad pads or cushions of an elastic nature. as india rubber, so as to operate    |
| I claim, 1st, The spring, a constructed and applied to the trames of the eye  | 1 claim the board, i, placed tmmediately below and in contact with the                               | substantially in the manner and for the purposes herein specified.                |
| I claim, ist, The spring, a constructed and approx to the mames of the open   |  |   |
| glasses substantially as described.<br>2d. The studs, c. c. made and applied to the frame of the eye glass, and the | socket board, b, and having an opening or openings, s s', under each reed,                           | the jaws, b b, and handles, c c, operating so as to sever the stem of the cluster |
| 2d. The studs, c c, made and appred to the traine of the eye grass, and the   | coinciding with but shorter than the openings or sockets. a, in the socket                           | with certainly, as herein set forth.  |
| spring, substantially as described, for the purpose specified.  | board, substantially as and for the purpose described.   | 3d, The combination of the several parts of the described implement, to wit,      |
| 78,191,-CAR SPRINGD. G. Daniels, Cincinnati, Ohio, as-  | 79.000 Septemp Norman Markes and Abrow Markes  | Dads, a a, laws, b b, shear edged blade, d, serrated blade, e, slotted stop plate |
| signor to himself and F. Mortimer Atkinson, Chicago, 111.   | 78,220.—SCRAPER.—Norman Maybee and Abram Maybee,   | f, and handles, c c, all arranged so as to effect the purposes herein set forth.  |
| I claim a spring which is composed of plates, A A, bent in the form of seg-   | Monroe, Mich.  | 78,242.—MACHINE FOR MOLDING COLLARS.—George H.                                    |
| ments of a cylinder, and put together at right angles to each other, substan-                                       | We claim the combination of the scraper, A, draft bail, C, and handle, B,                            |   |
| ments of a cylinder, and put together at fight angles to cach other, substan  | all constructed and arranged substantially as described and for the pur-                             | Spaulding, Norwich, Conn., assignor to American Molded Collar Com-                |
| tially as described.  | poses specified.   | pany, Boston, Mass.   |
| 78.192COMBINED ABM REST AND PAPER CUTTERChas.   | 78,221BRICK MACHINEB. J. McAfee, Delphi, Ind.  | I claim the combination, with an expanding former, of an elastic bed or           |
| B Dickinson, Brooklyn, N. Y. Antedated May 18, 1868.  |  | cushion, C, against which the collar is pressed, substantially as shown and       |
| I claim the combined arm rest and paper cutter made substantially as and  | I claim the combination of the frame, A, and table, C, with the molds, D D,                          | tor the purpose described.  |
| for the purposes set forth.   | spout, I, former, G, screw, H, plungers, E, and lever, F, all arranged and                           | 78,243.—CULTIVATOR.—Orrin Stone, Ionia, Mich.                                     |
| to the purposes of Ammongana () E Dodgo Williamsport Pa   | operating substantially as and for the purpose described.  | I claim the combination of the fixed and the yielding trames, when united         |
| 78,193 SASH SUPPORTERC. F. Dodge, Williamsport, Pa.   | $\mathbf{x}_{0}$ and $\mathbf{M}_{1}$ and $\mathbf{x}_{1}$ and $\mathbf{D}_{2}$ are $\mathbf{W}_{1}$ |   |
| I claim the combination and arrangement of the pivoted double inclined  | 78,222.—MACHINERY FOR PRINTING YARN.—William Mc-   | together by flexible connections, and the under or yielding one is made           |
| plane, B, roller, C, lever, A, and stop or cam, D, in a suitable box or casing.                                     | Allister, Lawrence, Mass.  | capable of being raised and carried by the fixed one, in the manner and for       |
| substantially as shown and described, for the purpose specified.  | I claim the holder, D, made of wire netting, or its equivalent device, for                           | the purpose her in described and represented.                                     |
|   | holding skeins of yarn during the process of printing the same, substantially                        | 78,244.—JOURNAL BOX FOR RAILROAD CARS.—Matthew                                    |
| 78,194 — Regulating Cannon Lumber Wagons.—James   | as set forth   | Thornton, Macon, Ga.  |
| W Drew Stockbridge, Mich.   | 78,223.—Spring Bed Bottom.—Stephen B. McCracken, De-   | I claim the packing of a journal box by means of the divided collar, the          |
| I claim 1st. The use and application of the wheel, B, to common team  |  | fibrous packing, and the gland, arranged to op-rate in conjunction with the       |
| wagons, for obviating the knock and jerk of the tongue or draft pole, F, on   | troit, Mich. Antedated May 12, 1868.   | axle, substantially in the manner and for the purpose described.                  |
| rough roads, as substantially shown and described.  | I claim the button headed half spring fastened to the webbing or other                               |   |
| 2d, The bar, D, pinion, C, combined and operating in the manner as herein   | cover by the use of a common screw and convex washer, as shown in fig. 3,                            | 78,245.—HARVESTER.—Godfrey Weiland (assignor to himself                           |
| shown and gescribed.  | substantially as and for the purpose herein described.   | aga Ira R. Amsden). Buffaio. N. Y.  |
| 105 Manuton on Mountaina Disconce A DIS AND EN  | 78,224.—Device FOR FEEDING BOILERS,—Henry McGann,  | I claim the combination of the pinion, C, or the driving wheel hub, having        |
| 78,195METHOD OF MOUNTING PHOTOGRAPHS AND EN   | Cleveland, Ohio.   | a course chark D the more blo part E find part P mith coursing mile               |
| GRAVINGSJohn L. Duffee, Washington city, D. C.  | • Oreverand, Onio.   | ' a square shank, D, the movable part, E, fixed part, B, with covering rim, a     |
|   |  |   |

and coiled spring, F, constructed, arranged, and operating in the manner and for the purpose described. 78,246.—MACHINE FOR BORING HUBS FOR WAGON WHEELS. -Joseph Wharf, Bangor. Me.

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-Joseph Wharf, Bangor, Me. I claim my improved arrangement and application of the hooked bar, F', the screws, E', H, and the levernut, c, with r spect to each other. 78,247.—STILL.—H. Whisler and J. S. Berry, New Market,

Ohio. We claim the cap, C, when constructed with the spiral channel, e, pipe, g, and conduit, f, in the manner substantially as set forth. 78,248.—IMPLEMENT.—E. F. Wilder, Lowell, Mass. I claim the belt punch, when constructed and arranged to operate as and for the purpose set forth.

for the purpose set forch. 78,249 — VENTILATING PORTABLE CHURN.—E. P. Williams, Yorkville, S. C., assignor to himself, W. L. Hopson, and A. R. Homesley. I claim the beater arm, B. blades, C C and D, in combination with the driving wheel, F, and dasher or pinion wheel, E, when the whole is constructed and arranged so as to operate substantially as described and for the purpose

78.250.--PENMEN'S ARM REST.-Jerome B. Withey, Lexing-

10,200.—1 ENMEN'S ARM REST.—Jeroline B. Withley, Lexilig-ton, Mich. I claim the planes, A B, the adjustable supporting connections, C C, the supporting brace, D. the rack, E, the check brace, F, and the stop, G, when arranged substantially as described and for the purposes set forth. 78,251.—DRILL HOLDER.—Thomas K. Bacon (assignor to himself, George A. Pratt, William T. Norton, and Hiram B. Crosby), Norwich, Conn.

Norwird, Conn. I claim the combination of the jaws, d, with the washer, a, the right and left thread screw, e, and the bar, x, the same being constructed and operating conjointly, with and in the socket, b, in the manner and for the purpose here. 78,252.-BROOM HOLDER.-F. B. Batchelder, Prairie du Chien

(8,503.—DROUM HOLDER.—T. D. DROUMLARS, T. LARO WILL
Wik.
I claim the blocks. A B, each formed with a semi-circular recess in its inner face, and connected to sether by the spring. D, all constructed and arranged to operate in the manner and for the purpose substantially as set forth.
(78,253.—BEEHIVE.—Henry Baughman, Columbus, Ohio.
I claim, ist. The projecting entrance for the bees, surrounded by the false entrance to the air-chamber, as arranged and described.
3d, The feeding troughs with their connecting tubes and wire gauze covering, as shown and described.

78,254.—SIGN FOR TOBACCONISTS.—J. W. Boughton, Apple-

4th, As an improved tobacconist's sign, the mechanical or automatic smoking image herein described.
78,255.—SHEARS.—Alfred B. Buell and George W. Root, Pittsfield, Mass.
We claim the shears. consisting of blade, A.with its two cutting edges, o o' blade, A', with its jaws, a', slot, e, and cutting edges, p p', constructed as described. as a new article of manufacture.
78,256.—PROCESS OF TANNING HIDES AND SKINS.—F. J. Burcham (assignor to himself and L. S. Blake), Racine, Wis.
I claim the herein described.
78,257.—POTATO DIGGER.—J. W. Burnham and Wilson Conhon. MiddletownPoint, N. J.

10, Middletown Point, N. J. We claim, 1st, Connecting the oscillating frame, D, which carries the lower apron roller. F, and the scoop, H, by means of a rcd and crank, with a lever, L, so that the position of the apron and scoop can be adjusted at once, as set

forth. 2d, The arrangement and combination, with each other, of the roller C, oscillating frame, D, roller, F, apron, G, scoop, H, rods, Im and rs, and levers, L and M, all made and operating substantially as herein shown and described. 3d. Providing the lower part of the frame, D, which carries the endless apron and the scoop, with curved pro actions, h h, moving n curved g tales, E E, as set forth.

set forth. 78,258.—COPYING INK.—A. G. Busby, Philadelphia, Pa. 1 claim an ink,composed of water, galls,sulphate of iron, indigo,sugar,gum-arabic, or other well-known ink-making ingredients, in combination with glycerine or gelatine, or both, and bichloride of mercury, or its equivalent, the whole being combined in the proportions substantially as described for the purpose specified.

78,259.—Folding Stool.—W. E. Cameron, Green Island

N.Y. I claim the plate, A, constructed as described, and provided with the ears, I az, to receive the arms, B D, whereby the arms, B, are ada ptd to be folded p beside the arms, D, when the latter are folded, substantially as described or the purpose specified. DUPDOSE SPECIFIED. D.—RUBBER AND GUTTA-PERCHA HOSE.—E. M. Chaffee for the p 78,260.

Providence, R. I. I claim the rubber or gutta-percha hose, flattened between plane surfaces, under the heat of vulcanization, substantially as described for the purpose specified.

nneer the near or vuicanization, substantially as described for the purpose specified. 78,261.—APPARATUS FOR TREATING OFFAL.—James P. Chenoweth and Edwin P. Baugh (assignors to Baugh & Sons), Pbiladel-phia, Pa. We claim, ist, Treating offal by subjecting it, in a revolving cylinder, or its equivalent, to the combined action of heat applied to the outside of the cylin-der, and to a blast of heated air or products of combustion introduced into the cylinder, als substantially as and ior the purpose herein set forth. 2d, The revolving cylinder, D, constructed substantially as described, in combination with a fireplace (, oven, A, and pipes, passages, and fans, or equivalent devices, whereby the surface of the said cylinder is heated, and a hot blast forced through the interior of the same, in the manner and for the prose herein set forth. 3d, The spiral rib, i. having a tendency to force the material through the fur-nace, C, and compartment, b, of the oven, substantially as described for the purpose specified. 78.262.—CORN PLANTER.—Wm. R. Clark Indianola III

-CORN PLANTER.-Wm. R. Clark, Indianola, Ill. 78.262.

I claim the hinged trame, A and B, with the seats, G and F, upon one part and the plows and h oppe rs upon the other, substantially as shown and de scribed and for the purpose specified.

78,263.—STAIR CARPET FASTENER AND PROTECTOR.—J. Con-

78,263.—STAIR-CARPET FASTENER AND PROTECTOR.—J. Conner, J., Chicago, Ill, I claim, ist, A device, B, having axial extensions. c., the same constituting a combined stair rod and protector, or sign-carpet fastener and protector, substantially as and for the purpose described. 2d, The combined stair rod and protector, B, in combination with the ears or holders, e. e., substantially as described. 3d, The depressed it, a, on the front edge of the protecting cover, B, of the combined stair rod and protector, as described. 78,264.—MANUFACTURE OF PYROLIGNEOUS ACID.—Morton E. Converse, Rinder, N. H., and Abel T. Atherton, Lowell, Mass. Antedated Mav 13, 1868. We claim the application and arrangement of the flue tubes, ff and g g, in one or more rows, to a kln, in such a manner that they will conduct, carry off, and asve, the products of destructive distillation of wood, substantially as described and set forth. 78,266.—SaFETY HATCH.—G. N. Creamer (assignor to himself) 78.265.—SAFETY HATCH.—G. N. Creamer (assignor to himself

10,200.—SAFETY HATCH.—G. A. Oreaner (assignor to finite) and John B. Lalor), Trenton, N. J. I claim, 1st, The construction and arrangement of h-tchways, when oper-ated in the manner and for the purpose berein d scribed. 2d, The combination of the hatch carriages, A A, levers, J, weights, C, cords I, and pulleys, k, in the manner and for the purpose berein described. 3d, The locking device or levers, J, in combination with the truck or car-riage, A A, in the manner and for the purpose herein described.

78,266.—FORGING MACHINE.—William H. Defrees, Andover

Mass. Mass. I claim the combination, for the purpose specified, of two or more pairs of sliding hammers, d, and independent spring, j, to work each hammer, inclined ways for each slide or hammer, and an inclined rotative cam, operative on all of the slides or hammers, all arranged and operating substantially as set forth. Also, for moving the blank bed from the hammers to the cutters, the com-bination of the cam, h, the hand-worked slide, d', and the several levers and connections between said slide and the blank bed. which cause the bed to be

cleat, A, in combination with the spurs, a, in the latter, substantially in the manner as and for the purpose set forth. 78.272.—TAPE BOX.—A. J. Fellows, Meriden, Conn.

I claim the catch, G, in combination with the toothed drum, B, spindle, H lever, I, coiled spring, case, A, and tape, C, substantially as described for the purpose set forth. 78,273.—Machinery for Printing Yarn.—John Foster,

Pawtucket, R I. 1 claim the combination, with a pair of fluted or grooved rollers, A A' in a machine for printing yarn, or other material, upon both sides, ot an elas tic apron, G, or its equivalent, substantially as described for the purpose specified.

-WINDOW-SASH FASTENER.-O. S. Garretson, Buf-78.274.-

10,272.— WINDOWSASH TASTERER.—O. S. GAITEISOI, Duifalo, N.Y. I claim. Ist, The combination of the bolt, E, provided with the wedge head h, and the catch, C, provided with teech, or a series of teeth, b, operating in the manner and for the purpose substantially as herein set forth. 2d, Securing the plate, G, to the case, D, by eyelets or hollow rivets, k, at-taching in the ordinary screw holes, I, as herein set forth.

78,275.—LINK — Alexander Goodhart, Newville, Pa. I claim a link formed of the parts, A and B, the latter being provided with a curved shank, bl, and a tenon, b2, and operating in connection with the part, A, substantially in the manner and for the purpose specified. 78,276.—Sounding BOARD FOR PIANOS.—G. M. Guild, Bosovided with

78,270.— DUINDING DOLLAR LINE LOLAR LINE LOL

78,277.—TRACE-LUG LOOP.—MIChael Gumiory, west Middlesex, Pa.
I claim the tug loop, A. when arranged with shanks, B B, and attached to the trace by rivets a a, substantially in the manner and for the purpose as herein shown and described.
78,278.—Door INDICATOR.—Amos Hadley, Washington, D.C. assignor to himself and Robert Clenizhen, New York city.
I claim the rotating disk between the two stationary plates, all as shown and described and for the purposes specified.
78,279.—WOOD-CARVING MACHINE.—Isaac Hall, New York city.

city. I could connecting the parallel pivoted bars, D, pivoted connecting I claim the combination of the parallel pivoted bars, D, pivoted connecting bars, F, double arms, G, adjustable arms, I, and centers, H and J, with each other, and with the frame, C, substantially as herein shown and described, and for the purpose set forth. 78,280.—SAFETY VALVE.—Frederick Harden, Conshohock.

en, Ps. I claim the arrangement of the cap, F, and weighted ring, G, with relation o the steem, E, and the valves, C D, of different diameters, as here in described or the nurnose specified.

tor the purpose specified. 78,281.—SEED PLANTER.—E. P. Harris, Conneautville, Pa. 1 claim, 1st, The cut-off, F, with the spring, G, in connection with the aper-ture, a, in the slide bar, H, provided with the inclined rear end, b, all arranged substantially as and for the purpose specified. 2d, The slide, La applied to the slide bar, H, in relation with the aperture, a, substantially as and for the purpose set forth.

78.282.—HARNESS.—J. K. Harris, Springfield, Ohio. I claim, ist, The provision, in a breast collar or hames strap, of the flexible, extensible, and clastic device, X x M, the same being provided with check pieces, b b', C D, substantially as and for the purposes herein explained. 2d, The arrangement of draft strap, B, open leather irame or breast strap.A, thougs, X, spiral springs, M, and check pieces, b b' C D, as and for the purpose specified.

specified. 78,283.—REVOLVING HARROW AND ROLLER.—E. K. Harvey

Quincy, Ohio. Quincy, Ohio. I claim, ist, the lever. h, arm, n, and spanner, e, in combination with the barrow, H, substantially as described. 2d, The harrow, H, housings, d, and spanner, e, combined and operating sub-

stantially as described. 78,284.—CONCRETE BRICK MACHINE.—Frederick Hawkins,

78,284.—CONCRETE BRICK MACHINE.—Frederick Hawkins, Chicago, Ill. I claim the mold, L L', provided with slotted flange, S, and lid, M, with its rack, T, and pinion, W, the follower, N, wita its rack, Q', and Pinion, P, lev-ers, Q R I and H, chain, F, drum, E, and wheel, Z, all arranged and operated substantially as and for the purposes herein set forth. 78,285.—DRIER.—Henry Henley, Halbert's Bluff, Ind. I claim, 1st, The construction and arrangement of the movable steam-heated panes, C, so as to apply a regular heat above and below the cham-beated panes, C, so as to apply a regular heat above and below the cham-beated panes.

2d. The combination of the boiler, B, removable pans, C, and flexible piper C', when arranged and operating as and for the purpose set forth. Spring, J. in combination in the gas regulator, substantianty as shown in the described.
78,306.—ANIMAL TRAP.—John C. McClamrock, Edina, Mo. I claim, let, The described arrangement of the bait hook, H. U.shaped lever, I, connecting rod, J, bell crank levers, K. N. and adjustable spring each, M. with relation to the pivoted trap door. C, all constructed and combined to operate in the manner and to the purpose substantially as set forth.
2d, The detachable receptacle, S, provided with partitions, s1, and slides, s1 s2, and having a grated top, when said receptacle is adapted to be connected with the box, A, by means of the adjustable parsage, Q, in which the gate, R, is hinged, all constructed and arranged as and jor the purpose set forth.

78,286.—CHURN.—Charles Hess (assignor to R. T. T. Spence), Lyons City, Iowa. Antedated May 14, 1868. I claim the combination and arrangement of the friction pulleys, A D C C, with the peculiar ogec curved shared arms or paddles, F F F F, when con-structed and arranged for the purposes above set forth.

78,287.—Shoe.—Marie L. Hill, New York city.

St. Sc. and naving a grated top, when said receptacle is adapted to be connectied with the box, A, by means of the adjustable passage, Q, in which the gate, R, is hinged, all constructed and arranged as and ior the purpose set forth.
78,307.—GAS APPARATUS.—James McCleish, New York city, assignor to himself and E. V. Haughwout & Co. I claim, lst, The constructing of the gas holder, B, with rigid or inflexible top and bottom plates, a b, and flexible Fastypt sides, the latter being folded or crimped, subscattally in the manner as herein shown and described.
2d, The pressure arms, C D, arranged and applied substantially as set forth.
3d, The windlass drum, m, provided or arranged with a coll or barrel spring, and used in connection with suitable cords, ior the purpose of exerting a uniform pressure on the gas holder, substantially as set forth.
3d, The elevating of the arms, C D, through the medium of the windlass, G, and cords, k k l, arranged and applied substantially as set forth.
3d, The elevating of the arms, C D, through the medium of the windlass, G, and cords, k k l, arranged and applied substantially as set forth.
3th, The elevating of the arms, C D, through the medium of the windlass, G, and cords, k k l, arranged and applied substantially as set forth.
3th, The elevating of the arms, C D, through the medium of the windlass, G, and cords, k k and l, in combination with the ords, a''' c' d'', arranged as shown, or is averiate in way, for compressing the gas holder and exerting an ciual or uniform pressure on the same.
6th. The receiver, K, with the pipes, J L and M, communicating therewith, and provided with stop cocks, and all arranged substantially as shown and described. I claim, as a new article of manufacture, a quiled cloth slipper or shoe formed by interposing between the soit filling and the outer covering a tex tile lining of the same color as the outer covering, whereby, as the latter be comes worn through or torn, the slipper or slice will not be destroyed, but present the same uniform color exteriorly, as herein shown and described. 78,288.-MACHINERY FOR PRINTING ON FABRICS.-Chas. Hol

78,288.—MACHINERY FOR L'RINTING ON L'ABRICS.—Unas, Hol-liday, Huddersield, England. I claim, ist, The within described process of ornamenting goods, by apply-ing coloring or ornamenting material through tubes impressed against the material, with or without the aid or needless or leading wires, substantially as herein specified. 2d, The application of heat, in connection with the tubes in the above pro-cess, substantially as and for the purpose specified. 3d, in connection with printing through tubes, the enlargement of the tubes at and near the printing surfaces, so as to form cups, which tend to deter-mine the depth in the tube from which coloring or other viscid matter is drawn at each impression, substantially as and for the purpose herein speci-fied.

78.289.—SURCINGLE.—Stephen Hyde, New York city.

I claim, as a new article of manufacture, a surcingle, provided with two elastic joints, a a, when inclosed in leather cases, D, and secured to the buckle and tongue syraps, b d, as herein shown and described, for the purpose speci-fied.

78,290.-VEGETABLE SLICER.-George W. Jacobs, Quincy, Onio. I claim the combination of the plates, D D, the knives, d d, slots, b b, slots, c c, in the table,  $\Delta$ , and movable box, E, as and for the purpose sp

78,291. — ADJUSTABLE HAMMER AND DROP. — Truman P.

78,291. — ADJUSTABLE HAMMER AND DROF. — Human I. Keeler, Worcester, Mass. I claim, 1st, The combination, with the hammer, of an adjustable stop block, F, and mechanism for operating the same, substantially as and for the purposes set forth. 2d, The combination, with the hammer, of the stop block, for checking its upward movement, the cams and cam shaft, for operating the hammer, and the lever, e, connected with and arranged to adjust both the cams and the stop block, substantially in the manner and for the purposes shown and set forth.

upward movement, the came and cranged to adjust both the came and the stop block, substantially in the manner and for the purposes shown and set forth. 3d, The combination, with the adjusting lever, connected with the cam shaft and stop block, as specified, of the stop piece, G, or its equivalent, substan-tially as and for the purposes set forth. 4th, The stop jar, J, and treadle, or equivalent means for operating the same, in combination with the hammer actuating came, under the arrange-ment and for operation as shown and set forth. 5th, The combination with the hammer, and came for operating the same, in combination and arrangement, with the hammer, its actuating cams, and the stop jar, connected with and actuated by the treadle, H, in the manner and for the purposes berein shown and specified. 6th, The combination and arrangement, with the hammer, its actuating cams, and the stop block for checking its upward movement, of the mechan-isms here in described for adjusting said cams and stop block, and for arrest-ing and holding the said cams and hammer, whereby the machine may be used either as a hammer or as a drop, and the storke of the hammer, in either (78,292.—GRATE BAR.—Henry King, Waterbury, Conn., as-signor to bimself and Francies Stappers, New York city. I claim a grate bar, formed in two jongitudinal sections, or in one piece, having spaces, a, through the same, wider at the bottom, with apertures, a', opening in to said spaces, a, substantially as shown and described, and for the purposes set forth. 78,293.—PLoW.—John Koffend, Appleton, Wis.

purposes set forth. 78,293.—PLOW.—John Koffend, Appleton, Wis. 1 claim the combination of a pivoted, adjustable, auxiliary land-side with the ordinary land-side of a plough, whether said auxiliary land-side be locad more the output for side of said ordinary land-side, substantially

78.311.-

We claim the process of manufacture, substantially as and for the purpose 78,298.—Sawing Machine.—James R. Logan, Rolla, Mo. An-

JUNE 13, 1868.

ted ted May 18, 1868. I claim moving a sawing machine in the manner described by means of the wheels. C C, attached to the axle, F, substantially as and for the purpose

Also, the socket, f, attached to the cross bar, J. on the front part of the frame, A. and provided with the catch, K, substantially as and for the pur-poses specified. Development - Nardo F. I. oi, New York city.

frame, A, and provided with the catch, K, Substantially as and for the para-poses specified. 78,299.—PIFE WRENCH.—Nardo F. I oi, New York city. I claim, 1st, The fixed handle, A, when its head, a, is perforated at right angles to the handle, to receive the screw shank, of the adjustable jaw, c, which is placed above and parallel with the jaw, b, of the handle, c, as herein described, for the purpose specified. 2d, The construction, arrangement and operation of the handle, C, having the perforated jaw, b, the ploved nut, B, screw threaded handle, A, head, a, and adjustable jaws, c, as herein described, for the purpose specified. 3d, The jaws, d et, when adjusted in the arm, b, of the lever, C, by means of the notches and transverse pin, g, as herein described or the purpose specified. 78,300.—APPARATUS FOR ROLLING DOUGH.—Nelson Long, Watertown, N. Y.

TRS 300.—APPARTUS FOR ROLLING DOUGH.—Nelson Long, Watertown, N. Y.
I claim, ist, The combination, with the board or receptacle for holding the dough or other material, of the dough roller, and the sliding or transverse frame tor supporting the same, hinged or pivoted in the manner material, of the dough roller, and the sliding or transverse frame tor supporting the same, hinged or pivoted in the manner and for the purposes shown and specified.
2d, In an apparatus, such as 'lescribed', the combination, with the auxiliary roll and the elongated bearings formed for its reception in the sliding trame, of adjusting or set serews, or equivalent means for regulating the bearings formed for its reception in the bearings for the journals of the roll in their bearings. substantially in the manner and for the purposes shown and set forth.
3d, The combination, with the side boards, which form the bearings for the sliding frame, of the top plates provided with inclined projections, c, as described, and the correspondingly notched sliding bars, and its adjusting screws for raising and lowering said top plates, under the arrangement and for operation as berein shown and set forth.
78,301.—PADDLE WHEEL,—W. R. Manley, New York city, I claim ist, The combination of the controlling frame, E. of the paddets o' the guard beam, F, and crank arm, G, substantially as hercinbefore set forth.

forth. 20, The arrangement of the crank arm, G, diagonally to vertical and horizontal zontal directions in which the guard beam may be moved by strains upon the vessel, substantially as hereinberore set forth. 3d, The arrangement of the paddle crank arms, D, and the crank arm, G, at equal angles to a vertical line, substantially as hereinbefore set forth. 4th, The combination of the controlling frame, E, guard frame, F, crank arm, G, link, N, and main shatt, B, substantially as hereinbetore set forth. 78,302.—EXTENSION LADDER.—T. F. Mantey, New Orleans, La.

La. I claim, 1st, The winches, v, in combination with the extension lattice, A and chains, b, for the purpose of adjusting the lattice, when elevated by the screw, G, at any desired angle, as herein shown and described. 2d, The crank serew, J, and bar. K, in combination with the frame, T, and extension lattice, A, all substantially as and for the purpose shown and de-srribed. scribed. <sup>30</sup>, The combination of the pintle base, R, extension lattice, A, adjustable plate, Q, having the projection, q, bearing the pin, r, and tongue, M, all ar-ranged and operating as described for the purpose specified. \_\_\_\_

78,303.—Corn and Seed Planter.—Franklin W. Marriott, Richwood, Ohio. I claim a seed planter, constructed and operated in the manner substantially as shown and described. as succent and described. 78,304.—RAILWAY CAR SEAT.—M. M. Martin, Cochran, Ind.

I claim, 1st, In combination with the seat body, A, hinged at, a, to the frame, the knuckle joint, E E', arranged and adapted to operate in the manner

B, the knuckle joint, E E', arranged and adapted to operate in the manner stated. 2d, The combination of the car seat, A B, leg supporting flap, J, and elastic thong, K. for the object explained. 3d, The combination of the loot rest, consisting of the wings, L L', inclined board, N, and hinged leaf, O, with the neck oar, R, and stud, S, for the pur-pose explained. 4th, The combination of the rall, D, hooks, d d', and flap. J. adapted to re-ceive and enable the ready removal of the mattress, F, in the manner herein described and set forth, 78,305.—GAS REGULATOR.—S. F. Mathews, Mechanicsburg,

Pa. I claim, 1st, The nipple tube, B, and the thimble, E, constructed, arranged, and operating substantially as and for the purposes described, in combination with gas pipe. 2d, The body of the governor, A, the case, C, tube, B, thimble, E, and spring, h, in combination.forming a gas regulator, substantially as shown and described.

described. Sth, The rollers, b', on the top plate, a, of the gas holder, in combination with the vertical guide rods, i, arranged substantially as shown and described, for the purpose of retaining the holder in proper position. 9th, Bracing or staying the holder. B, by means of the straps, ax, extending around the interior of the holder and traversely across it, as shown and de-scribed.

78,308.—REFRIGERATOR.—Martin Meyers, Jr., Philadelphia Pa. Pa. I claim, in refrigerators, the construction of the sliding drawer shelves, E. with swinging doors, C, and with a space, D, between their backs and the in-ner wall of the case, and the tubes, g, communicating with the atmosphere, substantially as and for the purpose described.

78,309.—BENCH DRILL.—Charles C. Miller (assignor to S. M-

To, 503.— DENCH DATION.— OTHERS C. Infine (assigned to the spencer & Co.), Brattleboro, Vt. I clam, 1st. The sleeve, M, fixed slotted tube, I, screw shaft, J, pin, J, and right angular lever, N e, or its equivalent, when said parts are applied to and used in connection with a drill, substantially as shown and desortbed. 2d, The movable bed, H, arranged and operated substantially as shown, the slotted tube, I, screw shaft, J, balance wheel, K, and the adjustable pt), operated as shown, or in an equivalent way, all combined and arranged by, operating the drill, L, substantially as desoribed.

78.310.—PERMUTATION LOCK.—D. K. Miller, Reading, Pa.

78,310.— PERMUTATION LOCK.—D. R. Miller, Nearing, and secured to a shaft, D, in combination with disks, F, or their equivalents, and with a tumbler, G, having a recess and a projection adapted to the projection sund recess of the disk, E, the whole being constructed and arranged with a casing A and operating substantially as and for the purpose described. A the serrations of teeth upon the ends of the split ring, t, for the purpose described.

I claim the stirrup, C, and its cramp. F G, the cord, D, and the pulley, E, combined, arranged, and operating substantially as and for the purpose set

CURTAIN FIXTURE.-John P. Miller, Somerset, Pa.

| all of the slides or hammers, all arranged and operating substantially as set  | purposes set forth.  | forth.   |
|--|--|--|
| forth.   |  | 78,312.—CIGAR HEADER.—George Moebs, Detroit Mich.                              |
| Also, for moving the blank bed from the hammers to the cutters, the com-   | 78,293.—Plow.—John Koffend, Appleton, Wis.   | I claim the metal cup, A, for heading cigars, constructed and operating        |
| bination of the cam, h, the hand-worked slide, d', and the several levers and  | 1 claim the combination of a pivoted, adjustable, auxiliary land-side with         | substantially as described.  |
| connections between said slide and the blank bed, which cause the bed to be  | the ordinary land-side of a plough, whether said auxiliary land-side be            | TO 319 A DESCRIPTION OF THE NO. Former J. Molinouv New                         |
| moved by the cam, h, substantially as described.   | placed upon the outer or inner side of said ordinary land-side, substantially      | 78,313.—ARTICLE OF BLUEING.—Edward L. Molineux, New                            |
| Also, for causing the cutters to operate upon the forged nail, to sever it   | as herein shown and described, and for the purpose set forth.                      | York city.   |
| from the nail rod when in position over the fixed cutter, the combination of the band layer which have slide d' with the booked rod o pendent from | 78 294 — HORSE HAY FORE — Hugh Laird Mechanicsburg Pa                              | I claim packing laundry blueing, when in lump or pressed, for transporta-      |
| the hand lever which moves slide, d', with the hooked rod, o, pendent from   | 10,254.—HORSE HAT FORK.—Hugh Land, Mcchanlesburg, a.                               | tion and use, in perforated boxes, substantially as described.                 |
| the cutter arm, y, to throw the hook of said rod into gear with the vibrating  | I claim the combination of the compressing and retaining bar or bow, D,            |  |
| pip, u, worked from a motor, f, on the main shaft, substantially as de-  | with the elevating tines or prongs, C C, operating substantially as and for the    | 78,314.—Corpse Preserver.—Mary E. Mott, Rouse's Point,                         |
| scribed.   | purpose described.   | N.Y.   |
|  | 78,295.—Composition to be Applied to Leather.—Wil-                                 | I claim the flat rubber sack, a, having a slit and lacing, as shown, and the   |
| 78,267.—REEFING FORE-AND-AFT SAILS. — R. C. Denham,  | liam Lehman. Newville. Pa.   | discharge tube, b, all substantially as shown and described, and for the pur-  |
| Richmond, Me.  | I claim the application of the composition herein described to boots, shoes,       | Dose set forth.  |
| I claim combining with the diagonal re-enforced line of a fore-and-aft sail.   | harness, straps, belows, and leather manufactured articles generally, by           |  |
| and with the gaff of such a sail, gaff down hauls, and eyes or leaders, in the   | which the same will become water-proof, and wear one hundred per cent              | 78,315.—COOKING STOVE,—B. Newbury, Coxsackie, N. Y.                            |
| manner substantially as described, so as to secure the gaff to the aforesaid   | which the same will become water-proof, and wear one numbed per cent               | I claim, 1st, The combination of a hinged shelf, E, with the rear part of the  |
| line in the act of reeting.  | longer.  | stove whether said shelf is hinged directly to the slove or to a removable     |
| 78,268.—BRICK MACHINE.—François Durand, Paris, France  | 78,296.—System of Pronouncing Orthography.—Edwin                                   | plate attached to said stove, substantially as herein shown and described,     |
| 10,200 DRICK MACHINE Flangois Durand, I aris, Flance   | Leigh, St. Louis, Mo. Antedated May 19, 1868.                                      | and for the purpose set forth.   |
| I claim, 1st, The combination of the pin, b, pitman, B', pistons, P P', grooved  | I claim the use of a skeleton outline, or light form of an alphabetic letter,      | 2d, the combination of the removable plate, A, and removable yoke, B,          |
| bars, G, cams, e. yokes, C', and crank shaft, A, all arranged and operating as   | with a plonic sign included within it, or constituting a part of it, to indicate   | with the hinged shelf, E, substantially as herein shown and described, and for |
| herein described for the purpose specified.  | a particular sound of that letter.   | the purpose set forth.   |
| _2d, The combination of the eccentric disk, D, connecting rod, J', gear wheels   | Also, the use, in cases where several alphabetic letters must be employed          | 3d, The combination of the arm, C, and set screw. D, with the plate, A,        |
| F F', ratchet, j', upon shait, E, the catch, j, and the oscillating arm or disk,   | for the same sound, of phonic signs closely resembling each other, so as to be     | substantially as herein shown and described, and for the purpose set for th.   |
| as herein described for the purpose specified.   | substantially the same phonic sign, though used as the whole or parts of dif-      | 4th, The combination of the pivoted brace arm, F, with the hinged shelf, E,    |
| TO 960 Decomer Control D W Donton Ithace N X   | ferent letters.  | substantially as herein shown and described, and for the purpose set forth.    |
| 78,269.—ROOFING COMPOUND.—D. W. Denton, Ithaca, N. Y.  |  |  |
| I claim, 1st, Preparing my roofing material of the substances and substan-   | Also, the employment of light faced letters, (as skeleton, bair line, outline,     | 78,316.—Shipping Case.—Moses H. Nichols, Hancock, N.Y.                         |
| tially in the manner set forth.  |  | I claim the combination of the slides, B, octagonal cover. F, and elastic      |
| 2d, Its use with coal tar, as described.   | size, upright position, and character as the rest of the font, for silent letters, | cushions, C, with each other, and with the case, A, and jar, D, substantially  |
| 3d, The use of coal ashes, in combination with the described material, and   | in combination with phonic letters, in order to indicate the pronunciation of      | cusilions, C, with each other, and with the case, A, and jar, D, substantiany  |
| in the manner set torth.   | words without changing the common orthography and familiar outline of the          | as herein shown and described, and for the purpose set forth.                  |
| 78,270.—ICE CALK.—G. W. Farley (assignor to himself and  | word or word picture.  | 78,317.—Explosive Compound.—Alfred Nobel, Hamburg,                             |
|  | Also, the employment of phonic vowel and consonant letters, (or peculiarly         | 10,017.—EATLOSIVE COMPOUND.—Influences, Industry,                              |
| W. H. Humphrey), Manchester, N. H.   | constructed forms of the alphabetic letters,) in combination with any pecul-       | Germany, assignor to Julius Bandmann, San Francisco, Cal.                      |
| I claim the button, C, with notches, 1 i, and provided with the spring, s, or  | iar class of letters, for the silent letters, in order to indicate the pronuncia-  | I claim the composition of matter, made substantially of the ingredients       |
| its equivalent, in combination with the pins, c c, the tongue, d, and the plates   | tion of words without changing the common or established orthography,              | and in the manner and for the purposes set forth.                              |
| A B, all constructed, arranged, and operating as and for the purpose herein  | substantially as described.  | 78,318PRESSB. S. Norris, Ripley, Ohio.   |
| described.   | CONTRACTOR WRONG WRONG TRON INTO CLEAR TRONG                                       | 10,510PRESSD. D. MOITIS, MIPLEY, OHIO.   |
| 70 071 DEPER OTTO A H Fatzin and Weakington N T  | 78,297.—CONVERTING WROUGHT IRON INTO CAST IRON AND                                 | I claim the combination, with the frame, A, of the presser, B, hand lever.     |
| 78,271.—PAPER CLIP.—A. H. Fatzinger, Washington, N. J.   | STEELAlexander Lisk Philadelphia, and Adam Woolever Allentown,                     | C, spring pawls, a and c, and the weight, D, substatiaally as and for the pur- |
| I claim the curved elastic clips, B, perforated, and attached to the strip or  | Pa.  | pose described.  |
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JUNE 13, 1868.]

78,319.--Device For Cutting Sheet Iron.--John B. Osier,

Gradensburg, N. Y. I claim the construction and arrangement of the frames, A.A., with the perpendicular guides, C.C. angular kulle, and cross bars. D and E, with the spring, H, and shiring guide, F, and treadle, f, all arranged and connected for the purpose set forth.

-STARCH TRAY.-John A. Owens, Little Falls, N. Y. I claim, 1st, Forming the bottoms of the trays of galvanized iron. 2d, Forming the connected ends of each pair of trays with a curve, sub-stantially as described, and for the uses and purposes mentioned. 3d, The partitions, E and F, one or both, for the uses and purposes men-tioned.

tioned. 78.321.—Corn Husker.—Thomas Percival, Augusta, Me. 78,321.—CORN HUSKER.—Thomas Percival, Augusta, Me. I claim, ist. The use of the expanding stripper, I, composed of the several stripping tools, as described to a ranged that the pressure of the ear will cause them to open to receive it, whether the closing of the same be effected by means of a single classic rubber spring, or by other means, and whether their cutting edges be straight or toothed, the whole operating in the man-ner and for the purpose substantially as described.
2d, The builting knife, H, formed of a plate of steel, having through it a round or oval hole or holes, with beveled cutting edges, operating in the manner and for the purpose substantially as described.
3d, The hollow-ended plunger, C, constructed and operating in the manner and for the purpose substantially as described.
4th, The combination and arrangement of parts of a machine for husking corn, when constructed and operating in the manner substantially as escribed.
78,322.—IGNITING EXPLOSIVE PROJECTILES.—Eugene Per-tuiset, Auguste Mundel, and Jean Etienne Armide de Flèron, Paris, France.
We claim, jist, An explosive projectile composed of a tube. or equivalent

France. We claim, jst, An explosive projectile composed of a tube, or equivalent hollow metallic body, filed with a detonating or fulminating compound, which will be ignited or inflamed by the action of the heat developed by the impact or penetration of the projectile, substantially as herein shown and set forth

set forth. 2d, The fulminating mixture or composition, substantially as herein speci

24. The fulminating mixture or composition, substantially as herein specified.
3d, The percussion fuse, for containing the fulminating compound, made substantially as and for the purposes herein shown and set forth.
78,323.—WATCH.—LOUIS Victor Piguet, New York city.
I claim, Ist, The combination of the knob. h, spring plate, L, and lever, E, operating as herein described, whereby the pressure upon the knob. h, throws the setting mechanism in gear and the winding mechanism out of gear, substantially as herein shown and described.
24. The arrangement in the watch case of the key, C, having pinion, b, wheel, D, spring lever, E, wheels, F G, shitter plate, L, knob, h, pinions, K J g H and 1 all constructed and operating as described, for the purpose specified.

27 and 1, all constructed and operating as described, for the purpose spectral, and the pin, c, of said wheel, and bearing the wheel, D, spring lever, E, pi voted upon the pin, c, of said wheel, and bearing the wheel, F, and the wheel, G, all operating as described, in such a manner that by turning the key, C, in one direction the wheel, F, is bound between the wheels, D, G, to wind the watch, and turning the key in the opposite direction releases the wheel, F, and prevents the winding of the watch, as herein shown and described. Ath, The Key, C, having the crown gear wheel, b, in combination with the wheeling be G, whereby the watch is wound and set by the same key, in dependently of each other, as herein shown and set by the same key, in 78,324 — HORSE HAY FORK.—M. H. Pope, Susquehanna Denot. Pa.

pot, Pa. I claim the slotted arm. h, lever, f, both pivoted to the cap, E, of the case 3, of hay harpoon. all substantially as shown and described and for the pur-ose set forth.

78.325. -PATTERN FOR CUTTING OUT SHIRTS.-J. W. Rand

78,325.—PATTERN FOR CUTTING OUT SHIRTS.—J. W. Rand, Charlestown, Mass.
I claim, Ist, My improved system of cutting shirts or shirt patterns, the same consisting in the employment or combination of a front plate or pat-tern, O, a series of yoke plates or patterns, A. 41, etc., a back-side plate, S. a front-side plate, R. a sleeve pattern, Q, and a bosom pattern, H, the whole be-ing constructed substantially in manner as set forth, and to be used together as and for the purpose described.
Also, the combination of the front plate, O, with one or more yoke plates, A etc., each of such parts being provided with a scale of measurements or divisions so combined or arranged that the corresponding figures on each indicate the width, respectively for cutting the front and back parts of shirts or shirt patterns of any ordinary size.
Also, a yoke formed with a series of measurements or scale of divisions ar-ranged near each end of it, in manner as set forth.
Also, the front plate. O, provided not only with a scale of divisions, ar-ronged as set forth, but formed with a rectangular bosom space, AB C D, as explained.

78,326.-MANUFACTURE OF HOES.-L. T. Richardson, Clay

78,326.—MANUFACTURE OF HOES.—L. 1. RICHARDSON, Cray-ville, N. Y. I claim the cavities or recesses, d d, in the blank or pattern of the hoe, in the process of manufacture, substantially as and for the purposes described. 78,327.—MANUFACTURE OF ARTIFICIAL STONE.—James L. Rowland, Milwankee, Wis. I claim, ist, The use of the various kinds of sands, rocks, scorias, and other hard mineral substances, crushed and otherwise treated, as described, and combined with a cement, or a cement and a salt, prepared substantially as set forth. combined with a cement, or a cement and a sure, property set forth. Set forth. 2d, The use of sand in its natural state, or when it is deprived of its coarsen and with water alone, or

where the second substantially as described, for the purpose of coloring the substantially as described.

the stone, 4th, The methods of treating and preparing hydraulic cement for the manufactured 5th, The use of carbonic acid in the process of hardening manufactured 5th, The use of carbonic acid in the process of hardening manufactured 6th, The use of stone, substantially as described. 6th, The use of steam in combination with carbonic acid gas, substantially cribed

as described. 78,328.—CUTLERY.—Moses Rubel, Chicago, Ill. I claim the beveled side pieces, B B, having notches in their ends and held in place by the cast metal, C C D D, having lugs, F, fitting in said notches, substantially as set forth. 78,329.—PORTABLE FENCE.—Richard Samuel, Walden, N. Y.

1 Claim the construction and arrangement of my hurdles, when used in connection with the de bar, D D, slats, E E, the bolt, F, and standards, H and J, with the bar, M, all as shown and set forth. Also, the construction of my brace, having standards, H and J, of uneven length, when used in connection with the hurdles and the bar, arranged and constructed as shown and described. I Show a shown and set forth.

78,330.—MITERING MACHINE.—J. J. Sanders, Jr., N. Y. city. I claim, ist, the block, C, attached to the saw, D, for the purpose of holding the planing knives, E, all constructed, arranged, and operating as described for the purpose soecified.

for the purpose specified. 2d, The adjustment of the planing knives, E, in the block, C, by means of the inclined grooves, c, nut, F, and screw bolt, d, all constructed, arranged, and operating as described, for the purpose specified. 78,331.--MAIL CAR AND MAIL BAG RECEIVER.--William G.

[78,331,--MAIL CAR AND MAIL BAG RECEIVER.--William G. Sanford, Union City, N. Y. Iclaim, Ist, In combination with a car, A, a sliding section, B, and trap door, C, for delivering the mail, when said door is disengaged by an arn, D, actuated by a post on the side of the track, and so arranged that in falling it shall form a chute, to direct the bags in falling away from the track, substantially as described.
2d, The combination and arrangement of the sliding section, B, the trap door, C, and slide, F, for simultaneously discharging and receiving the mail, substantially as described.
78,332,--STONE BREAKER.-Hiram H. Scoville, Chicago, III. Lelaim the fixed central column C, with its corrusted faces in combination.

I claim the fixed central column, C, with its corrugated faces, in combina-tion with the corrugated faces on the oscillating hopper, D, the arm, K, the shaft. H, with its eccentric or crank, all arranged and operating substantially as herein described.

as herein described. 78,333.--WINDMILL.-Hiram M. Shaw and Geo. G. Tindall, Fremont, Ohio. We claim, 1st, The rods, f, when provided at their outer ends with the cross, h, in combination. with the disk. B, and weighted arm, g, whereby, as the disk is raised. the cross, h, is changed from a vertical to a horizontal po-sition, to render the sails inoperative, as herein shown and described. 2d, The combination of the pivoted trough, J, rod, m, disk, H, weighte I arms, g, eye, F, rods, f, cross, h, and hinged sails, A, all arrange i as described for the purpose specified. 78,334.--CLAMP FOR HOLDING LEATHER TO THE CURRIER'S

e, or their equivalents, on its surface, and with marks, f, on its front edge, all arranged as set forth, for the purpose specified. 78,339,--PLOW,--Gabriel Utley, Chapel Hill, N. C.

10,539.--FLOW.--GaDRIEL ULEY, CHAPEL HIII, N. C.
1 claim, Ist, Securing the mold board, E, to the plow by means of the dove-tailed tongue, e', formed upon its inner side, fitting into a dovetailed groove formed in the forward side of the arm, G, cast solid upon the side of the standard, C, substantially as herein shown and described and for the purpose set forth.
2d, Securing the point, F, to the plow by means of the dovetailed groove formed in the forward side of the arm, G, cast solid upon the side of the lower part of the standard, C, substantially as herein shown and described and for the purpose set forth.

3d. C

n. tring the mold board, E, and point, F, to each other by means of

pose set forth. 3d, Connecting the mold board, E, and point, F, to each other by means of the pin, I, passing through the lower part of the said mold board, E, and through the extended end of the tongue, b', substantially as herein shown and described and for the purpose set forth. 4th, The combination of the tongued point, F, tongued mold board, E, grooved arms, H and G, and standard, C, with each other, substantially as herein shown and described and for the purpose set forth. 78,340.—CARRIAGE.—J. D. Van Hoevenbergh, Kingston, N.Y. I claim the combination and arrangement of the notned side plates, D P. ad inclined hooks, H H, fortastening movable seats, substantially as and for the purpose herein specified. Also, the indiarubber straps, C C, under the springs, B B, secured thereto and arranged in combination therewith substantially as and for the purpose herein set forth. Also, the brake blocks, P P, balanced by the counter-weights, R R, in com-bination with the double whilletree brake bar, N, and sliding tongue, L, sub-stantially as and for thepurpose herein specified. 78,341.—WooD TURNING LATHE.—A. J. Van Ornum, Hart-ford, Vt.

stantially as an in a work of TURNING LATHE.—A. J. Van 78,341.—Wood TURNING LATHE.—A. J. Van ford, Vt. 1 claim the sleeve, B, having a square socket, B', and adapted to rotate with and be moved ionzitudinally upon the center, A, substantially as and for the purpose herein set forth. 78,342.—GLOBE VALVE.—J.B.T.Van Patten, Sing Sing, N.Y. 1, the construction of valve, C, and hollow spindle, E, substantially as de-I claim the construction of valve, C, and hollow spindle, K, and their ar-angement with reference to wheel, H, and spindle, E, substantially as de-orlbed and set forth. 78,343.-BRICK MACHINE.--Lewis M. Van Sickle, Wood-

(8,545.—DRUCK DEADBILE. LOUIS F. from the vertical shaft, C, I claim, 1st, The operating of the plungers, F, from the vertical shaft, C, I claim, 1st, The operating of the slotted arms, J J, the reciprocating frame, H, bars, G F, connected with the bars, i, fitted in the framing, B, and having the the plungers, F, attached to them, substantially in the manner as and for the purpose specified.

use spe The purpose specified. 2d, The gates, K K, operated as shown, in combination with the discharg-ers, m, and the plungers, F, all arranged so as to be operated from the shaft, C, in the manner substantially as and for the purpose specified. 78,344.— WOOD CLEAVER.—John Van Winkle, N. Y. city. I claim a hatchet or cleaver, A, formed or provided with a dendent bar, D, at its forward end, said bar extending below the cutting edge of the tool, and guar sing the same from injury when in use, substantially as described. 78,345.—POTATO DIGGER.—George Vowles, New Hudson, Mich.

Mich. 1 claim, 1st, The knife, C, constructed with fingers, C2, and bowed arms, C1, by which it is adjustably attached to the handles. B, and connected also therewith by the braces, F, substantially as described. 2d, In combination with the knife, the adjustable spring, E, for regulating the depth of the cut, substantially as described. 3d, In combination with the knife and fingers, the rake, D, substantially as described. 4th. The arrangement of the target at the substantial target.

escribed. Ath, The arrangement of the tongue, A, handles, B, and cross brace, B', and knife, C. substantially as set forth. 78,346.—FRUIT CAN.—John R. Williamson, Bethlehem, N. J. (claim, 1st, The cam, D, having the handle, d, and working in grooves, b, that are provided in the sides of the can, when said cam is operating, sub-stantially as described, to hold down the cover of a fruit can, as set forth. 2d, The combination of the cam, A, which has the flange, a, and grooves, b, with the cover, B, elastic, D, and cam, D, all made and operating sub-stantially as herein shown and described. 78,347.—HORSE HAY FORK.—W. D. Wilson, Watertown, N.Y. I claim, 1st, The levers, k1, in combination with the plug, e, as and for the purpose set forth.

1 claim, 1st, incluvers, k i, in combination with the arm, l", and screw, l", in man-purpose set forth. 2d, The levers, k l, in combination with the arm, l", and screw, l", in man-ner described.

78.348.—BRICK MACHINE.—John S. Wood, Hartford, assign-

78,348.—BRICK MACHINE.—John S. Wood, Hartford, assignor to himselt and Elizabeth P. Seymour, West Hartford, Conn.
I claim, ist, The notched bar, H. hinged to the loose arm, h. upon the shaft. G. and serving to connect said arm with the crank, f. substantially as described for the purpose specified.
2d, The lever, i, having lugs, Im, fitted loosely upon the rock shaft, G. and connected with the main driving shaft, in combination with the loose arm, h. qrank, f. and hinged rack bar, H. for the purpose of giving motion to the rock shaft, G. substantially as described.
3d, The swinging grate, M. in combination with the sliding gate, N. and the pins, n, all made and operating substantially as herein shown and described.

78,349.-RAILROAD STATION INDICATOR.-J. F. Zacharias,

78,349.—KALROAD STATION INDICATOR.—G. F. Lucchartan, Leesburg, Va.
1 claim, ist, The combination of the apron or band, E, rollers, F G', cord, G, and operating roller, L, substantially as described.
24, In combination with the foregoing, the supplemental roller or shaft, R, substantially as described.
34, The arrangement, with the elements in the foregoing first clause, of the pressure rollers, P P, substantially as described.
78,350.—HASSOCK MACHINE.—C. F. Anthony, Chicago, Ill.,

assignor to himself and John Charters. I claim the three-part hoop, A B B, whose top, A, is removable, and the lower part, B B, hinged at the bottom, and having a rim, CC, with project-ing brads, a a etc., for holding a hassock cover, substantially as and for the purpose set forth. 78,351.—CLOTHES DRYER.--William Arrouquier, Worcester,

78,351.—CLOTHES DRYER.—WIIIIAM AFFOUQUIEF, WORCESTEI, Mass.
1 claim, 1st, The combination, with the side pieces, D D, and end pieces, E
c of the eyes, b b, endless bands or cords, m, pulley supporting pieces, F, and ap pieces, f, substantially as and for the purposes set forth.
and the combination, with the hinged and folding clothes-drying frame, of cords 1, or their equivalents, for supportnor the same upon the exterior of the widow, substantially as and for the purposes set forth.
3d, The combination, with the frame, C, ears, f, and eyes, b b, of the sup-porting wires or cords, B, and the fastenings, h, substantially as and for the purposes set forth.
4th, The combination, with the frame, C, and ears f, of the buttons, n, substantially as and for the purposes set forth.
78,352,--APPARATUS FOR CONCENTRATING SULPHURIC ACID. --Daniel Ashworth and Robert B. Eaton, Woburn, Mass.
We claim, ist, Conducting the steam or vapors from the retorts to the oil of vitriol chamber, for the purpose and in the manner substantially as set of vitriol chamber, for the purpose and in the manner substantially as

2d, Cooling the concentrated oil of vitriol and heating the vitriol before its concentration, by passing the same around or through a vessel, I, constructed as described. 3d, Constructing the pan, c, with: tubes or flues, d, for the purpose speci-

as described. 3d, Constructing the pan, c, with: tubes or flues, d, for the purpose speci-fied. 4th, Conducting the acid from one retort to the other, by means of siphons or tubes, as described. 5th, Constructing the retorts of platinum, or partly of platinum and partly of glass, when the same are arranged in a series and communicate with each other, as set forth. 78,353.—ENVELOPE MACHINE.—James Ball New York city. I claim, 1st, The arrangement of a revolving gummer, G, having a differ-ent velocity from the table which supports the blanks, in combination with the reciprocating table, C, substantially as and for the purpose described. 2d, Gring to the revolving gummer a positive compound rising and failing and revolving motion, substantially as and for the purpose described. 3d, The cam, a stop, ul, and weight or spring, g, in combination with the plone set forth the shaft of the gummer, G, substantially as and for the purpose described. 5th, Gring to the pile of blanks a motion under the gummer, G, and picker, the arrangement of n aroundare stop motion, composed of the latch, d, oring to the pile of blanks a motion, ounposed of the latch, d, and notch in the frame, A, in combination with the gummer and picker, and with the platform, D, supporting the blanks, substantially as and for the purpose described. 7th, The arrangement of distinct strips, N, catching over the edges of the lower creasing box, and attached thereto by set screws, substantially as and for the purpose set forth. 7th, The arrangement of distinct strips, N, catching, our more set screws, substantially as and for the purpose described. 9th, The spiral carriers, O, to carry the envelopes along, and retain them ree from pressure until the gum has dried, when arranged substantially as described.

and set screws, b, for holding the saw, and having the lever, E, arranged to operate therein, substantially as shown and described.

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And solves of the point of the purpose set forth. 78,359.— Window BLIND.— Wm. Bellairs and Henry Demott, 78,359.— Window BLIND.— Wm. Bellairs and Henry Demott, 1. Asymptotic and the purpose set forth.

78,359.— WINDOW BLIND.— Wm. Bellairs and Henry Demott, Atkinson, Ill. We claim the arrangement of the slats, A A, and folding bar, B, in casing, C, arranged either outside or inside of the window, and operating by means of the cords, D and F, and loaded tassels, E and G, substantially as and for the purposes above set forth. 78,360.— MACHINE FOR GRANULATING AND FINISHING TOBAC-co.—Nicholas H. Borgfeldt and Frederick W. Ritterhoff, New York city . We claim in a device for granulating and finishing tobacco. the arrange-ment of the spiral brushes, cylindrical sieve. B, conveyer screw, E, cylindri-cal sieve. D, and the discharges, F G, when constructed and operating as herein described and the discharges, F G, when constructed and operating as

78,361.—ALPHABET TOY.—Robert J. Clay, Flushing, N. Y.

(5,501.—ALPHABET TOY.—KODERT J. Clay, Fulshing, N. 1. I claim, ist, A traveling alphabet, preferably of pictorial character, oper-ated automatically, by means of clockwork, within a stand or case, by caus-ing the same to wind and unwind intermittentity on and off drums, and so as to expose but a letter at a time, substantially as specified. 24, In combination with an intermittentity traveling alphabet a pron, oper ated automatically as described, the bell, R, struck to indicate the changes made in the exposure of the letter; essentially as herein set forth. 3d, The combination of the alphabet a pron, C, drums, D E, spoke driving wheels, FG, bell, R, with its hamere, and clock or watchwork, all arranged within a stand or case, having a partially transparent front, for operation as described.

rom the bolls by means of knocking or shaking the cotton plant, as set forth and specified. 2d, The arrangement o. fialls, d, at the lower end of a revolving shaft op-erating the cotton plant, in the manner and for the purpose substantially as set forth. 3d, In combination with a shaking device which loosens the cotton from the boll, the use of a blast of air to blow the thus loosened cotton into a re-ceiver, substantially as described. 4th, The blast opening, J, in combination with the screen or receiver, F, said opening and receiver extending nearly from the top to the bottom of the cotton plant, in the manner and for the purpose set forth. 5th, The trongh, G, provided with an encless conveyer bet, L, to convey the cotton from the receiver, F, to the after part, or to any other desired part of the machine, constructed and operated substantially as set forth. 6th, The guide's, V and W, or their equivalent arranged and constructed so as to litt up the lower branches of the cotton plant, and to guide the plant, in he manner and for the purpose substantially as set forth and described. 78,363.—PARING KNIFE FOR BOOTS AND SHOES.—W litiann De Camp (assignor to hinse) and A. R. E. Falck), N awark, N. J.

16,505.—FARING KNIFE FOR BOOTS AND SHOES.—WIIIIam De Camp (assignor to himseli and A. R. E. Faick), N. Jwark, N. J. I claim the handle, A. guidepiece, y. adjuster, V. wedge, C. knife, B. and the screw, S. all combined, constructed, and arranged substantially in the man ner and for the purpose specified and shown. 78,364.—HARNESS BUCKLE.—P. S. Crawford, Rockford, III. I claim as an article of manufacture the circular irame, A. having tongue, B. of tapering form, hinged to bars C., D or D, substantially as shown and Schort C.

78.365.

set forth. 78,365.—CHANDELIER.—John A. Evarts (assignor to Bradley & Hubbard), West Meriden, Conn. I claim, 1st, The flange, A, combined with the parts, B and C, and construc-ted so as to receive and hold the arms, E, substantially in the manner de-scribed. 2d, The arrangement of the pulleys, b, upon their arms, G, when the said arms are secured in the base, F, substantially in the manner and for the pur-pose set forth. arms are secured in the base, F, substantially in the manner and for the pur-pose set forth. 3d. The weight, consisting of the two parts of the case, H and I, secured together by the bolt, L, and nut, N, and provided with adjustable weights, P substantially in the maner herein set forth. 78,366.—COVERED DISH.—W. A. Fenn, West Meriden, Conn. 1 claim the arrangement of the sleeve, d, upon the trunnion, C, and com-bined with a bearing, a, which said bearing is provided with an open slot, the whole constructed and arranged to operate in the maner set forth. 78,367.—Wayee BET TO PUTPUT = \_\_\_\_\_ Vestors for the the maner set forth.

78,367.-WAIST BELT OR GIRDLE.-M. Isadora Findley, New [78,367,—WAIST BELT OR GIRDLE.—M. Isadora Findley, New York city. Antedated May 15, 1868. I claim the detached buckle, B, with its knob or button-shaped projections, d, in combination with the perforated ends of the belt, for use substantially as shown and described. 78,368.—CHURN.—Isaac N. Frost. Peoria, III.

I claim, 1st, The dashers, G G, propelled by a crank, in connection with the sliding plate through which they pass, substantially as shown. 2d, The sliding plate, A A, to close the slot in the top, as shown. 3d, The slot covered with a movable plate, through which the dasher may pass, substantially as shown.

pass, substantially as shown. 78,369.—HAX CUTTER.—Frederick Gerfen, West Hempfield

Township, Pa. I claim the bay outter, constructed and arranged substantially as and for the purpose specified. 78,370.— COMBINATION OF A PUDDLING FURNACE WITH A STEAM GENERATOR.—George William Hawksley and Matthew Wild, Shef-field, Eng.

neld, Eng. We claim the furnace, e, and boiler, a, constructed as described, the former being located within the latter, in such manner as to be wholly surrounded by water, the arrangement being such that the heat of the furnace generates the steam of the boiler, as shown and described. 79 271 June Durge our Semeration. Michael Hondowson team of the boller, as shown and described. 71.—CAR BRAKE AND STARTER.—Michael Henderson,

78,371.—CAR BRAKE AND STARTER.— MICHAEI HEHUEISOH, Detroit, Mich.
I claim the longitudinal bars, K, shafts, D and O, when connected with the bar, G, and operated by the lines or chains, L, secured by ratchets and pawls X, substantially as and for the purpose set forth.
Also, the combination of the above named parts with the parallel longitu-dinal rods, H, provided with spiral springs, 6, sleeves J, and connecting bar, T, the line or chain, 1. cylinder, E, and shifting bar, G, when arranged and operating substantially as herein set forth.
78,372.—POLISH FOR LEATHER.—John Herold and Mercer Brown, Frederick, Md.
We claim the within-described mixture, when compounded and used sub-stantially as and for the purpose herein set forth.
78,373.—VEGETABLE AND FRUIT, SLICER.— Elijah Holmes, Lynn, Mass.

(8)3(3.— VEGETABLE AND FRUIT, SLIVER.— Enjan fromes, Lynn, Mass.
I chain ist, The combination of the knife, H, the bar, F, the arm, I, the nut, and the spring, dor their mechanical equivalents.
20. The combination of the several parts, as above described, so that sev-eral knives shall be controlled and adjusted by a single screw or nut, for the purposes and in the manner substantially as above set forth.

78,376.—Machine for Straightening Tobacco.—Jerry A. Hunter, New London, Va. I claim the funnel-shaded brush, and the upright, self-acting rollers at-

78,377.-STEAM HEATER.-P. F. Kessler and John Carlisle,

10.011.—DIEAM HEATER.—I.F. Houser and compared with the shells. A, in radiators, as and for the purpose set fort. 2d, The arrangement of the shells, A A, pipes, b b, partitions, a a, nipples, B B, steam pipe, C, and case, E, when the several parts are constructed and operated substantially as and for the purposes set forth.

78.378.—LANTERN.—Thomas Langston (assignor to E. Miller

tache

78,374.—SKIRT FORMER.—F. Hull, Birmingham, Conn. I claim the arrangement of the adjusting bar, G, pivoted to the front arms, and provided with the bars, H. I and L. corresponding to the other arms of the form, the whole constructed so as to be adjusted by the raising or lower-ing of the bar G, substantially as and for the purpose specified. ing of the bar G, substantially as and for the purpose specified. 78,375.—MANUFACTURE OF SODA AND POTASH.—A. G. Hun-(5)570.— MANUFACTURE OF SUDA AND I VINSH. In Stranger ter, Fint, Great Britain. I claim the process of converting silicate of soda or silicate of potash into he corresponding carbonate, by double decomposition with bicarbonate of ime, as substantially described herein.

| 78,334CLAMP FOR HOLDING LEATHER TO THE CURRIER'S   | lower creasing box, and attached thereto by set screws, substantially as and  | 78,378.—LANTERN.—Thomas Langston (assignor to E. Miller   |
|--|---|---|
| BENCH.—John Shimer, Bronson, Mich.   | for the purpose set forth.  | & Co.), Meriden, Conn.  |
| I claim, 1st, The clamp pincers, B R, as constructed, having a spring catch.   | 8th. The heels, w2, attached to the folding wings, v2 v2*, by one or more set   | I claim the combination of the lamp socket, A, with the lower guard flange  |
| D, for holding them, and the hide or leather, on the bench, C, or block, for   | screws, substantially as and for the purpose described.   | C, when the said guard flange is provided with one or more internal projec -  |
| manipulating, substantially as herein described.   | 9th, The spiral carriers, O, to carry the envelopes along, and retain them  | tions, f, and the set screw, G, so as to secure the said socket to the flange,  |
| 2d, The stirrup or rack bar, E, and lever pawl, f, when applied to clamps, for tanners' and curriers' use, substantially asset forth.                  | free from pressure until the gum has dried, when arranged substantially as  | substantially in the manner herein set forth.   |
| 10 tanners and curriers use, substantiany assertion.   | described.  | 78,379.—MACHINE FOR BEAMING HIDES.—Patrick Lennox,  |
| 78,335.—Horse Hay Fork.—A. B. Sprout, Hughesville, Pa.   | 10th, The combination of two or more sets of spiral carriers, O O', running   | Lynn. Mass.   |
| I claim, 1st, A hay elevating for k provided with a penetrating point, and   | in opposite directions, substantially as and for the purpose set forth.   | I claim. 1st. In a machine for beaming hides, or sleeking or dressing leather.  |
| with rigid barbs, hooks, or spurs, operating substantially as described.   | 11th, Increasing the pitch of the screw threads at the receiving ends of the  | actuating the movements of the working tools by means of the connecting   |
| 2d, A hay elevating fork having barbs, hooks, or spurs, which are thrust<br>into and withdrawn from the hay, or equivalent material to be raised, by a | spiral carriers, OO', substantially as and for the purpose described.<br>12th, The separator, c3, in combination with the spiral carriers, substantial- | rod, g, and eccentric rod, h, the former being pivoted at one end to the slid-  |
| lateral movement, relative to each other, of the bars to which said barbs or   |   | ing carriage, and the latter to the beaming tool carrier, and both being con-   |
| hooks are attached.  | 13th, The reciprocating conveyor, d3, in combination with the spiral con-   | nected with the balance wheel by the means above described, the whole be-   |
| 3d. A hay tork proved with rigid barbs or hooks, which are covered when  |   | ing arranged and operating as before described.   |
| the fork is to be inserted into or released from the hay, and uncovered after  | described.  | 2d, The application of the elastic apron to the revolving tablet, in manner   |
| the fork has been inserted for raising the hay.  | 14th. The arrangement of a transparent panel or pane. f3. in the receiving  | and for the purposes as hereinbefore explained.   |
| 4th, A hay fork composed of bars having a lateral or shear-blade movement  | table, P, of the envelope machine, substantially as and for the purpose set   | 3d, Applying the revolving tablet to the car truck frame in such manner as<br>to be enabled to adjust its vertical positions, essentially as herein shown and     |
| relative to each other, a penetrating point, barbs or hooks, and a mechanism   |   | described.  |
| or device for operating the bars or hooks, to cause them to seize and hold or  | 78,354.—Self-clinching Spike.—James Balmer (assignor to   | 4th, The means for accomplishing this vertical adjustment of the revoloing  |
| release the load, as desired.  | himself and Wm. Greenleaf), Brooklyn, N. Y.   | tablet, the same consisting of the cross frame, o, and treadle, p, combined   |
| 5th, Giving to the holding hooks or spurs a lateral and upward movement<br>or thrust, by means of toggle links or levers connected therewith, for the  | I claim a spike split or divided longitudinally, and having its split sides so  | and arranged and operating as before explained.   |
| purpose of operating said hooks, substantially as described.   | beveled or inclined that when driven into the wood the portions on the op-  | 5th, The inclination of the outer end of the horizontal beam or guide for   |
| 78,336.—Composite PipeA. P. Stephens, Brooklyn, N. Y.  | positesides of the split or cleit will diverge in or posite directions, parallel  | elevating the beaming tool substantially as before explained.   |
| 10,000COMPOSITE I IFEA. I. Stephens, DIOOKIYH, H. I.   | with the split or cleft, substantially as herein described.   | 78,380.—Machine for Beaming Hides.—Patrick Lennox,  |
| I claim the combination of a thin, corrugated metallic sleeve with a non-  | 78.355.—Spring Catch and Stop for Doors.—Charles W.   |   |
| metallic lining, substantially as before set forth.  |   | Hiram H. Robbins, and Edward Hayes, Lynn, Mass.<br>We claim, 1st, In a machine for beaming hides or dressing leather, a device                                    |
| Also, the combination of a thin, corrugated metallic sleeve with a non-me-<br>tallic covering, substantially as before set forth.                      | Barnes, Janesville, Wis. Antedated May 19, 1868.<br>I claim knob, A, metallic springs, C, rubber seat, E, and staple, D, connect-                       | so constructed and applied thereto as to automatically press upon or clamp  |
| Also, the combination of a thin, corrugated metallic sleeve with both a  | ed to a door, when the whole are constructed and used substantially as and  | the hide to its supporting table, and hold it in position under the action of   |
| non-metallic lining and a non-metallic covering, substantially as before set   | for the purposes described.   | the beaming tool, in order to manipulate the hide at one operation.   |
| forth.   |   | 2d, As a device for accomplishing the above result, the combination and   |
| 79.927 Drugge Manual of Company William The  | 78,356.—Perpetual Calender.—Simeon L.Barinds, St. Jos-  | arrangement of the brake bar, g, with the vibrating levers, s s, such levers  |
| 78,337.—PRIMING METALLIC CARTRIDGES.—William Tibbals,  |   | being pivoted to the guides, b b, and actuated by the wipers, u u, and oper-  |
| South Coventry, Conn.  | I claim, 1st, The combination of the cardboard, E, and dials, D B, having   | ating in connection with the beaming tool, essentially in manner and for the  |
| I claim securing the anvil, B, by drawing or forming the shell, A, drawn over it in the manner shown and described.                                    | letters and figures marked on them, substantially as and for the purpose set  | purpose as nerein shown and described.  |
|  | forth.<br>2d. The combination of screw wheels, F G, screws, H I, and dials, D B, sub-   | 3d, The mode of suspending the beaming tool from the sliding carriage, c,<br>that is, by means of the plate or bracket, j, posts, i i, and springs, k, etc., sub- |
| 78,338.—TAILORS' SQUARE.—Daniel Tierney, New York city.  | stantially as set forth.  | stantially in manner and for the purpose as herein shown and described.   |
|  |   | 4th, The arrangement or disposition of the twin cranks, e, as supported by  |
| or ruler, B, is pivoted, the bar having suitable graduated scales, a b c, and a  | 78,557.—SAW-SET.—Francis Bates, Niles, Milch.   | the shafts, f f, and carrying between them the two rods, d and n, and the .ec-  |
| pointer, d, or its equivalent, and the cross piece being provided with marks,  | I claim a saw-set consisting of the frame, A, provided with the jaws, B,  | centric, p, essentially as herein set forth and explained.  |
|  |   |   |

78,381.— RUNNING CORNICE.—Alexander Leverty, Bridgeport, Conn. I claim molds or forms for running stucco cornices, constructed in the namer herein described, so as to form complete the moldings into the inter-

substantially as set forth. 78,382.—WATCH KEY.—Wm. Lindon, New Haven, Conn. Iclaim a key provided with a sheath, B, the upper end of which is slitted so as to form springs to secure the sheath to the key, substantially as set

78,383 - GRAIN CAR. - W. A. Long and J. E. Lavey, Ply-

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78,383.—(FRAIN UAR.— W. A. LOIIg and G. L. Laroj, -... month, Ind.
We claim the arrangement of the boxes, A A, with the revolving gate, C, between, and rack bars, D D, shatts, g, and cog wheels operated by the lev-ers, j, and placed at the outer ends of the boxes, substantially as and for the purposes specified.
78,384.— SHOE.— Robert O. Lowrey, Salem, N. Y.
I claim a waterproof shoe or covering for the foot, when manufactured of cloth, paper, or leather, made waterproof by my patented process herein mentioned, or of either of these materials, or of any combination of the same, substantially as herein described, as a new article of manufacture.
78,385.—BOOT AND SHOE.—Nicholas Lunsden, San Francisco, Cal.

18,363. — DOOT AND SHOE. — INICIDIAS LUIISGEIL, Sail Francisco, Cal.
I claim, ist, The regulating guide, consisting of the sliding rod, L, and its adjustable nut, M, together with the screw plate, 1, and the wire-holding clamp, the whole constructed and operating substantially as and for the purpose described.
2d, The adjustable last standard, constructed and operating substantially as and for the purpose described.
3d, The device consisting of the spring, W, rod, V, cylinder, g, and barrel, h, for obtaining a perpendicular motion of the last, and a pressure against the screw plate, substantially as and for the purpose.
78,386. — COFFEE ROASTER. — Benj. K. Maltby (assignor to Thomas N. Drake), Cincinnati, Ohio.
I claim a coffee roaster. provided with an axl: or shaft, to which paddles, acting as inclined planes, and operated substantially in the manner and for the purpose described.

Constructed, arranged and operated substantially in the manner and the purpose described.
78,387 — HOLDER FOR LATHE PLANER.— Joseph P. Manton, Providence, R. I.
Iclaim a tool holder, constructed substantially as herein described.
78,388.— MACHINE FOR LHESSING BRICKS.— JAmes McNamara, Bufalo, assignor to himself and C. D. Page, Rochester, N. Y. Antedated May 18, 1868.
Iclaim, 1st. Alternately arresting and releasing the endless carrier, B. by means of the lever, J, winch, and arm, q, r, spring, u, and wedge, t, arranged and operating substantially as settorth.
2d. The hinged plates, g, g, and springs, ij, in combination with a vertically sliding frame for operating them, substantially in the manner andfor the purpose specified.

sliding frame for operating them, substantially in the manner andforthe pur-pose specified. 3d, in combination therewith, the end plates, m m, rods, n n, and springs, p, arranged and operating substantially as and for the purpose set forth. 4th, The combination of the plates or platens, g g, m m and w, for dressing brick by simultaneously pressing it on all sides, when operated substantially in the manner specified. 5th, The machine, as a whole, constructed, arranged, and operating sub-stantially as set forth. 78 389 — CATE — Levi Miller Johnsville Ohio

-GATE.—Levi Miller, Johnsville, Ohio. a the construction of a larm gate, in the manner as herein describe essented. 78.389.

I claim the

1 Claim the construction of a lattice gave, in the second state gave, in the second state gave, in the lattice gavee, in the lattice ga

arranged and operating as and for the purpose set forth.
 78,391.—BOILER FOR MAKING MAPLE SUGAR.—Gaius L. Parker, Coventryville, N. Y.
 Ich in the casi iron heads, B B, with narrow flanges extending outward, so that the sheet metal, A, may be bent or stamped to conform to the shape of the beads, and thereto be riveted to the flanges, all constructed and used as specified.

the heads, and thereto be riveted to the flanges, all constructed and used as specified. 78,392,--SUN DIAL.-H. C. Pearsons, Ferrysburg, Mich. I claim the combination of the polar dial, A, and the equatorial dial, B, with the semi-cylinder, C, when employed instead or a plane surface for the equitorial dial. 78,353,-FIRR PLUG,-John H. Rhodes, Brooklyn, N. Y. I claim the hydrant, having its lower end working on a universal joint communicating with the water main, and its upper end sustained by suitable springs, substantially as and for the purpose specified. 78,394.-BAGGAGE CHECK.-H. Schuyler Ross, Buffalo, N. Y., assignor to Charles G. Ross, New York city. I claim. 1st. The combination of a baggage check, containing many names and perforations, with a separate and detachable pointer or indicator, sub-stantially as herein specified. 2d, A cetachable metallic index or pointer, so constructed as to securely re-tain a given position upon a baggage check, containing many names and per-foratiors, substantially as and for the purpose specified. 78,395.-STEAM WATER INJECTOR.-H. Schuyler Ross, New York tiv, assignor to Charles G. Ross and Henry B. Eells. Antedated I claim, 1st, The arrangement of the water pipe or conductor, E, in such relation to the steam pipe or jet, C, that the discharge end of such water pipe relation to the steam pipe or jet, C, that the discharge end of such water pipe

May 14, 1868. I claim, ist, The arrangement of the water pipe or conductor, E, in such lation to the steam pipe or jet, C. that the discharge end of such water pipe all open or discharge within the steam pipe or jet, substantially as herein worked

Stall open or discharge within the steam ppe or jet, substantially as herein specified.
2d, The arrangement of the water pipe or conductor, E, so that by a longitudinal movement of the said water pipe or conductor the flow of steam from the steam ppes or jet, c, may be entirely shut off or regulated, substantially as herein specified.
78,396.—HAND SEED SOWER.—E. W. Sanderson and W. A. Shatuck, Hilsboro county, N. H., assignors to themselves, Benj. Whiting and H. J. Miller.
We claim. Ist, The cylinder, A, with grooves and straps, D, made and arranged and operating with screw, F, substantially as and for the purposes set forth.
2d, The arrangement of the purposes above set forth.
78,397.—SPRING BED BOTTOM.—Alvah L. Sawyer and Wilson Baldwin, Detroit, Mich.
We claim the combination of the fulcrum blocks, C C C, the crotched, transverse spring, D, and the slats, H H, etc., when constructed, arranged, and operating substantially as here in set forth and shown.
78,396.—CHURN.—Augustus Schuffert and George Cooper, Wyandotte, Mich.

(3,393.—CHURN.—Augustus Schullert and George Cooper, Wyandote, Mich. We claim the combination and arrangement of the shafts, B and E, togeth-er with the wheels, C and D, and the dasher, operating as and for the purpose boye described.

above described. 78.399.—Apparatus for Measuring Cloth.—Caleb L. Shot-

10,303.—AFFARATOS FOR MEASURING OLOTH.— Caleb L. Shorwell, Allamuchy, N.J. I clam, 1st, The combination with an apparatus constructed substantially as described, for measuring cloth in the roll or piece, of a dial or indicator, substantially as described. 2d, The combination with a cloth measuring device of a reel, cord and dial, substantially as described and for the purpose set forth. 3d, The measuring apparatus, constructed as described and shown by the drawings.

78,400.—Method of Mounting the Cutters of Rotary

PLOWS-Philander H. Standish, Martinez, Cal. I claim, ist, The revolving hubs, E & aud the supporters, F F, constructed and operating substantially as at. d for the purpose described. 2d, A flexible or yielding arm, having the spring, G, or its equivalent, tod. regether with the rotary outler, substantially as and for the purpose described. 78,401.—MACHINE FOR GRINDING THE CUTTERS OF MOWING

\*78.401.—MACHINE FOR GHINDING THE CUTTERS OF MOWING MACHINES - Anson P. Thayer, Syracuse, N. Y. Iclaim, ist, A portable grinoling mechanism for grinding the cutters of mowing machines, provided with a bench forming a seat for the operator, substantially as and for the purpose described. 2d, A mowing machine grinding wheel provided with means for pressing it upout the cutter biades with a yielding pressure, substantially as and for the purpose described. 3d, The combination of the vertical extensions, C1 and C3, of the frame, C, with the bench, substantially as and for the purpose described. 4th, The mechanism of a portable cutter grinding machine, constructed substantially as described, in combination with driving mechanism arranged for the application of both hands of the operator to the driving sliaft, sub-stantially as and for the purpose described. 5th. The combination with the rame, C, and the swinging frame, D, of the screwed sleeve, H, provided with a swivel joint, substantially as and for the purpose described.

the same, for the purpose designed. 78,406.—DUST PAN.—L. F. Wheaton, Madison, Conn. I claim a dust pan having the pans, a. arranged near its handle edge, so to elevate and hold the pan, substantially in the manner and for the purp described. f claim a elevate escribed.

described. 78,407.—WOOL BOX.—Carmi Wightman, Batavia, III. I claim the leaves, C C, D D, bed, I, frame, A B, gnides, F F, cross piece, N in combination with lever, K, pulley, P, and cord, M, the whole being con-structed and arranged to raise and lower said leaves, substantially as set forth.

78,408.— PHOTOGRAPHIC CAMERA.— Simon Wing, Boston,

Mass. I claim, 1st, The self-adjusting partition, C. so acting as to be in contact with the diaphragm in all positions of the lenses, without interfering with the adjustment of the latter, substantially in the manner and for the purpose described

the adjustment of the latter, substantially in the manner and for the purpose described. <sup>2(4)</sup>, in combination with a sliding shut-off, the handle, G, constructed and operated in the manner and for the purpose set forth. 78,409.—OINTMENT.— Mrs. H. T. Wood, San Francisco, Cal. I claim the above-described composition for ointment, made of the ingre-dients enumerated, mixed or compounded in about the proportions speci-fied.

## REISSUES.

2,943.—NECK TIE.— Herman Bendix (assignce of Herman Bendix and J. H. Fleisch), New York city. Dated March 13, 1866. I claim a tastening device for neck tie, consisting of a hook, a, elastically secured to its holder or retainer, subsismitally as described.

2,944.—MELODFON.—La Fayette Louis, Providence, R. I.— Dated Nov. 18, 1856. Reissue 2,498, dated Feb. 26, 1867. I clam in combination with the reeds of a melodeon (or that class of in-strumet, is in which the air is drawn through the reeds by the exhaust action of a bellows), a tremolo valve or valves, so arranged that when vibrated it or they shall interrupt the passage of air through the reeds by the exhaust action of a bellows), a tremolo valve or valves, so arranged that when vibrated it or they shall interrupt the passage of air through the reeds by the exhaust action of a bellows), a tremolo valve or valves, so arranged that when vibrated it or they shall interrupt the passage of air through the reeds, and thereby pro-duce the tremolo sound, at the will of the performer. Also, in combination with the reeds of a melodeon, a tremolo valve, actua-ted by a rotary fan or blade wheel, substantia'ly as described. Also, in combination with the reeds of a melodeon, a tremolo valve or valves, having a positive connection with the valve actuating mechanism, substantially as described. 2,945.—FENCE POST.—Robert Ramsey, New Wilmington, Pa. Dated Dec. 10, 1867. I clam. ist, The compensating features of the posts, whether effected by the formation of the gains or by keys, substantially as and for the propes est forth. 2d. The combination of pass PP'P'' when provided with source or down at the source of the pass of the posts.

rtn. The combination of posts, P P' P'', when provided with square or dove ains, with sills, A A', and keys, e e e, substantially as and for the pur pecified. set forth taĩ

10. Satisfy and the start of the start of

2,947.—Compound for Treating Hides and Skins.—L. F. Robertson, West Farms, N. Y. Dated April 21, 1868. I claim a compound for treating hides and skins, made of the materials even described.

2,948.—STEERING APPARATUS.—Charles H. Sawyer, Buxton

Me. Ma. ch 31, 1868. I claim the apparatus as herein described, having the wheel shaft, B, with I right and left screw, d, the two small dualle gears, ab. and larger gear, with the teeth on the inner periphery thereof, substantially as and for the form of nutronome

24, arranged as described, for the purpose level in betweet to be and purposes. 2,949.—PUMP.—Wm. Shoup, Saltsburg, Pa. Dated Dec. 27, 1864. Antedated April 26,1862. I claim, 1st, The combination with the pump tube, B, of the onter tube, C, and seed bag. F, placed around outside of it, irrespective of the gate or valve, D, in combination with the tube, C, and pump tube, A, arranged as described, for the purpose levels betweet to be and pump tube, C, and pump tube, C, and pump tube, C, and pump tube, C, and pump tube, D, the combination with the tube, C, and pump tube, A, arranged as described, for the purpose set forth. 2,950 — INVALID BEDSTEAD.—Wm. Heath, Bath, Me. Dated March 10, 1888.

A, arranged as described, for the purpose set forth. 2,950 — INVALID BEDSTEAD.— Wm. Heath, Bath, Me. Dated March 10, 1888. I claim the combination of the recesses, K.K. L.I,' or their equivalents. with the frame, A, thet wo fiames, D E, and mechanism for moving and de-pressing, or operating the back frame, E, substantially as described. Also, the combination of the rolding legs, M, with the arms, h h or their equivalent, the toothed sectors, their arms, ff, the frame, A, and the parts, B C D E, arranged and connected substantially as described. 2,951.—COMBINED RAKE AND REEL FOR HARVESTER.—Sam'l Johnston, Burtlajo, N.Y., assignee by mesne assignments of himself.— Dated Feb. 7, 1865. I claim, 1st, In combination with a series of revolving arms carrying heads or beaters to descend to the same gathering level in front at late the heads or beaters to descend to the same gathering level in front at late he plat-form, and above the level pursned by the discharge hore heads or rakes which all gather the grain, and a part only of which discharge the plat-form, and above the level pursned by the discharging head or rake. \* at lo combination with a series of revolving arms carrying heads or rakes which all gather the grain, and a part only of which discharge the plat-form, and above the level pursned by the discharging head or rake. \* at lo combination with a series of revolving arms carrying heads or takes which all gather the grain, and a part only of which discharge the grain, as carn so arranged as to cause all the heads or beaters to descend to the same gathering level in front of the cutters, and a device for throwing thoseheads or the teet th thereof, which ad on th discharge, above the cut grain while past-ing the platform, and above the level pursned by the heads, or the teeth thereof, which ad on a da part on y of which discharge the grain. and a cam so arranged as to cause all the heads or beaters to descend to the same gathering level in front of the cutters, an then tor isse

heads to descend while passing the platform, and become a discharging rake or bead. 4th, in combination with a series of revolving arms carrying heads or rakes which all gather the grain, and a part only of which discharge the grain, a cam so arranged as to cause all the heads or beaters to descend to the same gathering level in front of the cutters, and a device for throwing those heads, or the texth thereof, which do not discharge, above the cut grain while pass-ing the platform and above the level pursued by the heads, or the texth thereof, which do discharge the grain, making the said last mentioned device movable, so as to permit any one or more of said heads, or the texth thereof, to descend to the level of the platform and discharge the grain. 5th, in combination with the movable device set forth in the last claim, a cord, or equivalent connection, extending to the driver's seat, for operating the said device, so as to regulate the size of the gavel at the will of the driver.

the said device, so as to regulate the size of the gavel at the will of the driver. 6th, in combination with a series of revolving arms carrying heads or rakes which all gather the grein, and a part only of which discharge the grain, and a cam way so constructed and arranged as to cause all the heads or beaters to descend to the same gathering level in front of the cutter, and then to ele-vate those which do not di-charge above the cut grain on the platform and above the level pursued by the discharging head or rake, an auxinary cam way for guiding and controlling the arm on the rake or head which discharges the grain while said arm is passing the platform. 7th, in combination with a series of revolving arms carrying heads or rakes which all gather the grain, and a part only of which discharge the gain, and a cam so granged as to cause all the heads or beaters to descend to the same gathering level in front of the level pursued by the heads, or the teeth thereof, which so cischarged the grain, an auxiliary cam way opposite to the platform or gual and above the level pursued by the heads or the cate the the pas-ing the platform, and above the level pursued by the heads. Or the teeth the eof, which so cischarged the grain, an auxiliary cam way opposite to the plat tor gual ag and controling the arm of the rake or head which also ascharges the grain. 8th, The overhapping extension attachment to the back

The grain. Sth, The overhanging extension attachment to the heads or beaters, in com-bination with the outer divider and rum of the platform. 9th, The combination of the elbow of the rake arm with the roller and the outer and inner tracks or ways, constructed substantially as described and for the purposes set forth.

2,952.-Mode of Printing Photographic Pictures.-Isaac

Rehn, Philadelphia, Pa. Dated April 14, 1868. I claim the combination of the silver, the albumen, and the salt, with a pig-nentary subs ance, to give increased sensitveness and consistency to the photographic compound, substantially as described.

2,953.-WATCH.-O. F. Stedman, Ravenna, Ohio. Dated Jan.

28, 1563. I claim the ring or band, C, bevelled or made thin at one edge or side, said band being made narrower than the movement, and wide enough to cover the space between the plates, a and b, substantially as and for the purposes

et, B, tae strap, C, the hinge joint, E, the button, F, the slot, G, the pins, H and i, and the level, K, arranged and described, or any other substantially 3,051.—PARLOR STOVE PLATE.—D. S. Colby and Robert Scorer, Troy, N. Y

JUNE 13, 1868.

3,052.-TRADE MARK.-G. P. Farmer, Philadelphia, Pa.

3,053.- SPOON OR FORK HANDLE. - Alonzo Hebbard (assignor to Edward Corning), New York city. 3,054.-TRADE MARK.-G. W. Waitt, Philadelphia, Pa.

3,055.-COOKS' STOVE.-J. J. Anderson, Rochester, Pa.

3,056.—Cooks' STOVE.—T. S. Mitchell, Pittsburgh, Pa.

3.057.-FRAME OF A SCHOOL DESK AND SEAT.-H. M. Sherwood, Chicago, 111.

3,058.—PLATES OF A COOK'S STOVE.—Garrettson Smith and Henry Brown (assignors to Abbott & Noble), Philadelphia, Pa. Ante-dated May 5, 1868.

3,059 — ILLUMINATING RING FOR GAS STOVES.—Garretson Smith and Henry Brown (assignors to Abbott & Noble), Philadelphia, Pa. Antedated May 5, 1868.

3,060.-WATER-CLOSET RECEIVER.-Wm. Smith, San Francisco. Cal.

## Inventions Patented in England by Americans. [Compiled from the "Journal of the Commissioners of Patents."

PROVISIONAL PROTECTION FOR SIX MONTHS.

1.257.-SECURING TUBES IN STEAM BOILERS. ETC.-Geo. P. Hunt, New York city. April 17, 1868. 1.266.-MANUFACTURE OF HATS AND BONNETS.-Chauncey O. Crosby, New Haven, Conn. April 18, 1868.

1.270.—MACIINE FOR TURNING OFF CROSS-HEAD WRIST PINS, CRANK PINS ETC.—Theodore A. Goff, San Francisco, Cal. April 18, 1868.

1,288.—CONSTRUCTION OF RINGS FOR RING SPINNING.—Cyrus B. Morse, Rhinebeck, N.Y. April 20, 1868.

1,307.—Apparatus for Stamping, Dating, Indicating, and Canceling Marks or Designs.—Edward Chamberlain, New York city. April 22, 1868.

1.215.—MACHINES: FOR MANUFATURING SMALL ARVICLES FROM SHRET METAL—LAURISTON TOWDE, Providence, R. I. April 22, 1868. 1.316.—CARPET LININGS, AND MACHINERY FOR MANUFACTURING THE SAME. -Geo. W. Chipman, Boston, Mass. April 22, 1868.

1,318.—PADDLE WHEEL FOR VESSELS.—Donald L. McDonell, Detroit, Mich. April 22, 1868.

1,839,--''ARTRIDGE BOX OF HOLDER.-Paul F. Schneider, Hartford, Conn. April 23, 1868.

begraning. If the parties consulted are honorable men, the inventor may safely con-fide his ideas to them: they will advise whether the improvement is proba-bly patentable, and will give him all the directions needful to protect his richts.

by patentable, and will give him all the directions needful to protect his rights. Messre, MUNN & CO., in connection with the publication of the SCHENTIFIC AMERICAN, have been actively engaged in the business of obtaining patents for over twenty years-nearing a quarter of a century. Over Fifty Thousand inventors have bad benefit from our counsels. More than one, third of all patents granted are obtained by this firm. Those who have unde inventions and desire to consult with us are cor-dially invited to do so. We shall be nappy to see them in person, at our office or to advise them by letter. In all cases they may expect from us un-honest opinion. For such consultations, opinion, and advice, we make no charge. A plen-and-lack sketch, and a description of the invention should be sent, together with stamps for return postage. Write plainly, do not use pencil nor pale ink; be prief. All business committed to our care, and all consultations, are kept by us secret and strictly confidential. Address MUNN & CO., SI Park How, New York.

York. In Order to Apply for a Patent, the law requires that a model shall be furnished, not over a foot in any dimensions—smaller if possible. Send the model by express, pre-paid addressed to Munn & Co., 37 Park How, New York, together with a description of its operation and merits. On receipt thereof we will examine the invention carefully and advise the party as to its patentability, freed charge. The nodel should be neaty made of any suitable materials, strongly fast-ened, without glue, and neaty painted. The name of the inventior should be eneraved or painted upon it. When the invention consists of an improve-ment upon some other machine, a full working model of the whole machine with clearness, the nature and operation of the inprovement. New medicines or medical compounds, and useful mixtures of all kinds, are patentable. When the invention consists of a medicine or compound, or a new article of manufacture, or a new composition, samples of the article must b fur inshed, neatly put up. Also, send us a full statement of the ingredients, pro-portions, mode of preparation, uses, and merits. Reissues.-A reissue is granted to the original patentee, his heirs, or the

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from inadvertence, accident, or mistake, without any traduatene or occepture intention. A patentee may, at his option, have in his reissue a separate patent for each distinct part of the invention comprehended in his original application, hy paving the required fee in each case, and complying with the other require-ments of the law, as in original applications. Each division of a reissue consultates the subject of a separate specifica-tion descriptive of the part or parts of the invention claime 1 in such divis-ion; and the drawing may represent only such part or parts. Address MUNN & CO., 37 Fa. k Row, for full particulars.

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## ATENTS.



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| purpose described.   | herein set forth,   | worth equally as much in England and some other foreign countries. Five   |
|--|---|---|
| 6th, The combination of the oscillating frame, D, with the feeding screw,<br>E, arranged within the frame, and serving as the axial support of the same,     |   | Patents-American, English, French. Belgian, and Prussian-will secure an   |
| substantially as and for the purpose described.  | i by meane assignments of John N. Dennisson). Newark, N. J. Dated Feb.  | inventor exclusive monopoly to his discovery among ONE HUNDRED AND<br>THIRTY MILLIONS of the most intelligent people in the world. The facilities |
| 7th, The rotating feed screw in combination with the sliding frame, grind-   | 7,1865.   | of business and steam communication are such that patents can be obtained   |
| ing wheel, and its operative mechanism arranged with the screw, substan-   | We claim, 1st, A force pump, which may be adapted to throw a larger or<br>smaller quantity of w ter at each stroke, by varying the effective area of its  | abroad by our citizens almost as easily as at home. The majority of all pat-  |
| tially as and for the purpose described.   | piston surface, by means substantially as herein set forth.   | ents taken out by Americans in foreign countries are obtained through the   |
| Sth, The combination of the frame, C, with the adjustable sleeves, al and  | 2d, A force pump, provided with one or more ports or passages, the open-  | SCIENTIFIC AMERICAN PATENT AGENCY. A circular containing further in-  |
| a2, posts. B1 and B2, and the bench, A, substantially as and for the purpose described.  | ing of which will relieve a part of the piston surface from labor or pressure   | formation and a Synopsis of the Patent Laws of various countries will be<br>furnished on application to Messrs. MUNN & Co.                        |
| 9th, The combination of the frame, C, with the sleeve, a2, post, B2, provid-   | on the water, so that the whole power of the motor can be applied to the  | For instructions concerning Foreign Patents, Reissues, Interferences,   |
| ed with the spiral spring, b2, and adjustable rings, b and b1, substantially as  | water delivered from the pump by the operative part of the piston, substan-<br>tially as described.   | Hints on Selling Patents, Rules and Proceedings at the Patent Office, the Pat-  |
| and for the purpose described.   | 3d. Increasing or diminishing the effective area of the pump or pumps by  | ent Laws, etc., see our Instruction Book. Sent free by mail on application.   |
| 10th, The combination with the frame, C, of the crank shaft, C2, vertical shaft, I, and screw shaft, E, provided with the connecting gear wheels, sub-       | means of a valve placed in the partition between them, so that the quantity   | Those who receive more than one copy thereof will oblige by presenting them to their friends.   |
| stantially as and for the purpose described.   | of water discharged at a struke can be increased or diminished at pleasure.   | Adaress all communications to   |
|  | without altering the speed or stroke, substantially as described.   | MIINN & CO  |
| 78,402.—STUMP EXTRACTOR.—E. W. Tibbels, Chester, Pa.   | 2,755.—BUCKLE.—The West Haven Buckle Co., West Haven,   | No.37 Park Row, New York city.  |
| I claim the combination of the wheeled draft axle, A, the drag bar, D, and<br>the lever, E, with the chain and the dog attached thereto, for operation, sub- | assigneess of Sheldon S. Hartshorn, Orange, Conn. Dated November  | Office in Washington, corner of F and 7th streets.  |
| stantially as and for the purpose spi cified.  |   |   |
| 78,403.—Lock BAR FOR BRIDGES.—L. E. Truesdell, Chicago,  | We claim, 1st, A buckle, in which the tongues are formed from a single<br>piece of metal, and constructed so as to clasp the divided side, and turn free- |   |
| III.   | ly thereor, substantially in the manner herein set forth.   | Patents are granted for Seventeen Years, the following being a  |
| I claim the corrugated ends of two or more bars of iron, A and A2, B and   |   | schedule of fees:   |
| B2, when firmly held together within the compressible sides of fluted clamp  | divided and the two parts or loops hinged together, as described, and the   | On fling each Caveat  |
| plates, C, D and E, as and for the purpose specified.  | tongue clasped and hinged upon the divided side substantially as set forth.   | On issuing each original Patent   |
| 78,404. – RAILBOAD RAIL. – Z. B. Wakeman, Rockford, Ill.   |   | On appeal to Commissioner of Patents  |
| l claim the combination of the hollow shell rail, A, with its interior notches,  | DESIGNS.  | On application for Reissue  |
| and the block, B, when connected thereto by the wedge-shaped key, C, all   | DESIGNS.  | On granting the Extension   |
| constructed as specified.  | 3,049CUPBOARD LATCHS. D. Arnold (assignor to P. and   | On filing a Disclaimer  |
| 78,405.—STAKE HOLDER FOR CARS.—Wm. P. Wentworth  | F. Corbin), New Britain, Conn.  | On filing application for Design (three and a half years)   |
| (assignor to himself and Thomas S. Sprague), Detroit, Mich. Antedated  | F. Corbin), New Britain, Conn.<br>3,050.—Cook's STOVE PLATE.—D. S. Colby and Robert Sco-<br>rer. Trov. N.Y.   | On filing application for Design (seven years)  |
| May 16, 1868.  | 3,000.—COOK'S STOVE PLATE.—D. S. Colby and Robert Sco-  | In addition to which there are some small revenue-stamp taxes. Residents  |
| Lclaim the combination and arrangement of the stake, A, the cap or sock-   | rer, Troy, N. Y.  | of Canada and Nova Scotia pay \$500 on application.   |

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