

Goinon, of Williamsburgh, N. Y., who has taken measures to secure a patent. J. P. Kenyon, of the same place, is the assignce of one half the interest of the invention. Figure 1 is a view of the dam as applied in California, and the men at work in the dry bed of the stream protected by the dam. Figure 2 is a perspective view of the dam and all its parts, and fig. 3 is a small vertical section of the windlass for operating the sections of the dam. The same letters refer to like parts.

This dam is designed 'or the gold regions, for laying bare the beds of streams, and diverting and directing their courses. It is so constructed that when the wet season comes on, all its vertical parts and gates can be laid horizontally with the bed of the river, so as to allow the water to pass over freely without injuring it. Or when a transient freshet occurs. one or more sections of this dam may be lowered so as to allow the increased volume of water in the stream to pass by.

As applied in figure 1, the dam is shown in its two parts, the head or upper breakwater part, and the lower or backwater part. The water is shown as being directed from its course to the one side by a short canal, which drives a water wheel that operates a pump for drawing up and discharging the water that may be enclosed, or that oozes through between the upper and lower parts of the dam. Miners are shown at work in the bed of the stream which has been laid bare, and the auriferous earths are being wheeled on planks to the banks to be washed in the canal or in the stream behind the back of the dam. In figure 2, G G are stakes driven into the banks of the stream ; D' D' D'. are heavy sleepers; A is a strong sill, fastened to the sleepers of the upper part of the dam, and B is a like sill or cross bearer on the lower part; FF are chains for securing the dam to

The annexed engravings are views of a New | on which the posts, I I, of the windlasses are | in the usual manner. The dam being made in | axles in proper foot bearings, they are raised Sectional Portable Dam, for the golden sanded secured. These have pivot foot rests, a, below, sections can be operated and managed with a and lowered with comparative ease. Having rivers of California. The inventor is R. V. De and are capable of being lowered flat, as shown few hands and with great ease. The section, thus described these parts, their mode of opeby the one at the nigh side. These windlasses figure 3, shows how the windlass lifts up the ration and uses will be easily understood. One are for lifting and lowering the gates, C C, gate, C, and keeps it in the position required, section of the head or breakwater part of the of the dam-the gates, forming parts of as shown in figure 1, thus forming a vertical dam is shown laid horizontally as would be the same. The chains, K K, connect the lock gate. On the lower or backwater half of done during a temporary freshet, or how they windlasses with the gates—these latter hav-the dam, the pre triangular bridges, J J, on would be laid down during a long regular ing also pivot joints or axes, a, resting in the which the gates, D D, rest. These gates have freshet. It is only required to keep the water bearing boxes, b, of the sills, A B. The crank | hinged bottoms and are raised into their places | from coming in at the head and foot, the stream handles N, are for winding up the chains on to lie on the bridges, J J, as represented by being directed from its course by the short the drum, M, of the windlass, on which is a the dotted lines, e c c. These also are raised canal. pawl and a ratchet wheel, b' b", which operate and lowered by chains. As these gates rest on b

This dam, it will be seen, is composed of



two distinct parts, and it can be set across the portable coffer dam. Nothing more is required Every improvement in portable dams is of whole breadth of a stream, or only half across. to be said in explanation of this dam. Figure great importance, not only to our own people, In the latter case, the upper and lower parts | 1 shows its application and objects so clearly but to the whole world-Australia, &c.-as well of the dam would be connected or walled in and well that all can understand it, excepting as California. with a third section like one of the other two, its application as a coffer dam. It will be un-More information may be obtained by letter to form the side, or indeed the whole four sides | derstood that all the parts are to be made addressed to Mr. De Guinon or to Mr. Kenyon, the stakes; H is a strong cross bolster beam, may be made of like sections, and thus form a strong in proportion to the volume of water. Williamsburgh, N. Y.

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#### Flax Industry .- No. 6.

The flax production is the principal source of agricultural wealth to Holland. It is cultivated most extensively in South Holland, Frise, Zealand, "Brabant-on-the-North," and in some parts of North Holland, Utrecht, Auvergssel, and Dreuthe. Holland has always exported the principal part of its flax in an unmanufactured state, it is estimated that only one-twentieth of the quantity produced is consumed in the' country. Coarse goods and burlaps are produced in small quantities in the Houses of Correction, and in Alms Houses. The only manufactories of fine thread are in Boxtel and Amelo, and these are of comparatively little importance. In spite of all the efforts of the Dutch, their manufactured goods have always been inferior to those of Belgium, with the exception of the Holland duck, which has always maintained the highest reputation.

In South Holland, and in some parts of North Holland and Brabant, they cultivate a blueflowered flax, which sells for from 26 to 60 sous per stone of three kilogrammes. In the districts of Brielle, Zealand, and Dutch Flanders, they cultivate a white-flowered flax which sells for from 28 to 45 sous per stone of three kilogrammes. The district of Frise furnished a yellow-flowered flax, which resembles very closely a very fine variety of hemp, and for which they obtained from 20 to 42 sous per stone of three kilogrammes. The culture of flax greatly increased in Holland after the introduction of flax-spinning machinery. In 1836 the amount of flax exported, of all varieties, was upwards of 17,000,000 lbs.

In 1841 it was estimated that the yearly production of flax was double that produced in 1886, five years previous. The quality was about the same, however, as before. A recent Dutch writer in speaking of this, says :--- "We do not hesitate to express our opinion, that the relative inferiority of Dutch flax is to be ascribed entirely to the immense quantity produced. As an illustration it may be stated that one farmer in the vicinity of Rotterdam, in the year 1850, sowed upwards of four hundred acres with flax. It will readily be seen that it becomes extremely difficult, with so large a crop, to give to the plants that care and attention which they demands.

The great market for Dutch Flax is in Rotterdam, and the exportation is almost exclusively to England, Scotland, and Ireland.

Dutch flax of the average quality is capable of producing by machine spinning a thread of the fineness of No. 80 English enumeration.

Andrew Yarranton, Gent., of England, in a letter published in 1677, thus quaintly describes the method of spinning flax pursued in Holland and Germany at that period. 'He says :-"In all towns there are schools for little girls from six years old, and upwards, to teach them to spin, and so bring their tender fingers by degrees to spin very fine, which being young, are easily fitted for that use, whereas people overgrown with age cannot so readily feel the to go with much ease, whereby the action or motion is very easy and delightful. And in all towns there are schools according to the bigness or multitude of the poor children. I will here show the way, rule, method, and order by which they are governed.

First, there is a large room, and in the mid-Different observers make the number of the to the boiler. The boiling water should be led dle thereof a little box like a pulpit. Secondknown non-conducting substances, yet I have visible stars in the Pleiades from six to ten, or into an open receiver near the force pump, in seen a bottle hermetically sealed and then sunk ly, there are benches built round the room, as more. The usual number seen is seven; I conorder to allow the steam to escape, otherwise stantly perceive nine stars in this cluster, and | to a great depth in the ocean, and upon withthere are in our play houses; upon the benchthe pump will work in the steam and be es sit about two hundred children spinning, and sometimes ten or eleven-the ninth one being drawing it, it was found filled with water, which vented from forcing water into the boiler. The leads us to suppose that glass, although generbelow the seventh magnitude. The two stars in the box in the middle of the room sits lime will unite or aspire to the bran, and more ally believed to be solid, is infinitely porous. the grand mistress, with a long white wand in marked a (Alpha), Capricorni, being five or or less scour the aner surface of the boiler, I would propose an experiment which might six minutes apart, can be readily perceived as her hand. If she observes any of them idle she and thereby soon remove the incrustation. save much treasure, and also the humiliation of separate. The stars e and 5, Lyrae, which are reaches them a tap : but if that will not do she S. D. J. a failure. Let two pieces of wire, suitably both of the fourth magnitude, and separated rings a bell, which by a little cord is fixed to Mount Pleasant, Pa., May 2nd, 1854. covered, be prepared, and sunk in two parts, the box, and out comes a woman; she then by only a distance of  $3\frac{1}{2}'$ , are usually set down doubled, connected in the middle with an as a single star in appearance to the naked eye, Fruit on the Chaldean Plains. points to the offender, and she is then taken electro magnet, and the extremities with the and marked e (*Epsilon*) on the star maps. I Layard says that these plains produce some away into another room and chastised. And poles of a battery. If magnetic action was of the finest fruit in the world. A very deliall this is done without one word of speaking. can almost invariably recognise these stars as not developed in the magnet, it would simply distinctly separate, without telescopic aid, even cious peach has lately been introduced into And I believe this way of ordering the young prove that the water, owing to its immense England, which has created a good deal of exon bright moonlight nights and in strong crewomen is one great cause that German women pressure, had penetrated the covering and escitement among nurserymen. The plains in have so little tuit-tuat. And I am sure it pusculum or twilight. Each of these closely the spring of the year are covered with gorsituated stars is a double star, presenting the tablished a current between the two extremes would be well were it so in England. And it of the wire, thus showing that an ocean teleis clear that the less there is of speaking, the combination of a double-double, or quadruple geous flowers. Truffles grow there in great abunmore there may be of working. In a little | star; but a telescope of considerable power is graph is impracticable. dance, and are quite extensively used as an ar-I make the above statement with probably ticle of food. room by the school there is a woman that is <sup>1</sup> required for thus perceiving them. I do not

preparing and putting flax on the distaffs, and remember of ever having noticed these stars to the same feelings that caused the person to ask upon the ringing of the bell and pointing the rod at the maid that hath spun off her flax, she hath another distaff given her, and her spool of thread taken from her and put into a box with others of the same size to make cloth.

And observe what advantages they make of suiting their threads to make cloth, all being of equal threads. First, they raise their children as they spin finer, to the higher benches. Secondly, they sort and size all the threads, so that they can apply them to make equal cloths. Whereas, here in England, one woman, or good housewife, hath, it may be six or eight spinners belonging to her, and at some odd time she spins, and also her children and servants, and all this thread shall go together, some for woof, some for warp, to make a piece of cloth. And as the linen is manufactured in England at this day, it cannot be otherwise. And is it not a pity and shame that the young children and maids here in England should be idle within doors, begging abroad, tearing the hedges, or robbing orchards, and worse-when these, and these alone, are the people that may, and must if ever, set up this trade of making fine linen thread here? And after a young maid hath been three years in the spinning school, that is taken in at six and continues until nine years, she will get eight pence the day. And in these parts I speak of, a man that has most children lives best, whereas here, he that hath most is poorest. There the children enrich the father, here they beggar him."

#### (For the Scientific American.) Rays and Visibility of Stars.

The tails or rays which appear to radiate from the stars and planets, when contemplated with the naked eye, and which are always used in pictorial representations of these shining orbs, are, according to Hassenfratz, caustics on the crystalline lens. That they arise only from a defect, if this we may call it, of the organs of vision, any one may easily satisfy himself by observing their change of position just as the head is inclined in one and the other direction. Probably these tails, which give a beautiful ra diant appearance to the nocturnal sky, greatly impair the vision of minute stars that are situated in the vicinity of brilliant ones. The general invisibility of Jupiter's satellites may be attributed in part to this cause; for some of them are certainly bright enough to be seen by the naked eye, were they removed from the neighborhood of the planet. Alcor, a star of the fifth magnitude, situated within 11' 48" of Mizar, in the tail of Ursa Main, but over-powered by the rays of the latter star, was employed by the ancients as a test of the powers of vision. I can hardly see the propriety in their using this star for that purpose, for it must be visible to the majority of observers. I can always distinguish this star when others of the same magnitude in the constellation are visi-

ficult to find: now glass is the most solid of

appear single.

Minute objects of the sky can often be much better seen aside from the axis of vision, by looking steadily at some star a little removed from the object which we wish to perceive, and to which the attention is all the while directed. A little practice will enable any one to perceive objects in this manner, which would otherwise be indistinctly seen or even invisible. By thus looking at V(Nir) Andromedæ, the great nebula near it may be seen oftener on light moon-STILLMAN MASTERMAN. light evenings.

## Weld, Me., April 28, 1854. (For the Scientific American.) Stuffing and Preserving Birds.

I have seen in the "Scientific American," lately, a number of inquiries as the best method of stuffing and preserving birds; I noticed also that in one of your replies "to correspondents," you say that arsenic is the best material; in another you state that there is no reliable work upon that subject. The first statement is an error : arsenic is not the best material, although it may be that most generally employed. The best is the solution of corrosive sublimate. Arsenic in the form most commonly used, arsenical soap, is very dangerous to the operator; and there are few who have long used arsenic in any form for this purpose, who have not experienced its deleterious effects upon the constitution. The solution of corrosive sublimate can be applied entirely by means of a brush, so that the operator need never come into personal contact with it. Even if he should do so by any accident, the worst result to be dreaded is but a slight salivation; and this is hardly to be feared unless he should swallow some part of the solution or bring it in contact with an open wound. Of works on this subject, the best are, with

out doubt, those of Waterton. I am acquainted with no others equally scientific and practical. In an appendix to the "Wanderings," he gives the most complete detailed account of the best method of proceeding, from the first beginning to take off the skin to the final placing the bird upon its permanent perch. There is now in this country a specimen prepared by Mr. Waterton, some fifteen or twenty years ago, which is at this day not only complete and perfect to the minutest feather, but as elastic and flexible as when alive. The same solution is applied externally upon the feathers, which prevents their ever being attacked by moth or any other vermin.

In some of Waterton's miscellaneous writings there is a full account of the same method as applied to preserving the skins and fur of quadv. rupeds.

### New York, May 16, 1854.

#### Submarine Telegraphs. MESSRS. EDITORS-Permit me, through the

medium of your excellent paper, to make a ble. I generally perceive six tails or rays about a huge quantity o me held in solution by the few remarks upon a subject to which a notice such stars as Sirius, Vega, and the planets Juwater. The water is boiled in some kind of a in a paper drew my attention. The notice to piter and Venus, four belew and two above vessel by the escape or exhaust steam. thread. Their wheels all go by the foot, made which I allude was of a Magnetic Telegraph them, having lengths not exceeding 5' or 6'. The re-acting pressure on the piston will only Around the less brilliant stars of the first magacross the Atlantic. Many do not consider be about two and a half pounds to the square nitude. I notice five rays: and about those of the obstacles to such an undertaking (even inch, when the water in the vessel does not exthose immediately concerned.) In the first the second magnitude only four are seen, makceed five feet. The pipe to convey the water ing right angles. I perceive no tails about any place it is necessary that the wires should be to the boiler should be inserted, say 8 or 10 covered with a non-conducting, compact, and stars of less than the third magnitude, and rareinches above the bottom of the vessel, in order elastic substance, which I think would be difly about any of this magnitude. to prevent the precipitated lime from passing

Sir Isaac Newton why it was necessary to cut two holes in his door that his cat and kitten might enter his study. TAL. FULANO. Hudson, N. Y., May 8, 1854.

[Is our correspondent positive that the bottle he saw sunk was hermetically sealed? Was it not merely corked and sealed over with wax? On page 269, Vol. 4. "Scientific American," there is a letter from Dr. Nelson, on board the ship "Tarolinta," bound for California, in which it is stated that a corked and sealed bottle was let down 60 fathoms, and came up half full of salt water; but a tube that was hermetically sealed with the blow-pipe, and let down 89 fathoms, where it remained fifteen minutes, came up without a drop of water in it. This proved that the water in the bottle did not pass through the glass. Glass is not fit for a marine cable, and will not be used. Telegraph wires laid on the bottom of the German Ocean are now in successful operation, and this is proof already for the success of the Ocean Telegraph. The trouble will be in working, without relays, such a long line as that between our continent and Europe.

#### Building Locomotives in New York.

MESSRS. EDITORS-For a long time past it has seemed very strange to the writer that there were no works for making locomotives in the City of New York-that we in the central and northern part of New York State should be obliged to go to distant cities for locomotives. The facilities of your city for dispatching locomotives for the new and old railroads in this State and the Western States, I think are superior to any other part of the country. Nothing contributes more to the prosperity,the material prosperity-of a city, than wellconducted manufactories. Somewhere in the upper part of New York City, on the North River side, would be a good place to establish this branch of business. New York is unrivalled in steamship building : let her become so in the manufacture of locomotives.

ENTERPRIZE. Rome, N. Y., May 6, 1854.

### (For the Scientific American.)

To Prevent Incrustations in Steam Boilers. There has been considerable said, from time to time, in the columns of the "Scientific American," about preventing and removing Incrustation on Iron Steam Boilers, and to this time, I have seen nothing so economical, certain and simple, as the remedy in use at this place, where hard or limestone water is used and no incrustation whatever, nor has there been any, since it was put in operation. The remedy is simply to boil the water before using it in your boiler, and to use half a bushel of wheat bran whenever you empty or blow out your boiler, which should be done at least once per week, or oftener, if the incrustation is very thick, and

## Scientific American.

## Scientific American.



[Reported Officially for the Scientific American.] LIST OF PATENT CLAIMS

Issued from the United States Pstent Office

FOR THE WEEK ENDING MAY 16, 1854.

CLAPBOARD JOINT-Wm. Baker, of Utica, N. Y.; I claim the combination of the tack in the rear of the joint, with the extended lip, in front, constructed and used in conjunction, for the purpose of effecting the objects of the invention, as specified, the whole being arranged as set forth tł th set forth

HARVESTER RAKES-Cyrus Roberts, of Bellville, Ill.: I claim the fingers, arranged as described, and operated by means of a rod, eccentric, rod, and lever, in combi-nation with the fork, as shown, viz, with a curved slot through it, in which the pin or arm fits, and operated by the crank, for the purpose of removing the cut grain from the platform, as described.

[See notice of this invention on page 84, Vol.9 Sci.Am.]

Let note of this invention on pagess, Vol. 980:Am. J LATH MACHINE—Hirain Frisbee, of Olmstead, Ohio: I claim the combination of the movable cam blocks, stay lever, ratchet dog, and weight, for the purpose of suc-cessively turning and griping the log in the following manner: the ratchet dog rotates the log the thickness of a lath as the stay lever passes over the movable cam block, in the instant the stay lever passes the movable cam block the stay lever is reversed by the action of the weight, causing the log to be griped and held sta-tionary by the point of the lever, during the process of sawing.

The act of turning and griping the log takes place al-ternately as the carriage traverses backward and for-ward in the direction shown. I claim the combination of the adjustable rollers, the

slides, and the adjusting screws, as described.

SIIdes, and the adjusting screws, as described. ROTARY SHINGLE MACHINES—Wm. Stoddard, of Lowell, Mass. : I claim, first, he riving knives, the springs, to which they are attached or scoured, and the dressing knives, the bevelled flanched wheel, when they are ar-ranged and operating as described. Second, I claim the arm placed at or near the center of the wheel, or its mechanical equivalent, when made and used for the purposes of sustaining the shingles while the knives are dressing them. Third, I claim thelevers, in cobbination with the two springs, G G, for supporting the four springs. F, near the periphery of the wheel during the dressing of the shingles, as set forth.

Singles, as set form. SELF HEATING SMOOTHING IRONS-C. A. Read, of Wa-terloo, N. Y.: 1 claim, first, making the holes which sup-ply the air to the lamps, above the holes, through which the lamp tubes are inserted, so that the air, as it enters to supply the lamps, will deflect the flame down towards or against the bottom, to heat it more rapidly and et-fectually than it would otherwise do, and heat the top less, as described. Second, making the inside of the top descend gradu-ally from rear to front, to aid in deflecting the flame down towards or against the bottom so as to heat it more effectually.

TABLES FOR SHIPS' CABINS- W. L. Bass, of Cambridge-port. Mass.; I claim a table for ships' cabins, &c, which is formed in sectional pieces by the backs of two oppo-site rows of adjacent chairs, the said backs being sus-tained and operated as described, and also susceptible of being re-converted into the backs of chairs, as set forth.

forth. SURGICAL SPLINTS-S. A. Skinner, of Brownington, Vt.: I claim the combination and arrangement of the long bar. made to extend above the hips and to have a coun-ter extension strap applied to its upper part, the thigh and leg rests, and the extension screw applied to the bar, as specified. And in combination with the long bar and the counter extension strip of the groin, I claim the projecting screw arm and its body rest, the same being for the purpose of obtaining extension in direct line of the leg as stated T do not claim the application to a simple foot rest and a bar, to extend up the leg, of a device for producing latewal movement of two solid erods and slides, and their set screw, as specified, whereby the whole, the combined thigh and leg rests, may be readily and properly adjust-ed to any leg, whatever may be the degree of projection of the hip MaCHINES-I. M. Hopkins, of Pascoag, R. I.

of the hip thereof. KNITTING MACHINES-I. M. Hopkins, of Pascoag, R. I. : I cusim, first, attaching the locking bars to the same plate or head with the presser bar, in such a manner as to allow them a limited movement, irrespective of the plate or head, under the influence of springs, applied as described, whereby the said bars are enabled to lock the jacks some time before the termination of the des-cent of the presser bars, to close the barbs, and hence before the commensement of the retreat of the needles; but the necessary continuation of motion of the plate or head to bring down the presser bar is not prevented. Be ond, the combination of the springs and the plate attached to the traverser and the tongues attached to the needle bar: the several parts operating as descri-bed, to arrestor retard the thread or produce a back drag, as may be required, to tighten the selvage at the commencement of each row of loops. TThis is a verv ingenious improvement ]

[This is a very ingenious improvement.]

[This is a very ingenious improvement.] MOLDING CLAY PIPS COUPLINGS-JOSEPh Putnam, of Salem. Mass. : I claim the manner of making the mold, viz, in combination of the two con ic frustra, and then separation cylinder, or cylinders together, and with the concave cylindrical block, and end boards, as speci-fied, the two parts of the core being supported on a spindle that rests on a concave block, and concentric with its curved surface, as specified. I do not claim the mere use of cloth or an inelastic fabric to prevent adhesion of the clay to the molding surface, but I claim the employment of stocking net, or an equivalent elastic material, for the cover or covers on the two parts or frustra of the cone, the elastic proper-ties of such cover or covers enabling them to fit closely to the curved surface of thecone without the formation of imjurious seams or indentations on the inside sur-face of the coupling, and besides this the elasticity of the cover or covers, facilitates the removal of the seam

described, for holding the fibers of wool after they have been lapped on to the main combteeth, to prevent them from being drawn out before they are combed, as de-

scribed. I also el im, in combination with the endless chain of comb teeth, constituting the main comb, the vibrating finger operating as described, to direct the fibers of wool after they have been combed, to the rollers which draw them off and deliver them to the condensing apparatus, as described

as described. I also claim giving to the feed rollers an intermittent rotary motion, as specified, that the required quantity of wool may be fed forward for each lapping motion, and then stop during the pulling or separating, as spe-cified.

cified. And, finally, I claim giving to the rollers of the con-densing apparatus, which strip the fibers of wool from the teeth of the main comb, a slow vibratory motion in the direction of their axes, as specified.

the direction of their axes, as specified. BATHS FOR COATING METALS WITH OTHER METALS— George Rogers of Enfield, England : I claim construct-ing the bath in such manner that the upper portion of the molten metal at which the article to be coated en-ters, is separated by a partition from that portion of the upper part of the molten metal at which the coated ar-ticle emerges, whereby the flux at the two ends of the bath may be kept separate, and the metal at one end of the bath kept at a much higher heat than at the oth-er, as specified, whereby also pulverulent matter, not a good conductor of heat, may, with important advanta-ges, be employed to cover a portion of the surface of the molten metal, theremainder being covered by flux, as set forth.

KNITING MACHINES-Henry Burt, (assignor to the Newark Patent Hosiery Co.), of Newark, N. J: I Claim, first, the improved method of constructing the pattern cylinder, that is to say, by dividing the same into two parts, so as to be capable of sliding to or from each oth-er on the supporting shaft. whereby variation in the width of the web may be effected, but having the same pattern.

width of the web may be elected, but having the same pattern. Secondly, I claim combining the pattern cylinder di-rectly with the shifting bar, carriages and yarn guide, as described; whereby I am enabled to economizespace and produce a better action in the machine. Third, I claim the improved construction of the car-riage and stop mot ons, by the addition of a second car-riage on which the stoplevers and yarn guide are fixed —and these I claim in combination with the shifting bar, as set forth. Fourth, I claim attaching the point of the yarn guide down between the needles to form the selvage; as de-scribed.

scribed. Fifth, I claim the hook bar and its hooks, in combina tion with the needles and sinkers, as set forth.

WATER WHEELS-Abel Greenleaf, of Kingston, Pa.: 1 laim, first the combination of the gate with the scroll. clai

as described. Second, the recess and the apertures leading thereto in combination with the leather or its equivalent, as de

scribed. Third, the spiral or wedge-like form given to the por-tions of the wheel, in combination with the buckets thereof, as described. Fourth, the tapering form given to the floats, in com-bination with the double cone-like shape given to the porthological spinor of the bub to which they are attached, as de-contain of the hub to which they are attached, as deportion of scribed. Fifth. tl

scribed. Fifth the change of, curvature in the buckets at or near their ends, as shown, arranged so that these ends shall not be overlapped by the ends of the adjoining buckets, as described.

and not be overlapped by the ends of the adjoining buckets, as described.
MACHINE FOR PROGING BOOTS AND SHORS,—Leander Lackey, of Sutton, Mass.: I claim the several parts of the described machine combined, for the purpose of making boots and shoes.
First, I claim the heanging jack or last holder, by universaljoint, so arranged as to press against points of the inclined spur wheel, and held firmly at the proper time by clamp or analogous device.
Second, I claim the receiver we this is so combined with a concave guide, in which it revolves to receiver.
Third, in combination with the revolves to receiver.
Third, in combination with the revolves a deriver.
Third, in combination with the revolves a deriver.
Third, in combination with the revolves a deriver.
Third, in combination with the revolves a deriver, at the avoit and purpose of piercing the hole and driving the part, it being understoat alternately with a cach other, as that is not new.
Fourth, I claim the rolling spur wheels on which the shore rests, and is carried at certain times the precise distance for the spurpose of duble rows.
Find, I claim the manner of making the pags by cutting them on the boxs or hopper, as set forth, and feeding along the card by the advard.
Sixth I claim the manner of making the pegs by cutting the shoe is being paged round the heel, and also upports the heel whice being paged round the toe.
Seventh, I claim the shore, so place the pegs in aiternaterows.
I am aware that one or more of the above-mentioned devices may be dispused with in some kind of work; I herefore do not claim the whole as a necessary combination, but I use the whole for common large work, reserving the right to use less or more, as required.
Ox Yorss-H. B. Hammon, of Bristolville, Ohio: I do

serving the right to use less or-more, as required.

Ox Yorks-H. B. Hammon, of Bristolville, Ohio: I do not claim the ferrule and washers separate, for they are used for different purposes. But I claim the cumbi-nation of the ferrule or its equivalent and the washers, for fastening ox bows, as set north.

SHOWER BATH-D. P. Baldwin, of San Francis DRUWER DATH-D. P. Baldwin, of San Francisco, Cal. I claim the manner described of combining the two di-rectors, and providing one of them with large and the tother with small discharge holes, and arranging them so as to be capable of being revolved when it is desired to vary the direction and quantity of water discharged, and there by increase or lessen its force upon the body of the bather, as described. Second, I claim the manner described of applying the three way cock to the supply pipes of the directors, so that waim and cold water may be supplied at the same time, and mixed and discharged together through eth-er of the directors, or warm and cold water supplied and discharged separately, as may be desired, as set forth. [A notice of this juvention is nublicbad on page 100

[A notice of this invention is published on page 108,

#### this Vol. Sci. Am.]

this Vol. Sci. Am.J HAY AND COTTON PRESSES—Levi Dederick, of Albany, N.Y.: 1 ciaim, first, the bar hinged to one of the doors and capable of being removed therewith from the open-ing in combination with the caps, by which it is re tain-ed immediately over the ends of the two doors, effecu-ally resisting the pressure from within and keeping them closed during the operation or pressing. Second, providing the caps with flanges on the inte-rior sides by means of which the bar is enabled to aid in supporting and binding together the two sides of the press during the greatest strain upon them. [See notice of this excellent press on page 204 of Vol.

ing and detaching the bit in and from the socket of the brace by means of the eccentric catch, and the inclined side of the notch in the shank of the bit. operating as desoribed, viz, in such a manner that any force exerted to withdraw the bit, will bind it tighter in its place. without straining said catch, and by which a slight pressure upon the thumblever combined with the catch, as specified, will release its hold upon the bit, as set forth.

MACHINES FOR CUTTING GLAZIERS' POINTS—Ward Eat-on, of Carbondale, Pa. I claim the combination of a partially serrated or indenied and straight cutter, hav-log a reciprocating vertical motion, with a stationary blade, so that the serrated part of the blade shall cut blade, so that the serrated part of the blade shall cut out one half of the sheet in points, and at the same time form two of the three sides of the remaining points of the sheet, which are out therefrom by the straight blade, and thus cut up the entire sheet without waste; and this I claim only when said cutting edges are so in-clined to each other as that but one point of the series from the sheet shall be cut off at a time, which prevents their warping or bending, as described.

POTATO DIGGERS-C. H. Dana, of West Lebanon, N.H. Iclaim the revolving separator, as described, for the purpose of breaking up the raised furrow slice, and sep-arating the potato therefrom.

arating the potato therefrom. Gun Locks-James Hults, of Berlin Township, Ohio : I claim the combination with the tumbler of a lock of the jointed levers, and the spring, for the purpose set forth. I also claim the set screw, arranged in such a manner in relation to the jointed levers, the seat, and the tum-blers, that by its adjustment the cock can be detached from its cocked position by a greater or less exercise of power upon the trigger, as set forth.

HANGING GATES, 270-N. W. Cilley, of Nottingham, N. Y.: I am aware that a system of connecting levers or links, have been used, called the parallel motion, for connecting the end of the working beam with the pis connecting the end of the working beam with the pis-ton rod in steam engines, and that the same arrange-ment has also been applied to other machines to impart a rectilinear motion from a vibrating circular motion, and therefore I do not wish to be understood as making claim to any such device. I claim the me thod of suspending gates or other struc-tures to bracing levers jointed to each other and to the gate or other structure, and to fixed work, as specified, for the purpose specified.

MACHINERY FOR COMPOSING TYPE-W. H. Mitchel, of Brooklyn, N. Y.: First. I claim the combination of the lip with the lifting bar, 52, with the bar, 50, as specified, the said lip acting as a stopper against which the line of type lies in the inclined conductor, and over which the bar, 52, lifts the bottom type, so that it falls on the bed, as specified, and the said bar, 50, being so adjusted as only to admit of one type at a time being lifted, as specified.

specified. Second, I claim constructing the composing wheel of their circular plates with teeth therein, so as to receive the type from the conductor, in combination with the plates which pass between the circular plates and re-ceive the type, preventing their further descent, and passing them in line into the groove as specified. Third, I claim the tongue to prevent the type jumping over the tech in the composing wheel, as they pass down the inclined conductor, as specified.

FIRE ARMS-Jeremiah Peck, of New Haven, Conn.: I claim the combination of the independent lever with the cylinder, when so arranged that the cylinder may be revolved and locked, without reference to, or the use of either the inammer or trigger, and the whole construct.

either the hammer or trigger, and the whole construct-ed as described. I also claim the combination of the spring shield with the cores or nipples, when so arranged as to cover and protect the caps without any risk of injuring them, or moving them out of place, and also serves to prevent the recoil of the cylinder, when constructed and com-bined, as described.

PORTABLE GRINDING MILL-Lyman Scott, of St. Louis PORTABLE GRINDING MILL-Jyman Scott, of SL Louis, Mo.: I claim the alternate deep and shallow sections of farrowsupon the main grinding surface of the burr, for the purpose of distributing the material oversaid sur-face, and preventing a surficit or clogging upon any one point of said grinding surface. as described. I also claim the method of supporting the shell, and adjusting the bar therein, by means of the lower bridge the grand days solvels and adjusting screw rode

tree, grooved legs, sockets, and adjusting screw roc when said legs serve the double purpose of supports the shell, and guides to the bridge tree, as described.

Saw-Linus Stewart, of Washington, D. C.: I claim the construction and arranging of the saw teeth, as de scribed, that is, each tooth shall project the next one below it a wistance equal to the depth it is intended to cut, and each tooth having its forward edge or sole ver tical and parallel to the corresponding edges or soles of all the other teeth, as set forth.

MACHINE FOR PAGING BOOKS-H S. Taylor, of Spring field, Mass.: I claim the described type holder, as se

I also claim the peculiar combination and arrange ment of the spring catch, the dog, the ratchet wheel and the pawl, whereby the printing cylinder is held firmly elamped during the operation of printing, and is revolved a sufficient distance to bring a new number over the platent asset forth.

GUITARS-W. H. Towers, of Philadelphia, Pa.: I claim first, passing the string through openings in the pins extending from end to end, and over their flared and rounded heads, and thence to the head of the finger board of the guitar, for the purpose of increasing the volume and richness of its tones, as described. Second, I claim extending the two center pins to the bottom board of the guitar against which their lower ends are made to press by the pins, so as to cause them to act as sounding posts in addition to serving as hold-fasts for the strings, as set forth.

ATTACHING BLANKETS TO CYLINDERS FOR PRINTING PRESSES—Wm. H. Street, of New York City: I claim at taching one end of the blanket to the cylinder by arow of pins, arranged within the cylinder on one side of the opening which receives the gripper shat, and the other end to a tochted bar, which occupies a position within the cylinder, and has a screw appied in any way sub-stantially as described, to draw it inwards to tighten the blanket.

MITER BOX-Matthew Spear of Bowdoinham, Me. : 1 clain the two supporters or chamber bearers, connect ed and turning about a common center, in combination with the saw guide attached to the same pivot, and so connected by mechanism with said supporters as to cause it at all times to bisect the angle at which the sup porters may be set

porters may be set. Laiso claim the turning of the saw guide from its ver-tical position, as set forth, for cutting any desired angle with the plane of the lumber supporters, as specified.

Ox YOKES-I. W. Little, of Newbury, Mass.: I claim making the yoke in two parts, scaried, bolted, and con-thed together, as set forth, and combining with them the sustaining chains, the chain holder, and the stirrup screw and nut, as specified.

I do not claim the making a saw with a detachable teeth where the whole of each tooth is constructed in one piece and detachable from the body or plate of the saw. I claim the improved mode of making and fitting each tooth, the cutting nih being made so as not only to em-brace a nib made in the tooth or body of the saw, but to rest in an argular notch formed as stated, at the front of the rib, the nib being secured in place by rivets, as specified.

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CASE FOR HOLDING BAILWAY OR OTHER TICKETS—Joseph Edmondson, of Salford, Eng., and Caleb Haworth, of Marsden. Eng., executors of Thos. Edmondson, late of Salford. Eng. : We do not limit ourselves to the details set forth, as the same may be varied; but what we claim is the case, as shown, for holding railway or other tick-ets.

[This invention, together with improvements in print ing tickets, will soon be offered, as we understand, to the attention of railway companies in this country.]

HYDRATLIC HEATERS-L. W. Leeds, and R. M. Smith, of Philadelphia, Pa: We claim the arrangement of air tubes, forming a perforated chest. containing the water to be heated in connection with the fire chamber there-in, thus making a compact portable hot water appara-tus of short circulation and efficient action, at a greatly reduced cost. as set forth.

MACHINES FOR MAKING HINGES-Edward Brown(assign-or to the Scoville Manufacturing Co.) of Waterbury, Conn. : I claim, first, the slides regulated by set screws, as described. Second, I claim the eccentric rods, sliding within hol-

Conn. : I claim, first, the slides regulated by set screws, as described. Second, I claim the eccentric rods, sliding within hol-low rods, and connected with the slides. Third, I claim the sliding gunches, with adjusting screws, as set forth. Fourth, I claim the sliding gauge with its longitudinal motion and set screws, for the purpose of securing the hinges while turning the knuckle, as set forth. Fifth, I claim the fast gauge with the preventor. Sixth, I claim the slides, with the catches and the spring catches.

spring catches. Seventh, I claim the gauge in combination with the preventor, for the purpose of preventing the hinge from returning with the feeding slide: the whole arranged as set forth.

set forth. MAGAINE GUNS-E. H. Graham, of Biddeford, Me., (assignor to himself and Artemus Wheeler. of Lowell, Mass.) I do not claim a rotary magazine connected with thebarrel of a fire-arm, such being in common use in repeating guns. Nor do I claim combining a maga-zine nor powder, balls, and priming, with a hollow col-inder or tube, made to encompass and revolve on a gun barrel, while the said barrel is provided with holes or passages to receive the load from the magazine when the latter is turned around on it into a suitable position. Nor do I claim the combination of a rotary charge re-ceiver (placed within the barrel or breech of a gun) and stationary loading magazine affixed on the said bar-rel or breech. What I claim is to combine with the gun barrel and to perate on the former, asspecified; a slide cut-off and a perforated plate as made, applied and operat das de-scribed, the same enabling me not only to dispense with a rotary charger receiver, and its attendant evils, but or tangle rad ball chambers, in concentric cir-ciles, on the side of the gun, and out of the sight range, and to apply to the magazine and gun barrel a contri-d to peration by its peculiar operation is rendered less or very little liable to be fouled by the smoke or any gas-ses of the explosions of the charges. DESIGN.

#### DESIGN.

CLOCK CASE FRONTS-Charles Chinnock, of New York City. Note-seven of the applications in the above list were

prepared at the Scientific American Patent Agency.

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#### Romance of a Coal Field.

The following singular circumstance, says the "London Mining Journal," happened a few years ago in Parr, about thirteen miles from Liverpool, where there are several extensive collieries. It will tend to show the immense value of coal mines which lie under a small superficial extent of land. An elderly widow lady sold to a gentleman some property in Parr, consisting of a house and about thirty acres of land. for £3,000. The old lady thought there must be coal under the land, as there is so much in the neighborhood; but it was the decided opinion of coal proprietors, and others conversant with coal mines, that there were no coals on the property. The seller of the property, however, insisted that the coal should be reserved, unless the purchaser would give her £100 for them. This he refused doing, and the coals were accordingly excepte 1 rom his purchase, and reserved to her. The old lady died soon after, bequeathing the coal mines among the children of a deceased sister, seven in number, who were all laborers, and the residue of her property, worth about £3,000, to the children of another sister. The bequest of the coal mines was considered a nominal thing, and the dissensions in the two families were great on account of it. The coal legatees brooded for a length of time over their disappointment in not sharing their aunt's property with at length they heir cousins, but induce some persons, who were supposed to have more money than wit, to undertake the expense of boring on the land, to ascertain whether there was any coal or not. The boring continued for a considerable time, to the great amusement of persons connected with collieries; but at last, to their great astonishment, the chagrin of the purchaser, and the unbounded delight of the legatees, two delfs of the best coal in Lancashire were discovered, extending nearly the whole breadth of the land, and which could be easily worked. This coal was immediately purchased by the proprietors of a neighboring colliery for £20,000. On subsequent borings three lower delfs were found, which the same parties purchased for

the cover of covers, facilitates the removal of the seam	
from the molded article.	8,
	,

I also claim the wire former.made as specified, viz., of a curved wire or blade, the tension stay and cutter or wire, and the forked stock or handle, the whole being used, as specified.

WATER INDICATORS FOR STEAM BOILERS-T. J. Sloan, of New York City: 1 claim connecting the float inside the boileror other vessel, with the indicator or other me-chanism outside, by means of a flexible sleeve or sl. eves or its equivalent, as specified.

MACHINERIF FOR COMEING WOOL-Chas. G. Sargent, of Lowell. Mass.: 1 claim, first, giving to the feeding ap-paratus the lapping motion, as specified, by the crank and rockers, or their equivalents, for lapping the fibers of wool on to the teeth of the main comb. as specified. I also claim, in combination with the teed rollers ope rated as specified, the employment of the lifting rod for litting the fibers preparatory to lapping them on to the teeth of the main comb and then separating them, as specified.

specified. I also claim, in combination with the continuous chain of main comb teeth on which the fibers of wool are lap-ped, a working comb, which is operated by a peculiar ution like that given to the lapping rollers. by having the said working comb attached to and carried by a frame, operated at one end by a crank, or the equiva-lent thereof and jointed to the vibrating rods or rock-ers, as specified.

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FASTENING FOR EAR RINGS-G. E. Higgins, of Syracuse I. Y.: 1 claim the standard attached to the knob an serving at the same time as a means of connecting the drop and as a catch to receive and secure the end of the ear wire, as described.

[This is an excellent device for fastening ear rings

LATHE FOR IRREGULAR FORMS-Frank Baker, of Pep-perell, Mass.: 1 am aware that in the turning lathe of said Blanchard a right last has been turned from a left last, or a set last from a right last. Therefore do not claim such as my invention, but 1 darm the particular arrangementoi the cutting cylinder. the two patterns, the patterns and the work mandrel, and their tracer rollers. whereby they are made to operate together, as described.

TRIP HAMMERS-Bernard Hughes, of Rochester, N. Y.: I claim adding to the stem or rod of the trip hammer a I claim adding to the stem or red of the trip hammer a piston working in a cylinder open on the upper end and cased at the bottom and provided with regulating cock and valve, as described, by which means i am enabled to add the whole or such part of the pressure of the at-mosphere as may be desirable, to the weight of the hammer in giving the blow.

CATCH FOR HOLDING THE BIT IN BRACE STOCKS-C. M. Daboil (assignor to himself and A. P. Daboil), of New London, Coun. : I claim the improved manner of secur-

screw and nut, as specified. SELF-HEATING SMOOTHING IRONS-P. S. Howes, of Bos-ton. Mass. I do not claim the combination of a rotary box, a supporting bale, or handle, and a spirit lamp, the box being provided with the two smoothing faces or sur-faces of flats, and made to turn around within the han-dle, so as to bring either of them downerds after it has been heated by the flame of the spirit lamp. But I claim the mode by which I prevent the swash-ing of the alcohol in the lamp for causing too great or sudden a flowage of the alcohol through the wick, mean-ing to claim the air vessel, in combination with the tube, its seat, and the capillary covering, the same being ap-plied together, and in the reservoir of the lamp, and to the wick thereof, and made to operate as specified.

LATHE DOG-David M. Smith, of Springfield, Vt.: I an aware that there is nothing new in a screw stirrup as LATHE DOG-David M. Smith, of Springheid, Vi.: 1 am aware that there is nothing new in a screw stirrup as applied to the mandrel or center pin of a common turn-ing lathe, and for the purpose of confining the said cen-ter pin to the puppet of the lathe 1 therefore do not c aim such in this relation, but I claim combining the stirrup to the eye of the lathe dog, so that the eye part of the dog shall be made to extend through into the stir-rup, and the mais screw of the dog be made to screw through the stirrup and against the end of the dog, as stated.

In our interaction of the state of the said cross bar or rod with the tines of the stirrup so that the said cross bar shall pass through the eye of the stirrup, and serve to keep the parts together of from entirely separating when not in use, as specified.

£15,000. NIBBING SAW TEETH-P. B. Tyler, of Springfield, Mass.

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### Inbentions. Aew

Improvement in Spark Arresters. An improvement has been made in spark arresters for locomotives, by T. E. Rollins, of Hornellsville, N. Y., who has taken measures to secure a patent for the same. The object of the invention is to carry up the smoke and the sparks that may escape with the exhaust, far above the top of the smoke pipe, and prevent them annoying the engineer, and passengers in the cars. For this purpose a case with spiral ribs is attached to the outside of the smoke pipe, and this has openings into which the air is driven by the force and velocity of the engine: it cannot escape but upwards and spirally -like a whirlwind, at the top or exit of the smoke pipe. These currents of air as they ascend, give the smoke and sparks issuing from the smoke stack, an upward whirling motion, and carry them beyond the possibility of entering the cars and annoying the passengers. The evils which this improvement contemplates to remove are very disagreeable ones. We have been almost choked with smoke on railroads; we have had holes burned in our clothes with sparks, and have extinguished a fellow passenger-his clothes we mean-who was sitting on the same seat with us. We welcome any improvement that will entirely "remove the abominable spark nuisance. This one will offer a little more resistance to the engine than a smooth pipe, but that is nothing at all as a drawback to be set up against the great evil it is intended to remove.

#### Iron Shutters.

Charles Reed, of this city, has taken mea sures to secure a patent for an improvement in rolling iron shutters. The improvement consists in bending or otherwise forming the slats so as to produce a recess in the form of part of a circle within each edge of the back side, one of such recesses being for the purpose of receiving the joints of the hinges or chain to which the slats are attached, and preventing it from causing so great a protuberance as is usually the case on the back side, the other being for the purpose of receiving the prominence on the front, which is caused by the recess on the back of the next slat. The circular interiors of the recesses, and the exterior prominences of the slats are concentric to the axes of the joints or hinges, and fit together in such a way as to allow the free working of the joints, and at the same time strengthen them. When the shutter is unrolled the prominences on the exterior of the slats have the appearance of a number of parallel beads, which conceal the joints and give the shutter an ornamental appearance on the outside.

Sawing Machinery. Charles F. Packard, of Greenwich, Conn., has applied for a patent for an improvement on sawing machines for sawing laths, pickets, &c., irect from the log. It consists in the use of a vertical circular or reciprocating saw, and a series of horizontal circular saws, the latter being placed on one shaft at a suitable distance apart, said shaft being attached to a vibrating bed, operated in such a manner that the horizontal saws will be thrown outward from the carriage and log, when these are moved in one direction. and then thrown towards the carriage and log when they are moved in the opposite direction. When the horizontal saws are thrown in tords the log they cut into it the exact tance of the width of the pickets, laths, or whatever stuff they may be cutting, but do not separate them from the log; after they are thrown out, when the log carriage has traveled to the end of the way, the vertical cutting saw is thrown into gear or action, and it cuts out the series of pickets or laths from the log.

# Scientific American. the ear-wire from the ear of the wearer. See

### Beveling Planes.

M. J. Wheeler, G. W. Rogers, H. W. Pearce, and M. B. Tidy, of Dundee, N. Y., have made an improvement in beveling planes, the object of which is to plane a double bevel or two faces

improvement consists in attaching to the knob at any desired angle to each other and to a steel and properly hardened, and as the dies a standard which serves at the same time to at- third face. The improvement consists in attach the drop and receive and secure the end | taching the two cutters, which are to plane the of the ear-wire, thus providing the means of re- two faces, to two wings, that are both hinged moving the drop from the knob without taking or otherwise attached to the body of the plane, so as to swing round a common axis, and each claim under the proper head in another column. of which is adjustable and capable of being secured in any position independently of the other, so as to bring and set the faces of the cutters at any angle to each other, or to the face

which is employed to guide the plane. Measures have been taken to secure a patent.



The annexed engravings represent an im- C C the gearing pinions; D the guide bar; E chairs for railroads, for which a patent was granted to John C. Ogden, of the city of Philadelphia, on the 4th of last month (April 1854.) Figure 1 is a front elevation of a pair of chairmaking rolls, with connecting pinions and housings, and figure 2 is a small cross-section of a pair of rolls, having the cutters and dies for making the chairs, and with a bar of iron being F1G. 2.

proved machine for making wrought iron the guides for directing the chair bar to the rolls; F the punching cutters; G the dies; H the adjustable lever for forcing the punched bar of iron, I, off the punches as it passes from between the rolls, A A, and of the screw bolt for adjusting the lever, H; d d d are the lips formed by the punches on the bar of iron as it passes through the machine. The rolls are geared together by means of a pair of pinions with alternating teeth, and revolve in bearings secured within the housings and adjusted by screw bolts, c c, in the usual manner.

The punching cutters and dies are arranged around the peripheries of the rolls, the punches being screwed firmly into the upper roller, and the corresponding dies or recesses made in the lower one. The lower roll is made with a groove to correspond with the intended width and thickness of the bar of iron to be punched or formed into chairs (say about six and a half | of acres of the finest land, covered with a noble inches wide and half an inch in depth) the uproll having a projection around its peri ry, accurately adapted to the groove in the lower roll. The punches are screwed into the upper roll in pairs, and shaped to suit any particular form of lip that may be desired on the chair to be made. The shape represented in the engravings is perhaps one of the best, yet any other form may be adopted and constructed on the sine machine, by changing the punches and dies, or the rolls. The lever, H, is made in width to fit within the groove in the lower roll, and has a slot in its inner end, large enough to allow the punches to pass freely. The frame or housings, and the rolls and pinions should be made of cast-iron. The rolls may be from two to four feet in diameter, and should be turned true and accurately fitted to- to prevent the meat becoming too salt for pre-

should also have their upper edges of caststeel, it is intended to have the collar or projecting part, K, on one end of the lower roll, adjustable on its shaft, so that a band of cast-steel, (about half an inch thick and of the same width as the groove in the roll) may be shrunk on and hardened upon the roll, the dies or recesses being first properly cut through the bar. This collar or projecting part, K, is then to be secured up against the edge of the band and keyed to the shaft. In this case the cast roll must of course by <sup>t</sup>urned down sufficiently to allow for the thickness of the band. The two rolls are made, each of about the same diameter at the part where the punches or dies are placed, or where the chair-bar passes between the rolls. The machine is intended to be geared into connection with a steam or other engine. The rolls being adjusted apart to suit the thickness of the chair bar, the iron out of which the chairs are to be made is entered between the revolving rolls whilst it is, hot, and the dies and punches are kept cool by cold water running upon them. It is intended that the chairs shall be made from the mill bars direct from the finishing rolls without reheating .---The bar is run through between the rolls, thus forming the lips, d d d, and is then taken to the shears and cut into separate chairs; they are then punched at the corners for the spikes, and dressed up for use. The spike holes and lines of separation between the chairs are shown in figure 3.

This appears to be a good machine, capable of making the chairs with great rapidity and economy.

More information may be obtained by letter addressed to Mr. Ogden, at No. 106 North Third street, Philadelphia.

Cotton Press.

Robert Adams, of Knoxville, Tenn., has taken measures to secure a patent for an improved cotton press. The nature of the invention consists in a peculiar arrangement of levers, whereby the cotton is subjected to pressure both at the top and bottom of the box, and the operation of pressing the cotton is managed with greater facility than lever presses of common construction.

#### A Warm North Lake.

The "Quebec Chronicle" says that nearly due north of Quebec, one hundred and eight miles as the bird flies, and probably one hundred and thirty by a constructed road, lies a magnificent lake, covering an area of 600 square miles, and abounding with a variety of fish. It is fed by numerous rivers, some of them navigable for a considerable distance to schooners and batteaux ; it is the lake St. John -from it flows the "Great Discharge," or main stream of the Saguenay River as far down as Chicoutimi, a few miles beyond which the river is navigable to ships of the heaviest tunnage. On either bank of this river may be seen a flourishing settlement: the soil is of a rich and loamy nature, producing wheat, corn, fruit, &c., equal in quality and quantity to any raised in Upper Canada, and although 11 degrees further north than Quebec, yet from the peculiarity of its geographical position, its climate is milder in winter than that of Montreal. For many miles on both banks of the river, as well as along the shores of the lake, are thousands

Improved Ear Ring. Geo. E. Higgins, of Syracuse, N. Y., has made an improvement on ear rings. In the ear rings which are now in most common .use a ring is attached to the knob to receive a similar one on the drop for the purpose of connecting the drop with the knob; and there is another ring or catch on the knob for the purpose of receiving the end of the ear-wire. The





perspective view of the chairs formed by this machine. The same letters refer to like parts. A A are the rolls; B the housings or frame; | gether. The punches should be made of cast-

#### The Salt Lake of Utah.

forest.

Experiments have been made upon the properties of the water of Salt Lake, Utah, for preserving meat, by Mr. Stansbury and his associates. A large piece of beef was suspended from a cord and immersed in the lake for over 12 hours, when it was found to be tolerably well cured. After this, all the meat they wished to be preserved was packed into barrels without any salt whatever, and the vessels were then filled with Lake Water. No further care or preparation was necessary, and the meat remained perfectly sweet, although constantly exposed to the atmosphere and sun. They were obliged to mix fresh water with the brine sent use.--[Ex.

## Scientific American.

## Scientific American.

#### NEW YORK, MAY 27, 1854.

#### The Chemistry of Tea.

Without experiment upon the living organism, no person can tell, from the chemical composition of any substance, whether it is healthy or deleterious-useful for food or drink, or dangerous to life, as a poison. What is the reason that a few grains of the oxyd of arsenic. when taken into the stomach, will, in a few minutes, curdle the fountain of life and arrest the revolutions of "the wheel at the cistern?" We cannot tell; and we cannot advance a single argument why the same quantity of the oxyd oi iron, or zinc, as that of arsenic, may be taken into the stomach with impunity : we only know that such is the fact. Chemistry, as a science, is totally different from mechanics; it is strictly practical, made up of recorded experiments, while mechanics is based, in a great measure, upon abstract reasoning. Chemistry is full of mystery; and yet from the many experiments which have been made and recorded, it presents a broad page of beautiful revealed truths. The vital air that we breathe is composed of the same elements as the poisonous aqua-fortis ; the sugar with which we sweeten our tea is composed of the same elements as alcohol-carbon, hydrogen, and oxygen; and the theine of our tea,-that which is its exhilarating active principle—is composed of the same elements as the "morphine" of opium. Theine exists in tea and coffee, and is composed of C.8 H 5 O.2 N.2 (carbon, hydrogen, oxygen, and nitrogen.) The water that we drink is composed of oxygen and hydrogen; the air that we breathe is composed of nitrogen and oxygen, and the beef that we eat is principally composed of carbon, hydrogen, oxygen and nitrogen This latter body is the substance of which our muscles are, in a great measure, composed, and yet chemistry unfolds to us the astounding fact that many of the vegetable substances which contain nitrogen in a large proportion, exercise a dangerous influence upon the human system when introduced into the stomach. Prussic acid, morphia, quinine, the conia of hemlock, the nicotine of tobacco, the brucia of nux vomica, &c., are distinguished by the quantity of nitrogen they contain. The theine of the tea, which is one of our common beverages, being of that class of vegetable bodies which produce powerful effects upon the human system, may also be expected to exercise a striking influence upon those who use it. Now what is that influence? Some pretenders to scientific lore would conclude that tea was a deadly poison, because its distinctive principle-theine-is like that of nux vomica, -composed of the same elements. The comis only by Observing the effects of any substance upon the human or living being that we can derive a correct knowledge of it. From the mere composition of strychnine no one could tell whether it was a poison or not, for gelatine -pure glue-is composed of the same elements (C.13 H.10 N.2 O.5,) and yet no one will pretend to say that the gelatine-that subas they say, "it contains a substance-theine-

exhilarating and refreshing beverages, capable | high enough to cover all expenses of the Paof supplying a natural craving or a want felt | tent Office. Will the Commissioner of Patents by all." It is well known that the living being is undergoing constant decay and renovation. The labors of life waste the body, and we take food to renovate it. The observed effects of tea upon the system is that of lessening the natural wear and tear of the body; it prevents the waste of the tissues, and performs an important office in the animal economy. By the consumption of a certain quantity of tea, the health and strength of the body will be maintained to an equal extent upon a smaller supply of common food. There are between three and four grains of theine, in half an ounce of good tea, which may be taken by a full grown person in one day, but more than this tends to quicken the pulse, and increase the action of the heart. In Australia, however, where tea is plentiful and cheap, a bushman, who is continually exposed to the open air, thinks little of putting a whole ounce of tea into his kettle at once. In the use of tea there is much danger to those who are blamed for using more of it than others,-we mean those who are devoted to sedentary occupations. Tea is of more benefit to the hardworking man than to this class, as it is not the prevention of waste in the tissues that sedentary persons should look to, but to a greater increase of that waste, by labor or exercise in the open air.

As we said last week, in speaking of the use of tobacco, so we speak of tea; we have no doubt but people could live cheerfully and healthily without ever using a particle of it : our fathers in days of yore did without it, and we believe their years were no less than those of their descendants. But that is not the proper way of philosophizing. We find that, like to bacco, the use of tea, in spite of pulpit and press, has also marched onwards with conquering strides, until it has now become a daily necessity in almost every family, in many countries where its very name was unknown two centuries ago. The amount raised in China annually is 2,200,000,000 lbs.; that consumed in Britain 55.000.000 lbs., but although we have a plentiful supply of coffee statistics, we have not been able to learn how much tea is yearly consumed in our country, probably half as much as Britain, as we use more coffee and less tea than the people of England. The use of tea, like that of tobacco, is one of profound interest to the man of science, the statesman, and philosopher-chemically, as it relates to its effects on the human system, and politically as it relates to the vast sums expended for it as a daily domestic beverage.

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The present Commissioner of Patents, in his has been formed in the city of Brooklyn for E abuts-with great power into its proper the purpose of building iron structures, especi-Annual Report, recommended a reduction of place. The ring plate, E, of the screw, C, is position of strychnine is C.44 H.24 O.4 N. It patent fees to foreigners, especially to subjects ally the cheaper kind of cottages. It has been connected by link and eye, P and M, to the stock, of Great Britain, against whom an invidious disasserted that they can build a very neat cottage A, of the tool, and the collar, D, is made in the tinction is made, by charging them \$200 more for about \$500—one half the price of a frame shoulder, B, of the stock. than all other foreigners. We have not heard one of the same dimensions; this we believe is The patentee says of this instrument : "It not possible; at least we think that iron houses that the Senate or the House of Represenhas combined in it the ring bolt, rein-staff and tatives have paid the least attention to the able builtfor such prices must be of very little worth. rope, cleat, set-bolt, and most of the wedges. and just remarks of Judge Mason, and we We do not know how much metal would be Two men, with the use of these machines, will think they have not. Party warfare and the required for a two story cottage, but \$500 can work a hot plank to its proper place in half the strife of contending leaders in Congress, seem to purchase 25,000 lbs. of common coarse casttime that four will with rein-staffs. With this stance which imparts the sweet taste to our absorb more time than to us appears necessary ings, or at 4 cents per lb., the price of fine castmachine the workmen have comparatively meats-is a poison; and yet some professedly in legislation. We have advocated a reduction ings, it iwould purchase 12,500 lbs.-a little nothing in their way on the stage. The safety wise men have condemned tea, simply because, of fees to foreigners, for a numbers of years, over six tuns. The house indeed must be of workmen on and under the stages, when and we had hoped that some attention to this very small, or the castings very light, that will planking with these machines, is much greater. which has the elements of a class of poisons just and reasonable reform in our patent laws not weigh more than this amount of metal. would have been paid by Congress before this or sealing, where great power is needed and like morphia and strychnia." We, however, sincerely wish success to this timbers are compact, so that it is difficult This much we have premised to show the time, but we have been disappointed, and the Association, and hope it will be able to introworking the plank where it is intended to go, duce a cheap ornamental and solid class of iron absurdity of any objections that may be urged present statute still stands on our books a disthis machine works well. Also for bringing the (and which have been urged) against the use structures of the cheaper kind. grace to those who made it, and those who butts of stubborn planks to their proper places, of any beverage or food, from its chemical neglect or refuse to abolish it. We desire that Sugar and Molasses. planking round sterns, holding quarter-pieces, composition, and not its actual workings on the every reasonable protection should be allowed The number of sugar houses in operation in channels, house sills, comings, hooks, & , until human system. to foreigners, and we want every useful im-Louisiana, last season, was 1437, of which 956 they are fastened. I believe this self-holding All nations except those actually below the provement introduced, let it come from what were worked by steam power, and 481 by aniplank screw to be the most time saving and the scale of humanity-those who do not know the source it may. Our country is more indebted mal power. The number of hogsheads prosafest machine ever used for planking. use of fire,-use some exhilarating beverage, for its physical prosperity at least, to improveduced was 449,321, equal to about 495,156,000 More information may be obtained by letter and "it is a curious circumstance," says Prof. ments in the useful arts, than any other causes. pounds. The quantity of molasses was 37,000,addressed to Mr. Staples, at Topsham. Johnston, "and one rich in materials for reflec-Let the inventors then, of every country, be 000 gallons. tion, that in countries so remote from one anoencouraged and allured to introduce their im-Small Pox. ther, the tea of China, that of Paraguay, provements into our country by reducing our The British Parliament has passed an act The New Haven Railroad Company have. and the coffee of Brazil, plants so very unlike, patent fees to a reasonable and just standard, making it a finable offence to every parent or already paid out \$250,000 for damages arisshould have been, by a kind of instinct, as it instead of an almost prohibitory one. The fee guardian who neglects to have his or her child ing from the Norwalk disaster, and have yet were, selected for the purpose of yielding in- for all foreigners which we have suggested is vaccinated within four months after its birth. to pay \$50,000 more, making in all \$300,000

fusions capable of being employed as gently | \$100. We think this a reasonable one, and endeavor to get this reform carried out at this session of Congress? All depends on his influence and efforts.

#### The New Process of Making Bread.

The expose which we made on page 277, of an article with the above caption, which we stated had been published by many of our cotemporaries without a word of comment, has also been exposed in a number of the "London Journal of Arts," received by us last Tuesday. The writer who exposes the new process is Henry W. Revely, who states that if the discov ery had been to reduce the number of loaves of bread in a sack of flour, instead of increasing them, it would have been a good one. He states that London bakers use every fraudulen effort to increase the number of loaves of bread made from a sack of flour, and do not need any new lessons in such practices. "Nothing more is requisite," says he, "to produce good wholesome light bread, than flour made from well dried new wheat, pure water, and a little sweet leaven." He is right, and writes appa rently with a good knowledge of his subject.



The annexed engraving is a side elevation of a tool named a Self-Holding Plank Screw, for which a patent was granted to Solon Staples, of Topsham, Me., on the 20th of last December. When using this machine in planking ships, the screw, G, is inserted into the proper timber, and the jointed lever, I H, which has a serrated face on its knob end, acts as a brace on the timber. This is done before the plank to be worked is taken from the steam box. When the plank is set to be operated by the screw, the eye plate, E, on the foot of screw, C, rests upon it, and by turning said screw by the lever, R, it works down through the screw

A Registrar is appointed for every parish to see that this law is enforced. The rapid increase of small pox in that country has led to the enactment of this law-a very salutary one. Such laws have been in force for a number of years in Prussia. If small pox increases among us for the next three years, as it has during the past two years, such a statute will be required for our State.

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#### Woodworth's Patent Planing Machines.

We had no idea of the extent of the manufacture of the above named machines in this neighborhood, until we visited the machine shop and foundry of John H. Lester, No. 57 Pearl street, Brooklyn, on Friday last week. An advertisement on another page mentions the peculiar qualities of the machines which are made in his manufactory, but there is no better testimony to the character of his productions than the large business which he has built up within a few years, and which he now carries on. We saw eight new machines on the floor in different stages of progress, and two new ones are finished every week, thus making over one hundred per annum. Those that we saw were strong and accurately built in all their parts. Mr. L. also builds some excellent steam engines and other machines, but his great business is that of making and repairing the Woodworth planing machines. As many of our readers give this old and well-known machine the preference over those of more modern date, we thought we could not render them a more acceptable service than by imparting the above information, so that they may know where to procure machines of a reliable character.

#### The Wheeling Bridge Blown Down.

We regret to state that the great Wheeling Bridge was blown down on the afternoon of the 17th inst., during a terrific storm .-All the cables except two were twisted and broken to pieces, and the bridge thrown down into the river bottom upwards. Whether it will be rebuilt or not we cannot tell. This was the largest suspension bridge of one span in the world. It was 1010 feet from center to center of the supporting towers, and the hight of the flooring was 97 feet above low water mark. Charles Ellet, Jr., C. E., designed and built it. Its cost, we believe, wasabout \$145,-000, and was only finished about five years ago. It was a source of pride to the people of Wheeling. An injunction by the U.S. Supreme Court ordered it to be taken down, but it was saved by an Act of Congress. It has been subject of no little interest and excitement to our whole country since it was erected. It does not appear that long suspension bridges are very safe structures.

#### Iron Cottages.

**Reduction of Patent Fees.** We have been informed that an Association collar, D, and forces the plank-against which

## Scientific American.

#### American Association for the Advancement of | 60 feet, and 21 feet high. The speaker stands science

MET IN WASHINGTON IN THE LAST WEEK OF APRIL, 1854.

ARCHITECTURE, LECTURE ROOMS, AND THE SMITHSONIAN INSTITUTE .- Prof. Henry, of the Smithsonian Institute, read an able paper on this subject. He said : "Architecture should be looked upon more as a useful than a fine art. It is degrading the Fine Arts to make them entirely subservient to utility. It is out of taste to make a statue of Apollo hold a candle, or a fine painting stand as a fire-board. But our houses are for use, and Architecture is substantially one of the useful arts. In building, we should plan the inside first, and then plan the outside to cover it. Buildings should have an ethnological character. They should express to other ages the wants, customs, and habits of the age of their construction. A Grecian temple was intended for external worship. An old Greek would laugh to see us construct a Grecian temple for a Treasury building or a meeting house. It should have no windows in it, and should be entirely too dark for such uses. But it is easier to copy than to originate, and hence our servility. The material should alter the character of the structure. The Crystal Palace was, par excellence, the building of the nineteenth century. Its material, its history, its purposes were unprecedented. It is a want of the times to build so that our houses can be taken down and transported.

The mot flourishing time for Architecture is while a people are in a semi barbarous state. The Press supplants it in importance when it comes into use. A Gothic cathedral is good to worship in, but not at all fifted to preach in. A building admirably adapted to the wants of the twelfth century, would be strangely out of place in the nineteenth.

The mind has no innate cognitions of beauty in architectural details. The stout marble pillar we recognize as essential to the support of a heavy weight only until we find a stouter pillar of greater ability to support weight, which yet may be of smaller dimensions. A bronzed iron pillar of a few inches diameter satisfies the mind; but if we paint it to look like stone, it seems insufficient, and our taste is shocked.

A lecture room should be so built as to exclude the external light that is not needed within, and prevent the waste of light from our lamps within. The room we are in is faulty there. There should be no unnecessary void space to waste the heat, and light, and voice upon. Ventilation being properly cared for, the ceiling may be made quite low. The audience should be as near as possible to the speaker. The speaker should be placed as high as possible consistent with good seeing on the prec ated. part of the audience. What they call the Katoptric curve, if observed, gives every auditora chance to see as well as to hear. It requires that the seats should so rise as to allow a direct line from the eve of each one to pass to the speaker unobstructed by the heads in the seat before. The resonance of the room must be heeded. The room, large or small, will echo if naked and empty and the walls are hard; and the larger it is the greater the danger of echoes. Drape one or two sides of a room, and by absorbing the sound you prevent the resonance or echo. But do not drape the wall behind the speaker. He wants that to assist his voice in reflecting the sound to the hearers. For until you pass without "the limit of perceptibility," the reflection of a sound helps the hearer in gathering in the words spoken. A damp wall is not so likely to give an echo as a dry one, nor a thin as a thick one. An open door ahead of the speaker wastes his voice. The room should be so arranged that the audience may be as nearly as possible before the speaker. Wing walls, cutting off the corners, are of service, both for reflecting the sound and for the hanging of pictures, drawings, maps, &c., so that they may be seen by all present. But this is the easiest part of the subject;

on a platform perhaps five or six feet high. The seats do not rise at all until you come within four or five of the back seat. All can see easily, except when a very short man gets be-

hind a very tall one (or, he might have added, as they used to, as an argument against the sexes sitting promiscuously in our Puritan churches, behind a bonneted lady); and you cannot get up an echo in it.

Sounding Boards .- Prof. Hackley, of Columbia College, New York, asked if any had tried the virtues of the Parabolic Soundingboard. He had read in a British journal of one used effectually in an English church. He noticed that in Trinity Church, New York, while they were striving long and earnestly to make the voice of a preacher audible in that building, from week to week a Parabolic Soundingboard was used, turned first this way, and then that, but with no good results, till at last it appeared no more.

Opinions were freely given by members that it would not be of service.

Prof. Henry also gave a concise history of the Smithsonian Institution, in which he stated that the original grant of \$508,000 is untouched: that the building, which will soon be completed, is built with the interest which has accrued on the principal, and that \$150,000 besides will be added to the principal, making a powerful fund. Congress, by law, has directed the formation of a library, a museum, a gallery of arts, and the delivery of lectures. These are admirable ways of diffusing knowledge among men, (particularly among the citizens at Washington,) but the Will says, "to increase and diffuse knowledge among men'-all men, and to increase as well as diffuse it. Hence, the Regents have spent little on these objects. The Institution has just got ready to publish. and is about to issue, a "Treatise on Winds," presented to the Association, which would not have been published at all if not by it. It is a very valuable work, and it costs from \$2,000 to \$3,000. This is the policy of the Institution, to avoid publishing anything which any other party could publish as well.

[We must reiterate here what we said about the Smithsonian Institute, on page 20, this Vol. "Scientific American,"-it has not yet been so managed as to come up to the spirit and language of the "Bequest." A Cincinnati sage has charged us with attacking the Smithsonian Institute, in the article referred to, but that was no attack. We presume that the Professors and officers of the Institution agree with us in most of our remarks. The following is a letter written from a disinterested source, which we take occasion to introduce here, to show how our remarks have been ap-

Smithson's Views.-MESSRS. EDITORS-Your article on page 205, "Scientific American," on this subject, is before me, in which you question the present manner of carrying out the views of Smithson, in the Institution as established by his liberality in this city.

I regret to state that there is too much reason for the complaints made. Smithson was a practical man-truly, as you say, democraticin his views having reterence to the good of the masses of his fellow men, and hence we may understand his meaning in the expressive words of his will, to "increase and diffuse knowledge among men."

The undersigned was at the seat of government when this gift of Mr. Smithson was received, and the subject of carrying out the views of this benevolent individual was referred part of the organic tissues, we can say there by the President to the Hon. Joel R. Poinsett, are no organic elements, for however simple a then Secretary of War, than whom no man cell may be, its existence implies the presence was better qualified to understand and carry of two substances or elements-an internal or out the views. Enjoying the confidence of this inclosed substance, and an external or inclosing excellent officer and friend to suffering humansubstance. A cell, therefore, does not arise ity, ine undersigned was called upon, in his from one element. Oil or liquid fat and albuofficial capacity (as Government Architect) to men, examined microscopically in their primipresent plans for the same, and his views in tive state, exhibit no structure of any kind, but relation to the spirit of the generous founder when brought in contact, almost instantaneousof it. He entered upon this duty with great ly, cells are formed. They may then be prointerest and zeal, and presented the following

If I might digress to speak on the subject of | precisely similar to those formed by the natural this Institution to carry out the views of the benevolent founder, and of the most efficient means of doing so, I would respectfully present the following plan of operation :---

The most effectual means, it must be conceded, of increasing knowledge, is by verbal instruction, and to diffuse it by the free action of the printing press. Any plan, therefore, which would embrace a system of free lectures upon every useful subject, and which will contribute to improve the moral and physical powers of man, in his double capacity, would most certainly tend to the increase of knowcirculation of the printed tract would tend most widely to diffuse this knowledge.

But to carry out the system to its full extent, the Institute could or ought to educate and prepare suitable persons to write out and deliver free lectures in other places, distributing, pari passu, the substance or pith of such lectures among their audiences.

When this system shall have worked through our country, the Institute may extend its benefits to other countries and other people, clothed in our own peculiar tongue, with our English translatioe, and thus, from this simple fountain, might flow out, in time, such streams of knowledge as would diffuse the light of truth and practical knowledge to every benighted people.

The valuable improvements in the printing press and in the manufacture of paper, the increasing facilities of transportation, throughout the world, give a semblance of success to such a vast work; and here may be the nucleus-the germ of it. As it is capable of being reduced to practice, at little expense comparatively, its powers may be soon tested.

ROBERT MILLS, Architect Public Buildings, City of Washington, 1838.

LIFE AND ITS PHYSICAL ASPECTS.-The following paper was read by Charles Girard, of the Smithsonian Institute :--

"Animated beings manifest a two-fold nature, one material, the other spiritual. The material or physical nature assumes a form, a shape peculiar to each species, constituting bodies tangible and visible to the senses. Call the latter an immaterial principal, or spirit, it matters not what, but let it be acknowledged as a condition sine qua non of the manifestation of the physical. To it are to be referred the moral acts and the moral tendencies which belong to the domain of moral philosophy.

The different phases through which the physical individual passes, from its formation up to its last stage of existence, constitute the physical aspects of life; or, in other words, the law under which a physical being starts is the law under which it lives during existence.

The author then proceeds to consider the ultimate process of organic life; that is, the elaboration of matter, its assimilation and transformation into the various parts and organs it assumes, dividing his subject into the following heads :-

1st. The organs and tissues are all composed of cells diversely modified.

2d. The first aspect under which an animal manifests itself is a cell.

3d. Its subsequent growth is but a simple multiplication of cells.

4th. The nourishing of the body is the mere replacing of decayed cells by new ones.

fabric, will not undergo further progress. Life cannot be imparted artificially; vitality is not within the reach of experiment.

In all organized bodies, however, there is a wearing away of the constituent particles of which their various organs are composed. Each physical or mental exertion involves the destruction of materials, requiring the aid of nourishment to sustain and maintain the balance between the growth and loss of these bodies. Sustenance is necessary, and of the most varied kind. The wants and propensities of the various species of beings are different; ledge. And where the lecturer could not go different food must be selected by different to instruct, or the people come to hear, the free | races, and other means adopted to preserve their perpetuity of existence.

> Allusion was also made to the subject of digestion, the formation of chyme, chyle, the lymph, fibrine, blood, and other fluids by which the process of life is maintained, and facts were adduced, showing that the entire economy of organic bodies is but an elaboration of cells, the immaterial or spiritual principle, which resides in them all, disposing of and arranging the cells according to the plan stamped upon each species. The constituents of the blood, its circulation, and the very important part it bears in preserving and maintaining the other functions of the body in a state of health and activity, were made a particular point of consideration.

> In speaking of nutrition, the author said, This is the last word in physiology; the last word of physiology is the first word in clinical medicine; a science which, without the aid of physiology, would be but an art. Surgery or operative medicine rests entirely upon anatomy. The better the human organism is known to the operator, the better will his operations be performed, so that the last word of anatomy will be the first word of surgery. At the bottom of physiology and medicine-clinical and operative-will be found embryology."

> MACHINE ARITHMETICIAN.-Prof. Pierce, of Cambridge, expressed his opinion that a better system of computation than any set of tables could furnish would yet be provided for us by the ingenuity of learned mechanics; and on the blackboard he made a diagram of a machine which seemed to him theoretically adequate to the task. Mechanics whom he had consulted had their hopes, too, but they did not assent to the practicability of his theory.

> Prof. Henry, (of the Smithsonian Institution) said the machine, Man, was subject to extraordinary perturbations, according to his feelings, which in turn waited on good or bad digestion. The "calculating machine" of the mechanic never suffers from indigestion, and once right, never errs. The value of such machines, then, is very great. They save prodigious labor.

> [We believe that the British government has paid out a great amount of money for Babbage's Calculating Machine for the Royal Observatory, but whether it is used now or not we cannot tell.]

TWINKLING OF THE STARS .- Prof. Rogers, of Virginia, expounded his belief as to Irridation. He did not claim to any novelty in the facts presented, but this was new,-the separation of the phenomena of irridation into two distinct kinds. When, said the Professor, the sun glances from the surface of a polished steel ball, or when we observe any brilliant light near the eye, the center of illumination is surrounded by a circle of rays, which are not stationary, but seem to have a pulsatory motion, Now, if the cell be considered the elementary and the pupil of the eye contracts to protect it. This is radiation of one sort. The second sort we see on observing light at a distance, as the stars; or lights which are only bright comparatively, being set on a dark back-ground. The irridation of such lights is not circular, nor uniform. Different eyes give different patterns. To himself the rays always seemed like the. spokes of a wheel,-two larger than the other being upward, or rather nearly vertical to a line drawn from angle to angle of the eye, for these largest spokes turn with the head. If duced artificially. From experiments made, it we close the right eye, the irridating figure is changed; if we close the left eye it is again changed. Some eyes always see different figures from others; perhaps to no two are they exactly alike.

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how to arrange a room where the speakers are to occupy different parts of a room, is far more difficult.'

Prof. Dewey, of Rochester, spoke of the model lecture room in Rochester. It was 80 by

Report. [That part of the Report which relates to has been ascertained that the oil is the inclosed the building and laying out the grounds, which portion of these primordial cells, while the albumen constitutes the enveloping membrane. we sincerely regret has not been acted upon, we omit.—ED. Sci. AM.] Cells thus produced artificially, however, though

#### TO CORRESPONDENTS.

M. K. of Ind.-There are three engravings of Lime Kilns on page 61, Vol. 5, Sci. Am., and one figure on page 93, same volume ; the latter shows how to burn lime in the field. and is exactly the kind of information you want

T. P., of Maine.-We do not know of a single good roof cement, in which some linseed oil is not used. Sawed shingles absorb more moisture than shaved ones, conse quently they sooner decay by the action of evaporation. The best and cheapest coating for roofs is composed of pitch and tar in equal proportions, some lin-

seed oil, and ground brick-dust mixed along with them. H.S. of Ky.-Your plan of a pen appears to be the same as that of the fountain pen. It simply retains more ink than the common pen. We think a patent could not be obtained.

G. W. S., of N. J.-Your float for steam boilers not, in our opinion, possess any patentable feature ;the difference between it and others is not sufficient to warrant an application for a patent.

C. A. M., of Ohio-Your suggestions in regard to a mu-nicipal fire telegraph are no doubt excellent, but they lack novelty; on page 219, Vol. 7, of the Sci. Am., you will find the subject fully presented. A. C. E., of Me.—The subject of "Water Cure," which

you propose to discuss in our columns, is certainly one of interest, but we are not disposed to open our columns to it: it is a field which belongs to others, and is espe cially and extremely well managed by Messrs. Fowler & Wells, of this city, to whom we advise you to address your ideas. Y. E., of Geo.-You can avail yourself of our col-

umns for the purpose of publishing your invention ;-it is probably the best means you can adopt for spread ing a knowledge of it to the community.

R. F., of Gonn.—Your view is a very sensible one, but many times the hose is run down a considerable distance from the hydrant, before it is laid across the track.

H.S.T., of Vt.-Use the common kind of paddle wheel E. H., of Mass. -A coarse cheap paint can be made by using fine hydraulic cement dust, mixed with oil to which add one pound of good white lead for every twenty of the cement.

H. C. W., of Pa.-Your explanation makes the matter clear. We have, however, the accounts of many explo sions when the steam was blowing off, which seem to be the very opposite of your opinion. We have seen such evidence taken on trials held on the causes of explosions

J. G.S., of Pa.-Your plan of providing tomb stones is very good, but would it not be better to make the whole of cast-iron and paint on the letters; it strikes us that this would be the best plan. The plan of a glass case in an iron frame containing the epitaph or portrait of the de-ceased, is the same as that seen on many of the tombstopes in our graveyards. A patent, we believe, could

not be obtained. R, A., of Conn.—We cannot become a medium for the ventilation of such ideas as you make upon the subject of "Caloric Engines," we know them to be wholly at variance with true science. and we have successfully refuted the same arguments. It is useless to discuss the subject again, all of our readers are well informed in regard to it, and they want something new or nothing.

Money received on account of Patent Office business

for the week ending Saturday, May 20 :-J. I., of Ohio. \$30; J. P., of L. I., \$25; J. C. R., of N.Y., \$275; W. B. B., of N. Y., \$25; T. E. R., of N. Y, \$25; G. C., of Me., \$10; J. D. W., of N. Y., \$30; J. & C., of Ind., \$30; T. H. D., of N. H., \$35; T. G. B., of Ct., \$30: C. A. \*30; F. H. D., OI N. H., \$30; J. G. B., OI CL, \$30; C.A.
 R., of Iowa, \$75; A.D., of L. I., \$30; L. & S., of O., \$30;
 S. G., Jr., of N. Y., \$30; G. M. B., of O., O., \$30; C.P. P.
 of N. Y., \$275; D. C. M., of N. Y., \$30; H. & C., of N. Y., \$30; J. W. M., of III, \$25; T. P., of N. Y., \$150; C. T.S. W., of N. H., \$40; J. L. R., of Mass., \$25; A. J. G., of \$62; J. B. of Pa., \$30; H. M., of N. Y., \$10; E. W. D., of Ct., \$30; J. S. Van G., of Tenn., \$10; F. & W.. of L. I., \$10; S. J. & C. H. T., of Mass., \$55; J. C, of Ind., \$30.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, May 20 :--

W. H. B; of N. Y.; H. &S. H. P., of Pa; J. P., of L. I. J. H., of N. Y.; T. H. D., of N. H.; F. & W., of L. I.; C. P. S. W., of N. H.; J. W. M., of Ill.; T. E. R., of N. Y.; J S. Van G., of Tenn.; S. J. & C. H. T., of Mass.; J. L. R. of Mass.

#### A Chapter of Suggestions, &c

PATENT LAWS-The seventh edition of the American Patent Laws and Guide to the Patent Office, publish ed by us. having been exhausted, we shall not be able tofurnish orders under ten days or two weeks. Those whohave remitted money for copies will be supplied immediately on the issuing of a new edition.

PATENT CLAIMS-Persons desiring the claim of any inven tion which has been patented within fourteen years, can obtain a copy by addressing a letter to this office stating the name of the patentee. and enclosing \$1 for fees for copying.

PATENTEES-Remember we are always willing to execute and publish engravings of your inventions, providing they are on interesting subjects, and have never ap peared in any other publication. No engravings are inserted in our columns that have appeared in any other journal in this country, and we must be permit

## Scientific American.

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NOW TH AMERICAN ROCK DRILLING CO.-Now offer for sale the best Rock Drilling Machine in use. Said machines, with one man and two horses, will do the drilling of twenty men. Adcress their agent HENRY GULD NG. 37 3\* 14 Andover st, Boston Mass.

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WANTED-By a machinist, a situation to go West or South; has a general knowledge of the trade, is capable of making mechanical drawings, &c.; has been engaged of late years in the construction of several pat ented machines. Can give undeniable testimony of me-chanical ability. Is a young man with small family; would prefer a country town. Address A. M. S., box 125, Elizabethtown, N. J.

ATHES AND PLANERS-Of much approved construction, manufactured and kept constantly on hand, by LEONARD & CLARK Newburgh, Orange Co., N.Y. 37 4\*

FOO TINMEN—And Workers in other Plate Metals. For Sale—One of the New York Style of Rotary Presses, which cuts out the blanks and turns up the edge at the same operation. This Press works with great ra-pidity, and has been timed at the rate of 60,000 per ten hours—geared to work by hand or with power. Sold on-by because the owners have enough other presses for their work, and for no defect. There are several dies made to fit the press. Price will be made low. Inquire or address No. 78 North front st., Philadelphia. 37 3\*

ANASTATIC PRINTING-On a new Principle.-A Persons desirous of learning the art of reproduc-ing perfect impressions (equal to the original) from old prints can get full instruction by addressing A. G. S., care of Charles Fisher, 196 Mott st. (rear building), N. Y. Post-paid letters, inclosing \$20, will find prompt re-ply. 873\*

Y. Post-paid letters, inclusing two, 273\* pig. 873\* WOOD WORTH'S FATENT Planing, Tonguing, Grooving Machines. Double machines plane both sties, tongue, and groove at one and the same time, saving one half of the time when humber is required to be planed both on sides. Large assertment constantly on hand. Warranted to give entire satisfaction to pur-chasers. JOHN H. LESTER, 37 13\* 57 Pearlst, Brooklyn, L. I.

FOR SALE-A valuable India Rubber Patent Right. For further information address FRANCIS D. HAYWARD, Malden, Mass.

A UCTION SALE—The Percussion Cap Machinery and Fixtures of Phipps & Titcomb, will be sold at Water Cure Hall, Three River Village, Palmer, Mass., June 7th, 1854. Any information respecting the machi-nery may be had by addressing 36 2\* PHIPPS & TITCOMB.

**PROPOSALS** will be received at the Engineer's Of-fice, Huntington, Pa., until Monday, June 5. for the Sup rstructure of Bridges and Trestle Work of the Huntington and Broad Top Railroad. Plans and spe cifications will be exhibited at the Office, or the c.n-tractor may furnish his own plan with his bid. 363 S. W. MIFFLIN, C. Eng.

NORCROSS' ROTARY PLANING MACHINE. The Supreme Court of the U.S., at the Term of 1853 and 1854, having decided that the patent granted to Nicholas G. Norcross, of date Feb. 12, 1850, for a Ro-tary Planing Machine for Planing Boards and Planks, is not an inringement of the Woodworth Patent. Rights to use N. G. Norcross's patented machine can be purchased on application to N.G. NORCROSS, 208 Broadway, New York. The printed Report of the case with the opinion of the Court can be had of Mr. Norcross. 36 tf

TO CANDY MANUFACTURERS-For sale on

**TO** CANDY MANUFACTURERS—For sale or store house, together with a two story brick dwelling and store house, together with a two story brick shop, used for the manufacture of candies. The whole is well built and finished, and the shop has furnaces all in working order. The store room is handsomely furnished with glass casing, shelving, counters, and two superb bow windows, and handsome gas light fixtures. Possession of the store room, cellar, and shop can be had imme-diately. Terms reasonable; price \$5000; rent \$300, or paid, A. F. WARD, York, I'a. 35 4\*

FOR SALE-By the Baltimore and Ohio Railroad which will be sold at a reasonable price. For further in-formation apply to SAMUELJ. HAYES, M. of M., Balti-more and Ohio R. R. Co., or BRIDGES & BRO., 45 Ful-

#### UNITED STATES PATENT OFFICE, Washington, May 16, 1854.

Washington, May 16, 1854. Washington, May 16, 1854. O Lewis W. Harris, of Sangerfield, New York, pray-ing for the extension of a patent granted to them for an improvement in the Mill for Breaking and Grinding Bark, for seven years from the expiration of said pat-ent, which takes place on the 12th day of August, 1854, It is ordered that the said petition be heard at the Patent Office on Monday, the 24th of July next, at 12 oclock, M.; and all persons are notified to appear and show cause, if any they have, why said petition ought or to be granted. Persons opposing the extension are remired to file in

snow cause, if any they have, why said petition ought not to be granted. Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days before the day of hear ing. All testimony filed by either party, to be used at the said hearing, must be taken and transmitted in ac-cordance with the rules of the office, which will be fur-nished on application. The testimony in the case will be closed on the 14th of July; depositions and other papers relied upon as testimony, must be filed in the office on to before the gorning of that day; the argument, if any, within ten days thereafter.

testimony, must be filed in the omce on or verore me morning of that day; the argument, if any, within ten days thereafter. Ordered, also, that this notice be published in the Union, Intelligencer, and Evening Star, Washington, D. C.; Pennsylvanian, Philadelphia, Pa; Scientific American. New York: Post, Boston, Massachusetts, and Inquirer, Cincinnati, Ohio, once a week for three suc-cessive weeks previous to the 24th day of July next, the day of hearing. CHARLES has90N, Commissioner of Patents. P. S-Editors of the above papers will please copy, and send their bills to the Patent Office, with a paper containing this notice. 373

UNITED STATES PATENT OFFICE. Washington, April 18 1854. ON THE PETITION of Charles Spatferd. adminis-trator of George Spatferd, late of Windham, Con-necticut, praying for the extension of a patent grant-ed to him on the 2nd day of September, 1840, for an im provement in "machines for boiling and washing rags for manufacturing paper." for seven years from the expiration of said patent, which takes place on the 2nd day of September, eighteen hundred and fifty-four. It is ordered that the said petition be heard at the Pa-tent Office on Monday, the 18th of August next, at 12 o'clock. M.; and all persons are notified to appear and show cause, if any they have, why said petition ought not be granted. Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days before the day of hearing; all testimony filed by either party to be used at the said hearing must be taken and transmitted in accordance with the rules of the office, which will be furnished on application. The testimony in the case will be closed on the 3d of

with the rules of the office, which will be furnished on application. The testimony in the case will be closed on the 3d of August i depositions, and other papers relied, upon as testimony, must be filed in the office on or before the morning of that day : the arguments, if any, within ten daya thereafter. Ordered, also, that this notice be published in the Gnion, Intelligencer, and Evening Star, Washington, D. C.; Evening Argus, Philadelphia, Pa.; Scientific Amer-ican, New York; Daily Courier, Buffalo, N. Y., and Post, Boston, Massachusetts once a week for three suc-cessive weeks previous to the 18th day of Aug. next, the day of hearing. S. T. SHUG ERT,

Acting Commissioner of Patents P. S.-Editors of the above papers will please copy and send their bills to the Patent Office, with a paper con-taining this notice.

**H S54** -MICHIGAN CENTRAL R R. LINE, -Railroad and the enormous new steamers "Fiymouth Bock," "Western World," and "May Elower,"-and also General Forwarder, will forward freight of any kind, by any mode of conveyance, to any destination, with dispatch and at the lowest rates; has trucks and uschinery and (having been a practical machi-nist has all the skill necessary) for the safe and expedi-ious bandling of any machines heavy article, such as Locomotives. Steam Engines and Boilers, Engine Lathes, Church Bells, Bales, &c. Mark packages care "D. W. Wiltling, Buffalo;" goods thus consigned take prece-dence with the above boats in all cases. 32tf

S'TAVE AND BARREL MACHINERY—HUTCH INSON'S PATENT.—This machinery, which re-ceived the highest award at the Crystal Palace, may be seen there in operation during the ensuing season. Cutting, Jointing and Crozing Staves and Turning Heads. Staves prepared by this process are worth to the cooper from 20 to 40 per cent more than when fin-ished in another way. ApplicaLie alike to thick and thin staves. Apply to 0. B. HUTCHINSON & CO.. Au-burn,N. Y, or at the Crystal Palace. 34if

KRUPP'S BEST CAST STEKL-Suitable for Mint and Plater's Rollers, also of large size (72x18 inches diam) for rolling iron, copp er or brass. Pistons of Steam Engines, and Shafts for Steamboats, not ex-ceeding six tuns weight in one piece. Also the celebra-ted Cast Steel Axles and Tire, marie from a solid bar without welding. Agents, THOS. PROSER & SON, 38tf 28 Platt st, New York.

KETCHUM'S IMPROVED MOWING MA-chine with entire change of Gear. The only suc-cessful grass cutter now known; warranted capable of cutting and spreading from ten to fitteen acres of any kind of grass, per day, in as good a manner as is done with a scythe. Orders filled at our establishment in Buffalo, N.Y., or at J. MAYHER & CO.'S, and R.L. AL-LEN'S, Water street, N. Y. HOWARD & CO., 318 Proprietors.

MODELS-Of all kinds made and warranted to an swer the requisitions of the Patent Office. Post paid communications strictly confidential. Address J G. ARNOLD, Worcester, Mass. 3110\*

**DORT'ABLE FORGES AND BELLOWS**--Queen's paten). The best forge in market for Blacksmiths work, Boiler Makers, Mining. Quarrying, Shipping, plantations, Contractors on Railroads and Public Works, Coppermithe, Gas Fitters, &c., Also an improved Por-table Melting Furnace for Jewellers, Dentists, Chemists, &c. both of which are constructed with sliding doors to protect the fire from wind and rain when used outdoors, and for perfect safety and free escape of smoke when used indoors. They are compact for Shipping. Circu-lars with particlars and prices will be forwarded upon application. Cast iron Columns, for building constant y on hand. Jobbing, Piano, and all kind of work promply executed. FREDERICK P. FLAGLER, 29 10<sup>s</sup> Sole Manufacturer, 210 Water street, N. Y.

NEW HAVEN MANUFACTURING COMPANY —New Haven, Conn., (successors to Scranton & Parshley) have on hand Power Planers, to plane from 3 to 13 feet; slide lathes from 6 to 18 feet long; 18 sizes of hand lathes, with and without shears; and counter shafts: universal chucks; drill presses, index plates, bolt cutters, and slide rests. The N H. M. Company also have the right for Harrison's patent Flour and Grist Mill for the term of five years, and are prepared to furnish these superior mills at short notice. They are unequalled by any other mill, and will grind from 20 to 50 bushels per hour, and will run without heating, be-ing self-cooling. They weigh about 1400 lbs., are of the best French burr stone, 30 inches in diameter; are snugly packed in a cast-iron frame, price of mill \$200, packing \$5. For cuts, prices, and further particulars apply post-paid, as above, or to S. C. HILLS, agent N. H. M. Co., 12 Platt st., N. Y.

**DORTABLE STEAM ENGINES**—GEORGE VAIL & CO., Speedwell Iron Works, Morristown, N. J. LOGAN VAIL & CO, No. 9 Gold st, N. Y., are prepared to furnish Portable Steam Engines from four to eight horse power, with locomotive boilers. These engines are recommended for their simplicity. Aurability, and economy, being made from the best materials and de-signed for practicaluse. They are placed on wheels con-venient tobe moved from place to place, and are ship-ped in working order: for plantation use, machinists, or others wanting small power, these engines will be found superior to any others in use. A Silver Medal was awarded at the late Fair of the American Institute, and a premium in cash of \$100 at the Maryland State Fair, held at Baltimore in October last. Persons writing us by mail will be particular to give their address in full. 2138\*

JOHN PARSHLEY, No. 5 and 7 Howard st., New Haven, Ct., manufacturer of Machinists' Tools, and Steam Engines, has now finishing of 25 Engine Lathes, 6 feet shears, 4 feet between centers, 15 inches swing, and weight about 1100 lbs These Lathes have back and screw gerr, jib rest, with screw feed, and the rest is so arranged that the tool can be adjusted to any point the work may require, without unfastening the tool, hence they possess all the good qualities of the jib and the weight lathet : they are of the best workman-ship. Price of Lathe with count shart and pulcys, \$155 cash. Outs, with ful description of the lathe, can be had by addressing as above, post-paid. Also four 30 horse power vertical Steam Engines with two cylinders. Frice of engine with pump and heater, \$500 cash. For particulars address as above.

**B** 100 REWARD-To the Manufacturers of Bank Note Paper. The Executive Com-mittee of the Association of Banks for the Suppression of Counterfeiting, hereby offer a reward of One Hun-dred Dollars for the best specimen, in the opinion of the Committee, of Bank Note Paper, of not less than five hundred sheets, which may be submitted to them on or before the 1st day of January next. All paper submit-ted, except that selected by the Committee, to be re-turned to the persons submitting the same. Boston, Mass., March 31, 1834. 31 15\*

CREW CUTTING MACHINES. with P. W. Gates' Patent Dies—The subscribers keep constant-ly on hand three sizes of the above-named machines, to wit—No. I machine. 10 sets dies and taps from one half to two inches, #350 : No. 3, 6 sets dies and taps, to one and a half inches, #350 : No. 3, 6 sets dies and taps, thr.e-eighths to one inch, #150. Casb on deilvery at shop. P. W. GATES & CO Chicago, Ill. 27 1s\* shop. Chicago, Ill.

THUDSON MACHINE WORKS and Iron Foundry --at Hudson City, N. Y., are prepared to contract for castings for railroads, bridges, buildings, gas pipes and posts, water pipe, cast-iron ornamental floors, can-non, &c. Steam engines and boilers, high and low pres-sue, sugar mills, Cornish lifting and forcing punps for mines: stamps, mortars, and mining machinery :-also superior hydraulic pumps and preses, and su-perior machinists' tools made to order. Especial at-tention given to the making of patent machines. Or-ders by mail will receive prompt attention. New York Office No. 18 Exchange Place. FREDERIC COOK & CO. F. COOK, H. McCLELLAND. 27tf

MACHINERY FOR SALE—The following ma-chines are for sale at the "Scientific American" Office: -Alcott'sConcentric Lathe, price \$25. Portable Mortising Machine, \$20 Bushnell's Iron Drill, \$25 All orders should be addressed (accompanied with the cash) to MUNN & CO., 128 Fulton st., N.Y.

WHITE STRAW PAPER—For Newspapers.— A Mellier, the patentee, having established his process at Nixon & Xeinour's Mills, Manayunk, where daily from straw since the 12th of April, is now ready to sell licenses and make arrangements for establishing the process elsewhere. Apply to A. MELLIER & V. BEAUMONT, 74 Broadway, where specimens of half stuff, stuff and paper may be seen. 33 10\*

**EXAMPLE 1** For the undersigned is prepared to furnish specifications, estimates, plans in general or detail of steamships, steamboats, propellers, high and low pressure engines, boilers and machinery of every description. Broker in steam vessels, machinery, hoilers, &c. General Agent for Ashcroft's Steam and Vacuum Gauges, Allen & Noyes' Metailic, Self-adjusting Conical Packing, Faber's Water Gauge, Sewell's Salinometers, Dudgeon's Hydraulic Lifting Press, Roebling's Patent Wire Rope for hoisting and steering, purposes, etc., etc. CHARLES W. COPELAND, 35 tf Consulting Engineer, 64 Broadway.

**PLANING, TONGUING. AND GROOVING** BEARDSLEE'S PATENT.—Practical operation of these Machines throughout every portion of the United States, in working all kinds of wood, has proved them to be superior to any and all others. The work they pro-duce cannot be equaled by the hand plane. They work from 100 to 200 feet, lineal measure, per minute. One machine has planed over twenty millions of feet during the last two years, another more than twelve millions of of feet Spruce flooring in ten months. Working models can be seen at the Crystal Palace, where further informa-tion can be obtained, or of the patentee at Albany, N. Y 27tf GEO. W. BEARDSLEE.

STATIONARY STEAM ENGINES-The subscription of furnish, with or with ) ber is now prepared to furnish, with or without mps, boilers, &c., Horizontal Engines on iron bed umes, good strong, substantial, plain finished engines

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# Scientific Museum.

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#### Varnishes

Spirit and turpentine varnishes are prepared by mixing the resins and the solvent together, and agitating the whole with a stick having a number of pegs or nails driven in near the low er end until the solution is complete. The resins should be dry, and in small pieces, with the impurities picked out; the finest and clearest pieces of the gum are set aside for superior varnishes. Turpentine varnishes are made in quantities of 10 or 12 gallons; spirit varnishes from 4 to 8 gallons. In making the latter, the ingredients are sometimes put into a cask of 8 or 16 gallon's capacity, and mounted so as to revolve upon bearings at the ends. An alternating motion is given to the barrel by passing round it a cord terminating in a cross handle. When the operator pulls this cord towards him the barrel rotates and winds the cord up in the other direction so as to be ready for a second pull, which, in like manner, winds the cord in the opposite direction, and so on. Agitation must be kept up, or the resin will agglutinate. After 3 or 4 hours, or when the solution is complete, the varnish is left for a few hours to deposit solid impurities, and is then strained through muslin or lawn into bottles. Coarsely pounded glass is sometimes added to prevent the agglutination of the resin. When heat is employed in making spirit varnishes, the source of heat should be a water or a sand bath, and a still and worm may be used to prevent loss by evaporation, the resins and solvent in the still being kept in motion by a stirrer passing through a stuffing box in the head. Shellac contains a little wax, which is apt to get diffused through the varnish when heat is applied. The inflammable nature of the ingredients will of course sugrest the necessity for caution in making spirit varnishes. The utensils employed must be quite clean and dry.

Best white hard spirit varnish, such as will bear polishing, is made by adding 2 lbs. of the best picked gum-sandarach to 1 gallon of alcohol and agitating for 4 hours, until the solution is complete. 18 ozs. of Venice-turpentine, (or 9 ozs. if the work is not to be polished,) are to be moderately heated in a water-bath until quite fluid, and added to the varnish to give it body. Agitate for an hour, strain and put into bottles, which must be kept well corked. After remaining undisturbed for a week the varnish is fit for use. If the clearest and palest pieces of gum be selected, this varnish will be pale enough for white work.

## Scientific American.

lition. When the lac is dissolved, cool the so- son acquainted with chemistry. Hence chlo- this machine is the quantity of work it will perlution and impregnate it with chlorine gas till ride of lime is safer as a bleaching agent, the the lac is all precipitated. The precipitate is lime being afterwards dissolved out from the white, but the color deepens by washing and precipitate by the addition of muriatic acid. consolidation ; dissolved in alcohol, lac bleached The precipitate is to be washed several times, by this process yields a varnish which is as free dried and dissolved in alcohol with the addition from color as any copal varnish." The appli- of a little mastic. This varnish is very pale, cation of the chlorine must be made by a per- 'and rather thin.



The annexed engravings are views of a ma- | ends of the cylinder, or upon the frame; it chine for painting window blinds, for which a has two circular disks or ends, D D, one or both patent was granted to Samuel T. Field, of Wor- of which should be adjustable lengthwise on the cester, Mass., on the 18th of last month, (April shaft, but both intended to be firmly secured 1854.) Figure 1 is a longitudinal vertical section of the machine, and figure 2 is a transverse slots, b b, b' b', two on each side on opposite section of it. The same letters refer to like parts.

This invention consists in a hollow stationary suitable means, by which the blinds, sashes, or other articles to be painted, may be held securely and revolved. . The articles are first dipped into a trough containing a sufficient quantity of paint, and are then secured within the cylinder, and a very rapid revolution given to them. The effect of said revolution is to throw off by centrifugal force all the superfluous paint, and leave a proper quantity evenly distributed over the whole surface of the articles. The paint thrown off is received on the inner surface of the cylinder, box, or casing, and running to the bottom of it passes through an opening provided for the purpose into a suitable receptacle placed below, from which receptacle it can be again returned to the painting trough.

Fig. 2



to the shaft. The two disks have each four sides of the shaft, b b, being opposite to each other and in line, and b' b', being similar to and parallel with them; I I are clamps, of which cylinder box, or casing, provided inside with there are two to each disk, consisting of plates of metal, or pieces of wood of segmental form, each provided with two holes of the same distance apart as the slats,  $b \ b'$ , in the disks; through these holes and through the slots, pass screw bolts, d d, which are provided with nuts, h h, by which the clamps can be secured firmly to the disks; the slots allow of the clamps being moved nearer to, or further from the center of the disks. There are notches in the inner edges of the clamps, in which the stiles of the blinds sit; G G are a pair of blinds placed between the clamps.

The shaft, C, is furnished at one end and outside the cylinder, with a small pulley, E, round which runs the band, g, leading from a large driving pulley, F, which is for the purpose of giving it a rapid rotary motion. In front of the frame is placed the trough, H, con-

form-an unskilled laborer being able to do as much work as several painters, and in quite as perfect a manner. The invention is not only applicable to painting, but may be used for covering or coating articles with any material.

The inventor states that he can paint 100 pairs of blinds in one day with this machine, when driven by power, and 75 pairs when driven by hand.

More information may be obtained about it by letter addressed to the inventor at Worcester, Mass.

LITERARY NOTICES.

LITERARY NOTICES. A New, UNIVERSAL ATLAS-Containing maps of the various Empires, Kingdoms, States, and Republics of the World, with a special map of each of the United states, plans of cities, &c. Cowperthwait, Desliver & Go., Philadelphia. For sale by John Wiley, 167 Broad-way, New York City. Price, plain bound, \$12; half Rus-sia and half calf, extra, \$13. We have come across no work, latterly, with which we have taken so great pleasure and derived so much profit in perusing, as the "New Universal Atlas." by that celebrated geographer -Mitchell. The Maps have been prepared with the preatestaccuracy, and they are so comprehensive and beautifully executed that it seems as if every family in the United States would desire a copy, if they were ac-apparently with the greatest care without regard to expense; the several States of the Union, occupying full page, are divided off into counties, and all the princi-pal cities and towns are distinuity set down, and their lot discover, and we have examined them with critical care. This Atlas has also elaborate maps of Russia and turkey, showing the disputed territory that is of so more future time we shall probably present soft yeng the fact shown in one instance is one probably, not gen-er ally known, i.e., that the propulation of Russia. At prevase very year over one million of inhabitants. At set atlas, "-showing the present condition of the world, geographically from the pages of the." New Univer-sating and the states was nour school-boy days when Mitchell's primary Atlas was our companion. The Wasrmsmers Review -Republished by Leonard Soute Co., 78 Fullion st., N. , -The Aorli, numer of

THE WESTINSTER ENTIRE REPublished by Leonard Scott & Co., 79 Fulton st., N. Y.—The April number of this British Review contains nine articles of great pow-er and ability. The first on the Results of the Census of 1851, presents an interesting epitome of the progress of the Islands of Great British and Ireland for two thoms and wears. It is very interseting excited. An of the Islands of Great Britan and Ireland for two thousand years. It is a very interesting article. An-other on "The Balance of Power in Europe" should be read by every citizen of the United States. It goesover the whole ground of the Turkish question, and the strug-eles between the Russian and the Moslem and the part Br.tain bas played in connection therewith This Re-view is of the liberal or democratic stamp, and conse quently is opposed to all the leading governing parties in England-Whig and Tory. Porcer Book of Mechanics, AND ENGINEERING-Pub-

In LORIANG—WHIG AND TOTY. POCKET BOOK OF MECHANICS AND ENGINEERING—Pub-lished by Lippincott & Grambo: Exited by John W. Nys-trom, C. E. Among the many books of this character, this one has claims of no ordinary dgree. All the calculations in it were done by the author's patent ma-chine. It is a neat and v-ry useful work ; has a flap and pocket, and contains much new information not jourd in other works of this kind.

HYDROPATHIC QUARTERLY REVIEW-No. 3 of this Re-view, published by Fowlers & Wells, of this city, con-tains some excellent advice for improving the muscles by manual exercise. It is a very useful work.

LITTELL'S LIVING AGE.-No. 522 of this excellent week-ly republication of selected articles, has a beautiful steelengraving of one of Hogarth's pictures; and has a long and fine article on Charles Fox. The office of this periodical, in this city, is at 343 Broadway.

