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How to Make the Gas Burn in Cold Weather

Many persons, during the late excessive cold weather, experienced some difficulty in making the gas burn in their houses, caused by obstruction to the supply pipes and meters. Mr. Cresson, the engineer of the gas works, says the difficulty may be removed by pouring boiling water on a cloth spead over the meter and pipe that comes in through the front wall. This removes the frost in the meter and pipe, leaving a free course for the gas to flow .-- [Philadelphia Ledger.

[The difficulties described by the Ledger, were experienced on quite an extended scale in this city, as well as Philadelphia, during the late severe frost. The method of remedying the evil suggested by Mr. Cresson, has been tried with success here.

Singular Optical Illusion.

The Paris correspondent of the New York Times states that a gentleman living in Brussels, somewhat troubled by spott in his eyes, rubbed them one night with a few drops of extract of belladona. In the morning the whole outer face of the world had changed. His newspaper, which had been placed by bed-side, was composed of type so small that he could hardly decypher it. He got up in a great fright, and looked after his clothing ; they were the garments of a child, but as his own limbs had diminished in proportion, he easily got into them. He found his wife and children at the table, the former a dwarf and the latter a row of dolls. He hurried off to his physician; the horses he met looked liked dogs, and dogs like rats. Lotions were applied to the victim's eyes, and the next day Brobdignag returned, bringing back the spots.

The Submarine Telegraph Across the Black Sea.

The annexed figure is a perspective view | sponge may be employed in the end of the The London Times speaks of the departof a method and apparatus for washing winmeasures and carry them out for the welfare of tube, C. ure of a steamer with the wire for a submadows, for which a patent was granted to Geo. By filling the pail, A, with water, and soldiers during a campaign, they being rine cable, intended to be laid between Varna A. Meacham, of this city, on the 30th of last raising it to the hight shown-the top of the brought up to have others care for and look and Balaklava, a distance of 400 miles. window—as represented, it is evident that month. after them. They are no better than grown Morse's system of telegraphing is to be used. This improvement enables any person to up children in that forethought necessary to when the faucet, d, is opened, the water will By the end of February a direct telegraphic wash windows by ejecting a stream of wa rise to the hight of the fountain head (the provide for themselves, and how can it be communication will be opened between the ter upon them, from the nozzle of a pipe, surface of the water in the pail, A,) and be expected that they are qualified to take head-quarters of the allies in the Crimea and and by employing no other means to do so, ejected upon the window, as illustrated by care of the soldiers under them? The the two great western capitals, London and than a pail, a post, and tube. It is applicathis figure. only way to improve the Britsh government Paris; for the French and English Governble to the washing of windows inside of any This is a simple apparatus for accomplishand army, is to throw open all offices to merments have made such arrangements that the room. E is an apron secured on the sole of ing the object specified ; it allows of win- itorious and capable men-plebians as well gentlemen who are proceeding out to the the window to catch the water; it has a pipe dows in the interior of buildings being as patricians. Black Sea confidently expect, by the time in its lower side, which allows the water to washed in a superior manner by a girl stand-+00 their vessel reaches the Euxine, the overrun into a pail, as shown, so that no water is | ing on the floor, without the necessity of Garden Seats. land telegraph from Varna to Bucharest will spattered on the floor. A is a pail, and B is getting upon a ladder or bench, as is now A correspondent of the Gardener's Chrobe finished, thus completing the electric a portable stand post. It has pins secured the practice to do so. Either a brush or icle says: "Every one finds great difficaty communication of the Crimea with England. on it as shown, and on its top there is a col- sponge may be used on the end of the nozin keeping garden seats more than a year Galls from the Harness or Saddle. lar with a hole in it to guide and hold the zle. All will understand the operation of without constant painting. Gutta ercha pail in position. The pail has a shank or this apparatus, and its utility and usefulness Maj. Long, says the American Farmer, in thinly laid on, and turned round de sides his valuable account of his expedition to the handle secured in its under side, which shank are apparent. and nailed, will last forever." Rocky Mountains, says, that his party found passes through the top collar on post B. The More information may be obtained from 4.00.0 white lead moistened with milk to succeed shank of the pail has also a metal ring sethe inventor at 290 Broadway, room No. 13. Moore & Hascall's Patent + Congress. better than anything else in preventing the cured on its lower end, which encircles On the 10th inst., the ensting clause of bad effects of the galls on the horses' back the post, B, and is held at any point of ele-The large new frigate Niagara is now the Bill to extend Moore Hascall's Reapvation by the pins, as shown. C is a the er patent was ordered troe struck out by a in their march over the plains that bor building at the government Navy Yard in der the mountains. Its effect in soothing screwed into the bottom of the pail, and p Brooklyn. Messrs. Pease & Murphy, of this vote of 96 to 34-th' defeating it comthe irritated and inflamed surface was admiris a faucet to open and close the tube; D is city, are building the engines, which will pletely. able. a rose, or perforate nozzle-and a piece of soon be ready, and do them credit.

NEW-YORK FEBRUARY 17, 1855.

PATENT WINDOW WASHER.



[NUMBER 23.

American Linen Cloth and Thread. We saw, last week, at the rooms of George F. Wilson, some specimens of flax in the various stages of manufacture, from the coarse raw material dressed without rotting, to the yarn fine enough to spin No. 100, and the woven cloth handsomely finished and beautifully bleached. Twine, thread, and other manufactures of flax were also exhibited. The various processes by which these results have been accomplished are most creditable to American ingenuity, and open new and important avenues to American enterprise. Flax is raised in large quantities for the seed; it is easy of culture, and the raw material can be supplied in any quantity that may be desired. By the new processes of bleaching and spinning, the manufactured article can be afforded at prices altogether below those that it now commands. The times are not just now propitious for new enterprises, but as soon as money can be had for anything, we should think that these improvements would attract the attention of capitalists.—[Providence Journal, (R. I.)

[We believe this is the first fine linen cloth and thread which has been manufactured in our country. Linen twine and shoemakers' coarse thread have been extensively manufactured, but we have never seen a single yard of American linen on exhibition at any of our Fairs. Rhode Island is the mother of American cotton manufacturing by machinery, and it may yet prove to be the parent of the American linen manufacture, for we do not see anything to hinder our country from manufacturing linen as well as cotton cloth.

Late News from Europe.

The most recent news from Europe brings information of a complete disorganization of the coalition British Ministry. Lord John Russel had resigned because he could not continue in a Ministry that mismanaged the affairs in the Crimea so wretchedly. Of 54,000 British troops sent to the seat of war, there were now only 14,000 on duty, and only 2,000 of these were in good health. The London Times is savage upon the incapacity of the British aristocracy, and asserts that the interests of the country have been sacrificed to routine and aristocratic incompetency. It is perfectly reasonable to suppose that aristocrats, like the English nobility, cannot be educated to command and guide soldiers, or others. How can they project

The Art of Dyeing-No. 8.

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BLUE ON WOOL-All cloth should be made of dved wool, for the color cannot penetrate so thoroughly into the minute cells of the wool when made into cloth as when in the wool state. The best cloths, therefore, are made of dyed wool, still there is a great deal of black cloth dyed in the piece. These pieces can easily be detected, as the makers of the genuine dyed-in-the-wool cloth weave a selvedge of a different color, while the cloth dyed in pieces cannot show this, and the only way that deception is practiced is by sewing on a selvedge of a different color. Persons purchasing black broadcloth would do well to remember this.

The dyeing of wool differs in no respect from woolen cloth, except in the apparatus; the stuffs employed are the same. The wool is dyed in nets, cloth is dyed by handling on a reel, and woolen yarn by turning it over on pins.

INDIGO BLUE—The common method of dyeing indigo blue on wool for domestic use, is by steeping finely ground indigo in urine, and keeping it at a temperature of about 62°, for four or five days. It then assumes a deep green color, and the wool may be well handled in it for about half an hour, when it will dye a color in depth according to the strength of the liquor. This is a simple and good method of dyeing indigo blue, but the odor is very unpleasant.

THE WARM VAT-It requires greater heat to dye wool than cotton or silk, the vat for dyeing wool therefore, has to be so made that it can be heated up. A perforated steam pipe some distance above the bottom of the vat. secured to its sides by brackets, so as to leave free room for raking, is the most convenient method of heating it. By this plan a wooden vat answers as well as an iron one, and the temperature of the liquor can be regulated with the utmost exactness. The indigo must be ground to an impalpable powder, or it will spot the goods, and also be a cause of loss. Take, for a small vat, six quarts of common flour bran and one pound of ground madder, and boil them in a kettle for two hours. In this liquor dissolve three pounds of potash, then take it off, allow it to settle, and pour the clear into the vat. which must now be filled with water at about 120°, to within six inches of the top. This is for a vat that will contain 250 gallons. Now introduce three pounds of finely ground Bengal indigo, and stir all up with a rake. The vat is now covered with a woolen cloth, and the temperature of the dve house should be maintained at about 62°. It is first left to rest for about ten hours, when it should be opened and raked well, and again covered up, and these operations continued every three hours-during the day time-for three days, when it will have assumed a deep green color, and is then fit for working. A net is let down into the vat, to keep any sediment from rising, and then the goods are introduced and cautiously handled until the depth of shade desired is obtained. The shade will not be deep for a vat of 250 gallons with only three pounds of indigo, but by using six pounds, and the same proportions of madder, bran, and potash, a strong vat will be the result. The heat of the vat for dyeing should be about 120° Fah. The mending and working out of an ash indigo vat, requires great care and attention

The following is the French method of preparing and keeping the indigo vat for wool, usually termed "Homasel's method," and which, perhaps, has no superior : "For a boiler of from thirty-six to fifty fourgaion buckets of water, employ four pounds of in_{igo} of a fine copper color, two pounds of mader, eight pounds of pearl ash, or of potash, nd one-sixth of a bushel of good bran. Fill the viler three-fourths full of soft water; put \ four pounds of the alkali, a pound and a lf of madder, and a quarter of a bushel of bi_{n} . Boil these together for at least four hours this is absolutely necessary. When the liqor has boiled during that time, let it rest fo twenty minutes, and strain it clear from the diment. for.

While the bath or liquor is boiling, prepare the indigo, which it is absolutely essential should be bruised into a paste fine enough to pass through a fine sieve, which it must be made to do. The sediment that will not pass through must be ground over again. Put in the indigo, and take care that the boiler be not more than two thirds full; nor should the heat be now permitted to exceed 45 degrees of Reaumur's thermometer, or 133 of Fah. to which degree it should be kept up; a few degrees below this will prevent its working well, and a few degrees above will scald it too much.

In twelve or fifteen hours the liquor will be green, when you must put in one pound of alkali; stir it well, and let it rest twelve hours, always keeping up the same degree of heat. Then put in the rest of the alkali. bran, and madder, and let the liquor boil for five minutes, but no more. Let the liquor now rest, until it be cool enough to empty into the vat; empty it therein, and stir it well; let it rest four hours, when it will have a fine green color and a pleasant smell.

When the wool is dyed, the liquor must be cooled to the degree in which the hand can be immersed without inconvenience; that is, rather under than above 133 degrees Fah. Should the vat after working become black, the indigo collects and is not diffused; if it becomes greasy, it leaves white spots on the cloth. In the latter case, put about a gallon and a half of bran in two or three bags, and throw them into the vat; when they have absorbed all the grease they will rise to the top of the vat, when they may be taken out and a refreshing of madder and alkali added, according to the quantity of indigo calculated to remain in the vat. Stir the liquor in the vat; let it rest four hours at the heat of 133° Fah. Stir it well again, and let it again rest four hours. If the vat be black. add a little alkali, and bring up the heat to 133° Fah., for twelve or fifteen hours, till it begins to come to, and then add a little madder and bran. The varn or wool is handled in any of the known methods.

After having colored twenty pounds of wool, the vat may be slightly refreshed and stirred, and left to settle for four hours : but this refreshment need not be put in unless you observe the vat rather spent, and the green color turning blackish; too much refreshing with madder and bran will make the vat turn greasy.

A vat thus set, will dye thirty pounds of wool a royal blue, for each pound of indigo, and also thirty other pounds a lighter blue, and even give a light blue ground to other parcels intended for greens and browns .-This vat ought to be worked out till it is spent and clear, that there may be no need of the trouble and expense of reheating; and the quantity of indigo should be previously calculated to answer the quantity of blues and greens you contemplate to dye in it. This vat is superior in color, when the indigo is good, to the pastel or woad vat; but when cloth is to be dyed in it, instead of wool, the dyers proceed thus:

For a vat of a hundred buckets of water they employ but four pounds of indigo, which is treated as above. In another small boiler, holding ten or a dozen buckets of water, they set another vat, wherein they employ from ten to twelve pounds of indigo in perfect solution, that is, using the proportions of madder and bran necessary with the alkali to dissolve the indigo. By taking a bucket full or two out of this small vat and

Remarkable Properties of Sugar Cane Juice. An article on the cure of consumptive and bronchial diseases, by Dr. Cartwright, of New Orleans, has been published in the Boston Medical and Surgical Journal, in which he describes cures cffected on persons afflicted with consumption and bronchitis, by inhaling the vapor arising from cane juice, in the act of boiling. The information which he presents is both curious and useful. He says :-

"The alcoholic liquor known as rum, is obtained from sugar alone; the ferment called dunder, being an aromatic substance obtained from the skimmings of boiling cane-juice: which is necessary to assist in the decomposition of the sugar in its metamorphosis into rum.

Arequin, a French chemist, of New Orleans, whom Liebig, Dumas, and Gerhardt quote in their works as the very highest authority in the analysis of cane-juice, has discovered a peculiar principle in that liquor, which he calls cerosie. He says it is an unique natural alcohol, and presents the only instance known in nature of an alcoholic substance being produced without artificial agency. The new and wonderful science of optical chemistry proves that one of the chief constituents of the liquor in the clarifiers, from which the fragrant saccharine vapor arises, has the power to rotate the plane of polarization of polarized light, 100° to the right.

According to experiments of Carminati, the essential salt of cane-juice destroys such coldblooded animals as toads and lizards, whether applied externally or given internally. There are also many conflicting facts in regard to breeds worms, causes scurvey, and injures the teeth; others, that it destroys worms, cures scurvy, and whitens the teeth. These facts kinds of sugar-the dextrogyrate and the lavogyrate. I took an alligator to the chemical laboratory, requesting Mr. Riddell to try if the respiration of carbonic acid gas would kill it. After trying gas upon it for a good part of the day, it was brought back as lively and vigorous as ever. It was thought that owing to the size of the animal, the vessel it was put into might have contained a small portion of atmospheric air. I then gave it some pure dextrogyrate sugar from the plantation of P. M. Latice, Esq., being some of the same parcel which was made by first process, and rotated 100° to the right. Also a solution of it was smeared over its body. This was in the evening. The next morning the alligator was found perfectly dead."

About this time Prof. Riddell was busily engaged in looking into a new world, invisible to the naked eye, through his powerful microscope. The sediment taken from the gutters was found to be alive with rotifera and various other hideous-looking animalculæ. The most numerous among them was a species of the Euchlanis Leucophreys patula. They briskly moved through an olgoid substance, called by the Professor ocillaria. He fed them with various matters, such as carmine, which they devoured with the same rapacity that hungry, ravenous beasts, in the visible world, devour their food. He fed them on human blood, which they gobbled down with a keen relish. At length I handed to the Professor a stock of mature cane, just cut from the field of a sugar plantation. He squeezed some juice out of it, and put a speck into the nidus of these ravenous animals. It kilked the whole of them as quick as lightning.

house of a patient-a young Frenchman in New Orleans-who appeared to be dying with the consumption. He had him conveyed to a sugar house in a very short time afterwards, where he soon recovered by inhaling the vapor of boiling cane juice. This person is Dr. Chapellier, whom his friends had given up as one ready to drop into the grave. It has long been observed by overseers of sugar plantations that weakly and sickly persons soon get robust and strong when set to skimming the pans during the boiling of cane juice; facts are overwhelming on this point. From Dr. Cartwright's knowledge of this, and the peculiar effects of cane juice in destroying cold-blooded animals, he recommends the inhaling of cane juice vapor as a cure for consumption in its early stages. His own experience seems to be conclusive on this point. The fragrant cane juice is perfectly respirable, and penetrates into the smallest bronchial tubes, and produces beneficial effects.

"The essential salt of cane juice," he says, 'is technically called dextrogyrate sugar, bccause its solution rotates the plain of polarization of polarized light to the right. No other saccharine matter than dextrogyrate, or vital sugar, is contained in the cane plant. After the canes are cut, unless the weather be extremely cold, whether the juice be expressed or not, chemical changes begin almost immediately to occur, as in the blood and flesh of slaughtered animals. Instead of putrefaction. as in flesh and blood, fermentation takes place, and the dextrogyrate begins to be converted into lavogyrate sugar, which rotates to the the virtues of sugar-some proving that it left. The refiner's art can convert it into glucose, and make it assume the crystalline form, looking pretty and white, and rotating to the right again; but no art can ever reare reconciled by the discovery of the two convert it into a substance possessing its original properties-its lost aroma cannot be restored. That aroma is very volatile: it is as effectually destroyed by double refining, as the aroma of wine by its distillation into alcohol. Loaf sugar, however, when made by what is called the 'first process,' on the same day the canes are cut, preserves much of its aromatic odor. It is the volatile aromain the cane juice, which, perhaps, imparts some specific virtue to the vapor that hangs, like a cloud of incense, over the boiling-kettles of a sugar house. Although something is known in regard to it, there is yet much to learn."

The extracts which we have given from the article of Dr. Cartwright, deserve a wide circulation. It appears there are two kinds of sugar, of very different properties, both made from the cane, the best being made from the unchanged juice. It therefore appears to us to be a question which should deeply interest sugar planters, namely, to prevent the juice undergoing any chemical change before it is boiled and made into sugar.

A New Life Preserver.

The Toledo (Ohio) Blade says : Capt. Isaac T. Phratt, of the Northern Indiana, has invented a new life preserver, which promises to be very valuable. The idea is, to attach to the panel of every door on board of a vessel or a steamboat an india rubber sheet. which, in a collapsed condition, lies flat upon the surface. Usually there will be four panels to a door, and when the sacks are inflated it is designed that the door shall be capable of saving one or more individuals. Small cords are to be attached to each door. and staples are driven in each, so that two

Scientific American.

pouring it into the large one, the latter is Young Riddell, a smart boy about 12 years of age suggested to his father, the Professor, to conveniently refreshed, and kept up of any try to bring them to life by the same means desired strength. Before the cloth is dyed, it is exposed on the grass to bleach, and then that he had brought others to life killed with chloroform. He tried, but could not bring fulled, and the large vat is kept rather weak them to life. They were dead. Among them than strong. The bleaching and milling was a nondescript animalculæ resembling a contributes much to the brilliancy of color.

The Snail Trade.

Among the list of articles exported from in a few seconds every joint was dead." Switzerland, appears the item "snails," of which 925 quintals were sold for foreign consumption during the months of October and November last.

[Who uses them, and what are they used

gether.

More Gold.

The steamship North Star arrived at this port from Aspinwall, on Thursday evening last week, with no less than \$1,239,000 in gold. This shows that the placers are still tape-worm. It did not die instantly as the yielding large quantities of this precious others did, but all its joints came apart, and metal. A great number of machines are now at work in California crushing the ore These results appear more like magic than and operating upon a large scale. Improved sober facts. From witnessing such remarkmethods of crushing the quartz and extractable properties in sugar cane juice, Dr. Cart. ing the gold are now reaping their golden harvests. Hand labor by simple pan washwright anticipated remarkable effects from its application to medicine. He was filled with ing will soon be at an end, but the fields for enthusiasm, and at once proceeded to the machine labor have no limits.

(For the Scientific American.) Music and the Pianoforte.

Music is a natural, inherent gift of man, yet not to man alone has the power to make melody been given, but also to many of the lower order of beings in the animal kingdom. Music is not only a natural faculty produced by the animal organs, but it is also artificially produced by human invention.

In all civilized nations has music been cultivated as one of the fine arts, and even among savages has it received some attention. Any country may well be judged of its advancement in civilization by the musical progress and education of its people. Inspired by the love of melody, man has made and used various instruments for the production utation so well earned by the sires, is justly of music, from the eighth generation to the present time.

The harp may be truly called the father of musical instruments. It is the most prominent and often spoken of in sacred history, and though of ancient origin, it is also an instrument of modern and present use, unequalled for purity and sweetness of tone by any others, but limited in its power and compass. The harp (like many an ancient father unsurpassed by intrinsic worth) has been outdone and rivalled by the improvements of its offsprings, and their wider and greater range of usefulness.

Among such instruments of more modern date is the Pianoforte, not inappropriately styled "the prince of instruments" of the present day. The pianoforte cannot in truth be called the invention of any one man, but a series of improvements upon improvements for the last century and a half. It was unquestionably derived from the harp, and is a mechanical device for producing and checking the vibration of its strings, which are based upon the same natural and fundamental law of geometrical progression (in their vibrations) as its predecessor.

The first instrument with horizontal strings was always called a psalterion or tympanum. and more recently a dulcimer. These instruments consisted either of metallic strings, or like those of the harp, made from the ligaments of animal intestines, drawn across a wooden box, and tuned like the harp to the various notes of the scale-but instead of being snapped with the fingers they were struck with small hammers covered with cloth or leather, and held in the hand of the performer.

The first improvement upon this was the addition of keys, or what is usually termed the key-board, with pieces of upright wire set in the back part of them, to strike the strings when the front part of the key was pressed down. This instrument was called a clavichord.

The second improvement consisted of the addition of a quill to the jack (or upright piece now made of wood) which caught the string in its upward motion, snapped off, and left the string free to vibrate whilst the key was held down. This instrument was called a spinet.

The third improvement was the addition of another string to each note, which history reports to have been an Italian production, in the year 1711, and was named the harpsicherd or horizontal harp.

The instruments already described were rude and unscientific works, but, nevertheless, they were the germ of the present pianoforte -thus far the improvements had been almost wholly upon the action, or the mechan-

The next important improvement is credited to Christopher Gottleib Schræter, of Hohenstein, on the borders of Bohemia, in the year 1768. By this improvement the action was so far perfected that the performer could execute much more rapid and difficult music than could be played upon any of the previous made instruments.

The earliest record of the production of pianofortes in England was in the year 1767, by Messrs. Broadwood & Sons, then the principal makers of harpsichords in London, and afterwards the best pianoforte makers in that great metropolis. The name of that firm has descended from father to son, grandson, and greatgrandson, and with it the fame and repcredited to the Messrs. Broadwood & Sons of the present day, as being the best makers of that instrument in England.

Sebastian Erard, of Paris, made many valuable improvements in the pianoforte. He was the founder of two very large establishments for the manufacture of musical instruments of various kinds; one in Paris and the other in London. Pierre Erard, the present proprietor, was his nephew, heir, and successor, and is now making upwards of one hundred pianos per week, besides harps, guitars, and other instruments in proportion.

The French pianos are the neatest and best finished internally (and some of them externally) of any in the world, but their tone is not generally liked in the United States as well as those that are made here, and their touch, like all foreign pianos, is very heavy, which prevents their general use in this country. The Germans, Swiss, and Italians have also made great progress in the manufacture and use of the pianoforte. Being so many nations of musicians, they have not been slow to learn what instrument was best adapted to their wants.

Improvement after improvement has followed in succession, until the once rude dulcimer has been transformed into the most perfect instrument in existence. Under the hand of an experienced pianist it is eapable of yielding the greatest variety, as well as the most difficult music ever written. Upon it the performer can mechanically express the very soul of music, the thoughts and feelings of its author; it is in fact an artificial mode of producing the most brilliant and beautiful pieces ever composed.

At the time of the great Exhibition in London, in 1851, it was estimated that there were made in that city some 450 pianos per week, or upwards of 23,000 per annum-and in all other parts of Great Rritain 54,740, making a total of 77,740 pianofortes in one yearclassed and valued as follows;

Grands, 1,300, at £110 each, 143,000 Squares, 1,040, " 60 " 62,400 Uprights, 75,400, " **35 "** 2,639,000

Whole No. 77,740, valued at £2,844,400 The number made in France is estimated at one-third of that of Great Britain, and all others in Europe at two-thirds-making in all 155,480 pianofortes manufactured in Europe in one year, furnishing employment for not less than 25,000 workmen.

There were exhibited in 1851, by the Messrs. Collards, good pianos in plain cases as low as £30. and from that sum upwards as high as 500 guineas, and others by the Messrs. Broadwood & Sons at a still higher price.

The manufacture of pianofortes in the

The other parts of the work are divdedi into many separate trades, such as the bottom, skeleton, leg, top, desk, pedal, soundingboard, harp and action makers; carver, varnisher, stringer, finisher, trimmer, regulator, and tuner, besides much that is done by machinery, such as sawing, turning, jig and fret sawing.

The materials for the manufacture of pianos have decreased in supply, and increased in value, some of them to near double their former cost a few years since. The principal woods used are ash, oak, maple, spruce, pine, chestnut, cherry, walnut, rosewood, and mahogany, all of which require a long time of natural and artificial seasoning before they are fit for use; averaging some two or three years after they are sawed. The average time for the making of a piano, from its commencement to completion, in the large manufactories, is about four months.

To improve in workmanship, tone, and quality of the instrument, should be the constant desire of every manufacturer, and has been of all those who had ambition and perseverance enough for success. The tone of a vibrating string takes its pitch from its number or speed of the vibrations; the greater the velocity with which it cuts the air the higher in the scale will be the note. The number of vibrations are governed by the length and size of the string, the larger and longer the string the lower or deeper will be its tone; the longer the string the further apart are its nodal and vibrating points-consequently its vibrations will be less in number.

The quality of the tone is principally dependent upon two causes, entirely independent of each others. First, the application of the power which produces the vibrations (which is the blow given by the hammer.) If that blow be not given with sufficient force, or the hammer properly covered, the tone will be faulty. The second, and perhaps that which is the greatest cause, and most inseparably connected with the good or bad tone of the instrument, is the sounding-board: its stock, formation, and connection with the strings are its ruling powers of the tone.

The successful manufacturing of pianofortes is perhaps the most difficult and uncertain business to establish of any in this country. It requires not only a thorough practical knowledge of mechanics, but years of patience and perseverance with a large capital and good reputation. The largest establishment in this country is now making from 25 to 30 pianos per week, but it has taken upwards of thirty years of constant toil to reach that number, and the progress of the other manufacturers has been in about the same proportion, with one exception, where upwards of twenty pianos per week has been reached in less than nine years.

Such has been the progress of musical taste in this country, that the parlor is now only half furnished without a pianoforte, and though a luxury, and sometimes a costly one, yet it has a moral and a social influence that is beyond all comparison with dollars and cents. It is the center around which many a family nightly gather to enjoy their fourth and most luxurious meal of the day. A musical festival satiating to repletion their appetites for amusement, thereby restraining the wayward from seeking elsewhere pernicious and injurious enjoyment. В. Boston.

Attraction-Gravitation. MESSES. EDITORS-Your correspondent, J

pension of gravitation for a moment. Attraction seems to be divided into the following classes: gravitation, cohesive attraction, affinity, magnetism, and capilliary attraction. Now, the second quality may be suspended by heat, in metals, or destroyed, in combustibles. Affinity is regulated by heat, in forming compounds. Magnetism may be suspended, destroyed, or reversed, by heat. Capillary attraction may be reversed by heat. And will Mr. G. inform me why we should not reason from analogy and conclude that gravitation is subject to the same influence? I believe it will be done. ALFRED PARKES.

[We have received so many communications on this subject, that we deem it prudent to publish no more on it, for the present at least. J. B. Conger is perfectly correct in his conclusion, respecting the simple suspension of gravity, in the manner referred to by Septimus Piesse, our London contributor; he has laid down facts as the basis of his arguments which cannot be overthrown by inferences. * • • • •

Alcohol.

Alcohol is that combustible fluid which rises by the distillation of the juices of sweet fruits; from the infusion of malted barley or other grain; the solutions of sugar, honey and other substances that are capable of being converted into sugar after they have undergone that spontaneous change which is commonly known as fermentation-the vinous fermentation. The word alcohol is of Arabic or Hebrew origin, and signifies subtle or attenuated; but although it has for many ages been used to designate the material in question, it does not appear to have become popular; "spirits of wine," or "spirits," being the general interpretation of alcohol. As alcohol is well known to be derived from sugar, malt, and grapes, it is generally though erroneously believed that these substances contain it. By the hand of Power "a Greek Slave" can be produced from a solid mass of marble chained to a pedestal. No one will believe that the beautiful form pre-existed in the marble, and that Power merely removed the stone veil that enclosed it! In like manner, when a chemist manipulates sugar, barley, or grapes for the purpose of making alcohol, he does not separate it as a material pre-existing in the substances operated on, but merely uses the ingredients contained therein to create alcohol. It is an ascertained fact that alcohol can only be made from sugar, although at first sight it appears to be made from a variety of things, such as potatoes, treacle, &c. When it is known that any materials that contain starch can be converted into sugar, the mystery of making alcohol from potatoes becomes solved. Moreover, when starch is manipulated in another way, chemists can produce from it vinegar, sugar, alcohol, water, carbonic acid, oxalicacid, carbonic oxyd gas, lactic acid, and many other substances; but it must not be supposed that these materials have any pre-existence in starch-no, they have been created from the elements composing starch, but not from that substance itself. The starch is broken up, and its elements are re-arranged into new forms. When alcohol is made from barley we merely complete a change which nature had begun. Barley contains starch. When barley is malted the starch becomes sugar : this we extract by the use of water, and call it wort. Fermentation is now set up, and the sugar is changed into "spirit." How quickly this can be turned into acetic acid-that is, vin-

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ism which forms the connection between the United States has increased very rapidly key and the vibration of the strings.

within the last twenty years. Previous to B. Conger, says "the idea of subverting the The next, and one of the greatest improvethat time the most of the pianos used in this force of gravity is manifestly absurd. The ments, was the introduction of the lever country were imported from Europe, but there least change in the action of gravity would hammer into the action; this, together with are now made upwards of 400 pianos per throw the whole system into confusion. The the addition of the dampers, so far advanced week, or a total of about 21,000 per annum, regulation of the world is not based on so the instrument that the performer could play furnishing employment (on the whole work precarious a foundation." Unfortunately, from the rough materials to the completion) however, he forgot that that "least change" soft or loud at pleasure; it then received the very appropriate name of pianoforte, a comfor at least 3500 worknen. The business has must be universal before it can "throw the caused the establishment of several machine pound of two Italian words. The author of whole system into confusion." and I must shops with very expensive machinery for the this last improvement is supposed to have confess myself so obtuse as to be unable to been a German, by the name of Gottfried Silmanufacture of what is termed pianoforte discern how the counteraction of 500 lbs. berman, of Freyburg, who manufactured intrimmings, or those parts of the instrument force of gravity on the earth would in the struments of this kind in the year 1747. It that are made of iron, brass, and steel; there slightest manner discommode the Saturnites is, however, claimed by the French and Engbeing in each (of the Boston made pianes) or Neptuneites, or even the man in the moon. lish as well as the Germans. about 100 lbs. of those metals.

egar—is well known to all beer drinkers. SEPTIMUS PIESSE.

Foot Rot in Sheep. The Country Gentleman states that the following remedy for the foot rot in sheep, has been used with great success by H. How land, of Aurora, Cayuga Co., for the last thirty years :-

"Mix flour of sulphur with the salt given to the sheep, in a proportion just sufficient to discolor perceptibly the salt, or about oneeighth part. Sulphur may be had at a wholesale price at a cost of not over two cents. Where local applications are necessary, we should much prefer a solution of Let us now look at the subject of this sus- chloride of lime, to any other application.

Inventions. Ħew

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Preventing Cars Running off the Track. In our list of claims this week, the patent granted to G. P. Ketchum, of Bedford, Ind., embraces peculiar features to prevent the cars running off the track in consequence of passing over obstacles thereon. Upon one of the axles of each truck, a pair of arms are placed loosely, and the arms of each pair of trucks are connected by a longitudinal rod, and so arranged that when either pair of wheels are thrown off the rails, the ends of the arms mentioned will come in contact with the rails and serve as guides.

Improvement in Flour Bolting.

The patent just granted to F. B. Hunt, and Elias Nordyke, of Richmond, Ind., whose claims are published in this week's list, embraces the expanding and contracting of the rotating brushes which act against the inner surface of the wire cloth of the bolt, and force the flour through the meshes, these brushes bearing with a greater or less pressure against the wire cloth, according as they are adjusted. Adjustable spouts are also employed and so arranged that the bolted flour, may be separated at various points underneath the bolt according to the nature of the grain that is being ground.

Grain Separator and Smut Machine.

The nature of the improvement on separators and smut machines, for which a patent has just been granted to John Bean and B. Wright, of Hudson, Mich., as set forth in the claims of this week, consists in combining the grain separator with the smut apparatus in such a manner that the air in passing to the fan of the separator goes through the smut screen, and materially assists in cleansing the grain more perfectly than by other machines.

Shingle Machine.

The annexed engraving is a perspective view of a shingle machine, for which a patent was granted to Charles J. Conrod, of Lower Augusta Township, Pa., on the 19th of last Sept.

The nature of the improvement consists in lant army in the Crimea have suffered bita new mode and combination of parts, whereterly from the scarcity of fuel, as well as by the thickness of the shingles to be sawed the difficulty of cooking their food, and it is gauged with great facility, and at either was to remedy these distressing evils that end, according to. the thickness and taper this contrivance was devised by its inventors. required. a is a strong table-shaped frame, We understand that it was long since apwhich supports a circular saw, *i*, fixed upon proved of by the government authorities, an arbor having suitable bearings. Upon to whom it was referred for examination; the two longest rails or timbers of the frame but, although it can be supplied at 17s. per are secured two iron plates, h, with flanges stove, our paralyzing and deplorable system or ways upon which the carriage frame, b, of routine has hitherto prevented the necesmoves, aided by grooved castors or friction sary supply being forwarded to the Crimea. wheels. The frame, b. is furnished with an The company have themselves sent out 100 iron plate on each of the shorter or cross of the stoves, while the apathy and incapacbars, one of which has notches in its upper ity of the official department which assumes edge one inch apart, and the other notchto manage the war, is, in addition to many es, alternately, three-fourths and one quarother causes of reproach, exemplified in their ter of an inch apart. On the carriage not having as yet followed that spirited exframe, b, and within its shorter beam there ample.-[London Mining Journal. is placed the register carriage or frame, c, it has a pin or single tooth projecting from Opening of the Panama Railroad. each of its under sides, which rest in the The Panama Railroad was completed on notches of iron plate named, and is provided the 8th of last month, and the first train with dogs to grasp and hold the block or passed over it on that day. It caused great shingle bolt, f, about the center of the frame excitement among the native population, c, extends a slotted piece, carrying ways upvery few of them having ever seen a locoon its inner sides, upon which the double motive. This railroad connects the Atlantic grooved pulleys, d, traverse freely, having a with the Pacific Ocean. Hereafter those hooked projection from their axis, projecting who go from this city to the Pacific regions, through the slot, to which is fastened a cord need not fear the loss of health by fever, as passing over a pulley journalled in a projecformerly, when crossing the Isthmus. The tion from the frame, a, and sustains a countime in crossing will only be about four terbalance weight, k, the function of which hours, in comfortable cars, perfectly secludis to draw the frome, c, forward when it is ed from the weather. The Pacific Mail elevated and disengaged from the notches in Steamship Company intend keeping one of the plates, or either of them, by the action their steamers ready at Panama, waiting for of the crooked lever, g g'. When the mapassengers from the Atlantic States, so that chine is to be used, the sawyer takes his stathey will not be required to wait, but protion with his left hand towards the shingle ceed at once from the railroad to California. bolt, f, and brings the bolt up to the saw, The English papers state that a very large he strikes or presses the shorter lever, g, The annexed figure is a perspective view inventor, James R. Higgins, of Rockport, dark spot can be seen in London near the which, by lifting the frame, e, allows the weight, k, to move the end of the frame, c, of a clothes drying machine, for which the Ind., has taken measures to secure a patent. | center of the sun's disk.

which is nearest to the sawyer, three-fourths | the left hand, and a shingle is cut; it is then | A is a hollow wooden post with a vertical of an inch; the power being applied to the drawn back, and by striking the short lever

Fig.

other end is moved one inch, and another | til the whole is cut up at the rate of about shingle is cut, which will be of the same ta twelve shingles per minute. per and thickness as the first one. The op-More information may be obtained by leterations, as described, are then repeated un- er addressed to Mr. Conrod.

CLOTHES DRYING MACHINE.



slot cut in it. It is secured to a proper base, are four radial projections on the collar, to which arms, F F are secured by screws, n n, and clamps, o; hooks, p p are secured to the undersides of the arms, and cords or lines are strung around, as shown, upon which to hang the clothes. On the base, B, in the slot of the post, there is a pulley, d, over which, from the drum or windlass, k, there passes a cord, h, up in the post, and over a small pulley (not shown) at the top. This cord is attached by one end to a hook in the inside of a flanch, e, and a pawl, i, holds the windlass from turning. By turning the crank, l, of the small windlass, the flanch and collar. C. with the clothes, is elevated to any point on the post, and the pawl, i, by catching into the ratchet teeth, j, will retain the clothes driers, which may be termed "a reel." at any point, to which it is raised. This clothes reel, be it observed, is capable of turning round by the collar, C, being adapted to rotate on its flange. By taking out the ratchet, i, from its teeth, j, the clothes reel will descend by its own gravity.

The construction and operation of this clothes drying machine is so simple that all will understand it from this illustration and description, and more information may be obtained about it by letter addressed to Mr. Higgins.

New Portable Stove.

At the Society of Arts, on Wednesday, a portable stove for heating and cooking, called the Crimean Army Stove, constructed by Price's Patent Candle Company, was exhibited in full action. It is made of thin wrought iron, without any flue, may be used on any table and in any room, and was designed by the inventors for the use of the army, for whom it seems peculiarly suited. It is simple and compact in its arrangement. The fuel employed is cocoa-nut stearine, in cakes, burnt by means of six wicks introduced into each cake, the cake fitting into a tin dish, made exactly to contain it. No smoke is produced, and the stove is capable of boiling, baking, and broiling, and the whole is comprised in a cube of about 16 inches. The cost of fuel burnt is at the rate of 1d. per hour, a cake lasting eight hours. Our gal-



Scientific American.

NEW YORK, FRBRUARY 17, 1855.

Proposed Alterations in the Patent Laws. Strenuous efforts are now being made at Washington to procure the immediate passage of a bill providing for an extensive alteration of the present Patent Laws. We trust that our Senators and Representatives will be careful how they vote on this subject; especially do we hope that they will not allow themselves to be forced into any hurried legislation respecting the same. The matter is one of vital importance, not only to inventors individually, but to the whole country at large, and it should, therefore, receive the most deliberate and studious examination, as well as the most thorough and extended legislative discussion. We are aware that less general knowledge prevails among our legislators respecting the wants of the people upon this matter than upon almost any other which comes before Congress. But it seems to us that from this very reason they should delay action in the premises until they have had time to inform themselves properly respecting the whole subject. Some amendment of the present laws no doubt are demanded in order to increase the revenues of the Patent Office, which, at present are not sufficient to meet its expenses. But the best plan to increase those revenues is a nice question. Better put up with present inconveniences rather than make matters worse by useless complication.

At the time the proposed amendments were first drafted, the Patent Office, for the want of a proper examining corps, was in a disgraceful condition respecting the examination of applications; many of them were allowed to accumulate under the dust of a dozen months before they were opened .--It seemed as if a radical change in the laws was most imperatively demanded. Indeed, for a period of some years previous we had ourselves been continually directing the attention of Congress and the authorities connected with the Patent Office, to the evils inflicted upon inventors by the great length of time they had to wait before decisions were made on their cases. All this is now changed; the pile of accumulated business has been exterminated ; examinations are now made within a very short period after the date of application, and it has become evident that in the hands of a vigor ous executive officer the present Patent Laws are about as effective and satisfactory as any that could be devised. The happy change which has been effected since Judge Mason became Commissioner, affords us sincere gratification, and has encouraged and gladdened the hearts of our inventors. The great increase in the number of applications for patents, during the past year, is partly owing to this, for inventors, before that period, were deterred from applying for patents by the delays and troubles they suffered from this Department. We hope the present facilities for doing the business of the Office promptly and well, will not be lessened, but increased, and to do this it is necessary that the revenues should be increased. On Jan. 20th, last year, a Bill was reported by the Committee on Patents of the Senate, for this purpose, at the same time making very great alterations in the whole patent code. ome portions of that Bill we considered were very wrong, and would be the means of doing a great deal of evil if they became a statute. We pointed out the defects of the Bill on page 341, Vol. 9, SCIENTIFIC AMERI-CAN (July 8th.) and on the 19th following, it was recommitted to the Committee on Patents-Senator James, Chairman-who reported it back on the 24th of the succeeding month, amended in a number of the important features that we had pointed out. We have been informed privately, that the unamended Bill, as it originally read, is intended to be called up by Senator James for action, but we think this cannot be correct, he having reported the amended Bill. From our long acquaintance with the inventors of

patent system, we ought at least to be able to form some correct opinions respecting what reforms are required, and what changes might be expected to work well or ill. We believe that a simple increase of the patent fee, from \$30 to \$40, would be the safest and best way to increase the revenues of the Office, and at present no further alteration of the laws is very pressingly demanded.

But there need be no increase of fees at all if our law-makers would insert a brief amendment, requiring that inventions, in order to be patentable, shall only be new in this country. This would greatly reduce the expense of examination-cut off the necessity of a foreign library, augment the number of patents granted, and bring about a corresponding increase of revenue.

The more simple our laws are, so much the better for all, excepting the lawyers.

American Library in Paris.

We have received a circular from Mr. James Swain, of Philidelphia-now in Paris as one of the Commissioners to the coming Exhibition in that city-appealing to American booksellers and any public-spirited individuals in our country, to make donations of American books for the "American Library and Museum" in the Hotel de Ville. The circular savs:

"We hope to make a creditable appearance in the Industrial Palace, but we fear that we shall not be represented there as extensively as we were at London. It has occurred to us, under the circumstances, that we might compensate for any other deficiency by an intellectual exhibition which will give some idea of our real civilization. The magnificent collection of American books, engravings, coins, &c., made by M. Vattemare, will be inaugurated at the Hotel de Ville (City Hall) about the same time with the opening of the Palace of Industry. With this nucleus of ten thousand volumes, contributed by American generosity to the city of Paris, we hope to found a library and museum which will be to all time a speaking monument of national greatness-an ever-increasing proof of what we have done and what we shall do in the intellectual provinces. The chief magistrate and municipal council of Paris are disposed to co-operate with us with the most flattering cordiality. Funds have been devoted for the necessary expenses of arrangement. An apartment has been expressly appropriated for the purpose in view. The American Library and Museum will be the only exhibition open to the public in the Hotel de Ville, so that there will be nothing else there to distract the attention of visitors. It is proposed to have an alcove for every State in the Union, surmounted with its arms, the date of its settlement, the principal dates of its colonial history, the date of its incorporation in to the Union, &c. At the entrance will be the arms of the United States and France. In appropriate places will be inscribed the great discoveries and inventions made by Americans, with the names of the discoverers or inventors. The land-marks of our history will thus be permanently before the eyes of Europe. A library composed exclusively of the productions of a single people is a novelty. The world contains none such, as yet."

Busts and medals of prominent Americans will be acceptable. We hope this appeal will not be in vain: the idea is an excellent one. As the exhibition opens on the 1st of Maynext, there is no time to lose. Upon every book will be inscribed the name of the donor. Those of our countrymen who are willing and able to contribute to this enterprise. should address their contributions as follows "International Exchanges; A. Vattemare Central Agency, Paris."

our country, and the working of our whole | pass; but members, on this occasion, showed themselves determined to remove such an impression. They expelled a reporter who was said to have an interest in the extension of the patent, this being against the rules of the house, and he had refused to stand an examination by the Committee on Patents. Some rather strange remarks were made about Col. Colt's examination by the Committee. It appears to us that the Bill will be rejected by an almost unanimous vote; we thus judge from what we have heard and what we have read on the subject, although many have asserted that any bill can be weathered through Congress by good management, and plenty of means to lobby.

The foregoing was penned on the 7th; two days afterwards-the 9th-the bill came up again, and, as we had supposed, the enacting clause was struck out by a vote of 99 to 23, and may be considered killed.



This figure, which is a perspective elevation, represents a machine for papering the walls of rooms for which a patent was granted to Henry F. Baker, of Centerville, Wayne, Co,, Indiana, on the first of last November.

A A are two side bars, and B B are two cross pieces framed in the said bars, and C D E, and F are four rollers, G, and H are two tin cylinders. Cylinder G, for holding the paper, and cylinder H for holding the paste or sizing. Roller D being covered with sponge or sheepskin, or its equivalent, and roller F being covered with gum elastic cloth or its equivalent, for the purpose of pressing the paper to the uneven surfaces of the wall, and by that means press all the air from between the paper and the wall, and cause the paper to be laid on smoothly, nicely, and evenly, without the trouble of hand labor. Cylinder G has a lid to it for the purpose of putting in the paper, and has ala small orifice in front to let the name pass through. Cylinder H has a hole, I, in the top to put in the paste and also an orifice in the bottom, next to roller, H, with a slide. K. to let on and off the paste on to roller H. M M are two keys in the end of the cross pieces framed into the bars for the purpose of taking the machine apart, when necessary to clean. It is readily perceived that the paper, N, placed in cylinder, G, passes out of it over roller, C, under, D, and over roller E and F, against the wall to be papered; and that when the paper is pressed and rolled on the wall, it will cause all four

The patentee informs us that, by this machine, as much wall papering can be done by one hand in a given time as four or five hands without it-sizing the paper at the same time.

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More information may be obtained by letter addressed to Mr. Baker.

Condensation of Steam.

Contradictory opinions have been expressed by writers on the steam engine, respecting the value of the condenser in engines; Scott Russell contends that a vacuum may be too good, and a decided loss of power; and Bourne asserts that in a locomotive working at a pressure of from 120 to 105 lbs. on the square inch, the efficiency of a given quantity of water, raised into steam, may be considered about the same as in the condensing engine, because the resistance of the atmosphere (15 lbs. on the square inch) is about one-eighth of the whole pressure in the former engine; and the rare vapor in the condenser (2 lbs. on the square inch) of a low pressure engine, amounts to the same resistance in proportion to its pressure. This is asserted on page 35 of his catechism, while on page 32 he says, "In a high pressure, as contrasted with condensing engines, there is always the loss of the vacuum, which will generally amount to 12 or 13 lbs. on the square inch." This would seem to be a contradiction, and yet it is not, when the effect of steam, in moving the piston, is taken into account in high pressure engines, and the saving of fuel is taken into account in the condensing engine. There is, however, another deduction to be made, from the useful saving of condensing the steam, beside 2 lbs. generally allowed for the elastic air in it, viz., the power consumed in working the air pump. The practice of Watt was to allow 28.9 cubic inches of water, at 50°, for condensing one cubic inch of water raised into steam. The cold water pump of a land condensing engine is 1-48th the capacity of the steam cylinder and the air pump is 1-6th the capacity. If it did not require these two pumps to supply and free the condenser, the whole power of the vacuum gained might be added to that of the steam, when comparing a condensing with a non-condensing engine. In marine engines no cold water pump is required, only the air pump. The estimated value of the vacuum, in a condensing engine, after deducting the power required to work the air pump, is about ten pounds on the square inch. The small amount of $5\frac{1}{2}$ cubic inches of water at 32°, will convert a cubic foot of steam into water, and the whole will then be af a temperature of 212°--the boiling point—at which no vacuum could be maintained, the temperature of the condenser therefore has to be kept at about 100°, and this is the reason why so much water is required for condensing the steam rapidly.

Commisioners to the World's Fair in France.

The people in Paris-those who knowwe have been informed, are somewhat puzzled how to act in reference to the great number of Commissioners appointed to represent different American States at the Great Paris Exhibition of Industry which opens in May next. It seems that there are far more American Commissioners than articles. A number of gentlemen have got themselves appointed who have not made a single effort to send an article to the Exhibition, the preponderating majority of articles having been sent by the Commissioner from this city. Those Commissioners who have no articles to represent, expect to represent themselves, no doubt. This, we consider, will not look very flattering for our country on their part.

Colt's Patent in Congress. On the 6th inst. there was quite an exciting time of it in the House of Representatives, when discussing the merits of the bill before it for the extension of Col. Colt's patent. It seems that implications or hints had of the rollers to revolve and draw out the been thrown out that members of Congress | paste from cylinder H, and cause it to be could be bought, and that this Bill would spread upon the paper.



The cold has been so severe, and the snow so deep on the western prairies, that some of the railroads were completely stopped for a number of days. On the Illinois Central Railroad a train with its passengers was caught in a snow storm and frozen up, and the wretched passengers suffered from the lack of both food and fuel. A number of them were severely frost bitten, and came near being frozen to death before they were relieved.

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[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS Issued from he United States Patent Office.

FOR THE WEEK ENDING FEBRUARY 6, 1855.

SMUT MACHINE-John Bean and Benjamin Wright, of Hudson, Nich: We do not claim the leading of a draught through the smut scourers and revolving screen irrespect-ive of the manner of effecting the same. But we claim supplying air to the fan ofa separator, the shoe of which is arranged in connection and at right angles with a smut machine, by causing said air to pass through the smut scourers and revolving screens of said smut ma-chine on its way to the fan, as described, and for the pur-pose set forth.

[A brief notice of this invention may be found on anothe

DOUBLE-ACTING FORCE PUMP.-W. C. & J. S. Burnham of New York City: We claim the general construction of the pump as herein shown and described, viz.: having the casing, D., cylinder, E., and passage, F., arranged as shown, and cast in one piece, and secured upon the upper part of a base or circular chamber, A. having compartments, a, b, c, d, within it, and valves, e, f, g, h, upon its top plate, ar anged and communicating with the several passages, as shown and described and for the purpose as set forth.

[See No. 16 present volume Sci. Am. for a description of this invention.]

MANUFACTURING SEANLESS FELT GOODS.-John H. Bloodgood, of New York City: I claim the method of form-ing the various parts necessary to the production of seam-less articles of felt, by the use of a movable or stationary pattern, in the manner and for the purposes described. But I do not claim the manner of forming the bat or of uniting the several parts, as both are old and well-known processes.

DAGUERREOTYPE PLATE HOLDER.-D. N. B. Coffin, Jr., of Lynn, Mass.: I claim the peculiar combination and ar-rangement, substantially as described, of the block frame and bed piece, for the purposes specified, the same being constructed and operated substantially as set forth.

LIFTING-JACK FOR MOVING RAIL CARS.—Nelson B. Car-penter and John Powers, of New York City: We do not claim the jacks, AA, separately for they are well known and in common use; neither do we claim the combining in the same machine of any mechanical powers for giving a vertical and lateral motion to the object or article to be ad-justed, nor do we claim the slide, E, separately or in itself considered.

But we claim the improved jack, constructed substantial but we cannot use improved pack, constructed substantial ly as shown and described, viz: connecting two ordinary screw jacks, AA, by a frame, C, provided with an arch, D and having a slide, E, fitted on the upper part of the frame C, the slide being connected to the frame, as herein shown and operated by a horizontal screw, G. for raising and ad justing railroad cars upon the track, and other analogous purposes.

For a description of this excellent improvement in lifting Jacks, see No. 12, present vol. Sci. AM.]

CURRENT WATER WHEFLS.-Richard Deering, Sr., of Louisville, Ky.: I claim the concave flanged screw, in ormbination with the conical body or center, as and for the purposes set forth. Also, the arrangement herein described of hanging the water wheels and other machinery in framing, adjustably connected with the vessel or scow, whereby they may be raised or lowered, for the purposes specified.

AXLE BOX ROLLERS.—George W. Geisendorff, of Indian polis, Ind., and Jacob C. Geisendorff, of Cincinnati, Ohio apoils, inc., and Jacob C. Geisendorff, of Uncinnati, Ohio. We claim the giving a positive motion or rotation to the lu-bricating roller, by the axle of the car wheel, in the manner set forth.

CORN AND COB CRUSHER. — John S. Griffith, of Hunting-ton, Pa.: I claim the combination of platform, p, holders, q, and knives, l, arranged with the crushing frustums and concaves, as constructed and operating, for the purposes set forth.

WIRE CLOTH FLOUR BOLT. — F. B. Hunt and Elias Nor-dyke, of Richmond, Ind.: We do not claim a wire cloth bolt with revolving brushes working within it, for they have been previously used. But we claim the peculiar means shown for graduating the pressure of the brushes, F, against the wire cloth of the bolt, viz. : the loose hubs, I I, on the shaft, C, being attached by arms, H, to sildes, G, which work on the outer sides of the stationary arms, c, the outer end of the sildes, G, being attached to the brush bars, F, which fit in the forked ends of said arms, c, the hubs, I I, by being moved on the shaft, c, hubs being secured in the proper position by the rods, g, J.

[For a notice of this invention see another page of the Sci AMERICAN.]

ELLIPTICAL ROTARY PUMPS.—Birdsill Holly, of Sen Falls, N. Y.: I claim the corrugated or grooved pistons cogs, in the manner and for the purposes specified.

BURGLARS' ALARK-Daniel Haldeman, Morgantown, Va.: I do not claim the letting off an alarm in the act of opening a door, nor do I claim an alarm which requires fast-ening of any kind, either to the door or floor, to ensure its going off, as several of these are already known. But I claim combining with the trigger, lever or dog, which holds the hammer at a cock, a hinged inclined lever, G, the end of which simply passes underneath the door, and requires no fastening other than it receives by being held by the door itself as it is pushed open, as described.

REFAILING ROADS-Alphens Kimball, of Fitchburg, Mass. I claim the described machine for making road, consisting essentially of the combination of the plow and scraper, constructed in the manner set forth, and suspend-ed from the lever, H. Second, I claim pivoting the rear axle and securing it to

the frame work in a position oblique to the direction of mo tion, for the purpose described.

tion, for the purpose described. PRESSING HATS AND BONNETS.—S. E. Pettee, of Foxbor-ough, Mass. I do not claim the pressing of hats by machine-ry, nor the use of heated materials or damp cloths, as such. But I claim the combination of the curved heated bed-plate, A, with the roller, H, for the purpose of pressing hats and bonnets, whereby I am enabled to use as rolling pressure given by mooth-

Scientific American.

STEAM GENERATORS.—William Montgomery Storms, ⁰¹ New York City: I claim, first, enclosing a thermostat in a steam-tight space, forming a part of the steam-con-ducting passage to the engine, and from such thermostat forming an acterior and adjustable connection to a cock or valve, as C, located in the exit pipe of the boiler in such manner that being moved by the thermostat it shall direct more or less of the steam through the super-heater; the whole device, by acting in conjunction, thus controling while being actuated by the temperature of the steam geing in the enime.

while being actuated by the temperature of the steam geing to the enrine. Second, I claim regulating and tempering the heat in the desiccator by the admission to it, as may be necessary, of waterfrom the boiler, by means of an especial communica-tion, as pipe O', the quantity admitted being governable by the adjustment of a cock, as P', all substantially as ex-plained.

Diamed. COMBINED CHAIR AND CRIB FOR CHILDREN.—William B Carpenter, of New York City: I claim the chair, B. in combi ation with the standards, e. e., and hinger thereto at A, when constructed and arranged so that by the reversal of the chair, as described, the whole forms a high and low chair and crib for children, substantially in the manner set forth forth.

LOCOMOTIVE TRUCKS—John Cochrane, of Baltimore. Md.: I claim as the method of neutralizing or preventing the vi-bratory tendency of the trucks of locomotive engines, caused by the direct action of the forces which operate the truck driving wheels, by means of the steam or hydraulic brace, substantially as described.

Substantially as described. CONSTRUCTING SHIPS AND OTHER VESSELS.—V. P. Cor-bett, of Corbettsville N. Y.: I claim the arrangement shown and described of the india rubber or elastic and water proof pad, covering or lining on the back of the inside lining and bracing planking and between the said inside planking and the stiffer or more solid outer timbers or frame work of the hull of the vessel, the same serving to form a stout elastic cushion or pad bearing for the inside planks to rest upon in their union to the outer frame work of the ship, and constituting a planked elastic pad inside casing to the vessel, for operation in the manner for the better accomp-lishment of the several purposes of protection, freedom from injury and facility of repair, essentially as specified. [This is a most useful invention, which we shall describe [This is a most useful invention, which we shall describe in the SCIENTIFIC AMERICAN as soon as several application

for foreign patents are issued.] STEAM BOILERS .- Thomas Champion, of Washington, D

C. I column first, arranging on annulation to consider both for a second second second second second second second for a uppight boiler of the second second second second for a uppight second second second second second second for a second second second second second second second second in second seco

essing the advantages stated.

MANUFACTURE OF PAPER PULP.—Henry Glynn, of Balti-more, Md.: I claim introducing into the pulpy mass soluble soaps of wax or fats, made as set forth, converting the same into insoluble soaps within the pulp by means of soluble salts, substantially as described, for the purpose of prevent-ing forgery, mildew, and the action of insects, rats and vermin.

SOUNDING BOARD FOR PIANOFORTES.—James A. Gray, of Albany, N. Y.: Of course I do not confine myself to any particular form or number of corrugations, but any number

That may be necessary to find the sound of t

GRASS HARVESTERS.—Jas. H. Maydole and A. W. Morse, of Eaton, N. Y.: We claim the combination of the adjusta-ble and controlable roller, a, with a grass harvester, sub-stantially and for the purpose set forth.

SEWING MACHINES.-I. M. Singer, of New York City: I claim imparting the feed motion to the needle to move the cloth or other substance, to determine the space of the stitch-es to be made therein, by a feed hand or its equivalent, re-ceiving the required motion from the mechanism and acting arainst the needle, in close proximity to or in contact with the cloth, substantially as and for the purpose specified.

MOP HEADS. -James A. Taylor, Alden, N. Y.: I claim to e the original and first inventor of the combination of the we use original and nrst inventor of the combination of the handle, A, and the bars, B, D, with the cord, C, or its equiv-alent, the whole being constructed and combined and operat-ing substantially as set forth, or in any other manner sub-stantially the same.

BUTTER WORKERS.—J. M. Williams, of Blanchester, Ohio; I claim a hollow cone in combination with a conical roller working on its apex, constructed in the manner and for the purpose substantially as described.

GRAIN AND GRASS HARVESTERS.—Cyrenus Wheeler, of Venice. N. Y.: I claim the combination of the double-edged vence, N. 1. I chain the combination of the double-aged cutters, r. with the cutter bar, x. the braces, z., the vi-brating cutters, l, their shanks, m m, projections, u., the circular ribs, t. thebolis, pp, the springs, a, the holes, q, the ribs, d, the cavit's, y y, or their equivalents, as substanially set forth, the whole forming the cutting apparatus of

we consul, one whole forming the cutting apparatus of the machine. Second, I claim the revolving or track rake, consisting of its frame, 1, its wheel, 3, shaft, 4, pinions, 7, 10, shaft, 6, wheel, 5, testh, 8, apron. 2, joint, 9, and cap, 11, or their equivalents, arranged and combined substantially as set forth.

COMPOSITIONS FOR BLEACHING AND STUFFING LEATHER.— L. W. Fiske, of Louisville, Ky.: I do not intend to claim the use of the ingredients therein named separately, or in other combinations employed for the same or analogous pur-

poses. But I claim the improved mode of bleaching and stuffing leather, before described, by using the bleaching and stuff-ing compounds, made of the ingredients or their equiva-lents in the proportions and in the mode specified, substan-tially in the manner and for the purposes set forth.

WORKING LIMING VATS IN TANNERIES.—I. W. Fiske, of Louisville, Ky.: I claim using a close covering for liming and unhairing-vats, in the manner and for the purposes set forth.

forth. CRURNS.—Hazen Webste, of Ogdensburg, N. Y.: I do notclaim the device of a disk rotating at the bottom of the churn tub upon a vertical axis, nor do I claim the use of a tubular stem upon such a disk for admitting air beneath it, as these have been used before with the churn of S. P. Fran-cisco, patented, June 19th, 1849; nor do I claim mounting an agitator upon such disk, as the same was proposed by said Francisco. But I claim in combination with such rotating disk, that form of the agitator which occupies the central portions of the disk, and sweeps toward the circumference in a spiral shape with rounded angles, and is surmounted towards the circumference with one or more vertical breakers, and this I claim, whether used with or without the air passages here-in described. Bratiny, CLUSE UPON THE TRACE (Son P. Keithern

RETAINING CARS UPON THE TRACK.—Geo. P. Ketcha of Bedford, Ind.: I claim the employment or use of arms of Bedford, Ind.: I claim the employment or use of arms, C, applied to the axles, c, d, of the trucks, A A', the arms of each truck being supported by the rod, d, the above parts being constructed and arranged in the manner and for the purpose as herein shown and described.

[See notice of this invention on another page.]

Clearing Land.

MESSRS. EDITORS :- In this inventive age cannot some cheap means be devised for felling timber? The slow process of hand-chopping seems to be unworthy of the spirit of minds are set upon it? the times. Inventive genius has turned its mind to discovering means for making, but here in this wooded county, our greatest primary want is a machine for destroying .-There is not an acre of our Western forest lands that is not dearly paid for in the terrible labor of getting rid of the timber.

We have seen a lifting locomotive hoisting machine in our cities, and it has occurred to us that a circular saw could be so connected as to answer for cutting trees. If even a single cut to the center of the tree, on one side, were all that could be relied upon, it would be a great saving of time and money.

Where the timber 1s not heavy, the ordinary stump extractor might perhaps be applicable, with some modification. The top seems as if it would help the fall of the tree, when the root is loosened.

Again, when we see vast blocks of iron cut in twain, as thread is severed by the scissors, it inspires hope that something may be contrived, a little in that order of mechanical power, to achieve so valuable an object as the cheap and speedy clearing of forest lands. If there be hope, the SCIEN-TIFIC AMERICAN can inspire it; and one who has derived priceless benefits from its instruction, ventures to make this appeal to its kindness, trusting it will see in the suggestions offered, both interest to its readers and a probable field of profit to inventors.

Philadelphia.

ANTHRAX.

[Two patents have been taken out for circular saws to fell standing timber-one by Jas. Hamilton, of this city, June 26, 1835, and the other by Walter Hunt, also of this city, on the 6th of January following. These are the only inventions of which we have any knowledge, that have been proposed for felling timber by machinery. They no doubt were defective in principle and action, or we would have heard more about them. A common circular saw could not fell standing timber, be the power applied to it, as great as that for driving the largest locomotive. Machinery for cutting down standing timber, must embrace very peculiar features, as every person knows, who is acquainted with chopping. Most trees can be cut so as to fall in three directions; while a perfectly straight tree can be made to fall in any direction. In felling a tree, it is necessary to make the first cut of such a form as will incline it (the tree) in a given direction; this is done by the wide cut made by the axe, which causes the greatest weight of the tree to settle to the one side. There is no fear of binding an axe in the cleft, by hand chopping, but a circular saw would bind, if it cut horizontally before it penetrated six inches deep. It would be necessary therefore, in employing a circular saw for cutting standing timber, to make it so operate, as to cut its way in, by sawing a wedge-shaped block out. Six years ago, a very ingenious mechanic of this city consulted us respecting an invention of his for cutting down standing timber by the use of a circular saw. When we had examined his model, we immediately answered : "you were not brought up in the backwoods." "How do you know that ?" he replied. " By your model ; your saw will bind in its cut before it penetrates to the depth of six inches." He was progressive motion." convinced of this by a very few words of explanation. A smart chopper will cut down trees of from one to two feet in diameter. of clean light timber, as fast as a portable

timber economically, will, we think, make a fortune, but he has no easy task before him; yet what is it that our countrymen cannot do in the invention of machinery, when their

The Lancaster Gun.

MESSRS. EDITORS :-- In the casting of cannon balls, it has been found impossible to have every part of the ball of equal density; therefore its center of gravity cannot be made to coincide with its center of magnitude. In consequence of this it will not leave the mouth of the cannon in a line mathematically true, unless the line joining its center of gravity and its center of magnitude coincide with the axis of the bore of the gun.

The oval grooved gun is designed to correct this error, by giving a circular motion to the ball, similar to that which a rifle gives to a bullet; let us see whether it will answer the required purpose. Every point of the ball, center of gravity included, will rotate round the axis of the gun, while the ball is moving out of the barrel, and this rotary motion, combined with the forward motion of the ball, will cause each individual point to describe a screw. But all the engineers in the universe cannot make the center of gravity continue this screw motion after the ball leaves the muzzle. In whatever direction the center of gravity is moving, in that direction the ball will go. The error would be small, yet I should suppose it would be nearly as great as in the common gun.

Now, if the learned graduates of Woolwich will listen to so humble a person as myself, I think I can tell them how to shoot at the Russians without any error from unequal density of the different parts of the ball. Let every ball be floated in mercury, and that point which rests uppermost marked; then, when the cannon is to be loaded. let the marked part be nearest the muzzle. J. NEWCOMB.

Sudlersville, Md., Feb. 2, 1855.

[The principle of the rifle consists in "giving the bullet a rotary or spinning motion round its axis, and keeping that axis as near as can be coincident with its line of flight or progressive motion; thus enabling the bullet to overcome any undue deflection, by presenting its irregularities of weight and form in circular succession to the friction of the atmosphere, during the whole course of its flight."

Robins, in speaking of the deflection of a bullet from a smooth bore, says : "If it be asked what can be the cause of a motion so different from what has been hitherto supposed, it may be answered, that the deflection in question must be owing to some power acting obliquely to the progressive motion of the body, which power can be no other than the resistance of the air. And this resistance may, perhaps, act obliquely to the progressive motion of the body, from inequalities in the resisted surface; but its general cause is doubtless a whirling motion acquired by the bullet about its axis; for by this motion of rotation, combined with the progressive motion, each part of the bullet's surface will strike the air in a direction very different from what it would do if there was no such whirling: and the obliquity of the action of the air arising from this cause will be greater, according as the rotary motion of the bullet is greater in proportion to its

irons, or any other, subst	

STREET-SWEEPING MACHINE.-R. A. Smith and John Hartman, Jr., of Fhiladelphia, Pa.: We make no claim to theemployment of the endless chain of brushes, or the mov-able inclined plane, neither do we claim of itself thedetach-able dirt receiver, or the receiver when arranged and ope-rated as in the patiented machine of J. Whitworth. But we claim the described arrangement of detachable re-ceiver, R. beneath the forward portion of the frame, sus-pended by chains, m and n, attached to hooks, q, on there ceiver from the pulleys, f', and windlasses, p P', so that an empty receiver may be substituted for a tilled one with great facility, and the filled receiver removed by a lender, as set forth.

as set forth. We also claim constructing the rear portion of the in-elined plane with wheels or rollers, h, and tail piece of loose sections, l, as set forth, so that the rear of the machine may rest on the ground and conform to the inequalities of its

rest on the ground and conform to the inequalities of the surface. We further claim the employment of the hinged stud, u, in connection with the driving wheel, W, and loose wheel, D, for operating the endlesschain of brushes, as set forth. CRUSHING AND GRINDING MILL.—Joel Weigle, of Swan Stat on, Pa.: I claim combining with the crusher, b, and the grinder, c, the casings, d, e, in such a manner that the aid crusher and grinder can be adjusted in a longitudinal direction, and the casing, d, of the crusher be adjusted in a lateral direction, substantially in the manner and for the purpose set forth.

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12

RE-ISSUE.

CONSTRUCTING A COMBINED CALDRON AND FURNACE FOR CONSTRUCTING A COMMINED CALDRON AND FURNACE FOR THE USE OF AGRICULTURISTS AND OTHERS. J. L. Molt, of Meti Haven, N. Y. Patented Dec. 1st, 1840; extended, Dec. 1st, 1854; I claim, first, combining a caldron with a portable furnace thaying a fire chamber of smaller size than the area of the caldron, by spreading out and extending the sides of the furnace to form an outer casing partly or wholly surrounding the caldron, and forming a flue space between the two, leading to the exit pipe, substantially as and for the purpose specified. I also claim making the casing to orm the flue space around the caldron by elevating and spreading out the plates of the furnace and futing to and combining therewith sec-tionalside pieces, substantially in the manner described and for the purpose specified. ADDITIONAL IMPROVEMENT.

ADDITIONAL IMPROVEMENT.

SEED PLANEES. -J. Graham Macfarlane, of Perry county, Pa. Additional to Letters Patent, dated March 14, 1854 : 11 claim the attaching the box or hopper to the beam and han-dles by means of holes lett in casting the box, or any equiv-alent device, also in placing the bottom of the lime box low the slide for the purpose of preventing the lime choking the machine and impeding its action substantially as de-scribad. cribed.

Potatoes have been cultivated at Fort Simpson in 62° N.

engine and saw could be moved about in the woods and placed in position to operate. We would not wish to be underbe invented to cut down trees for the clearing up of land, but this can only be attempted with any hopes of success, by persons acquainted with the difficulties to be surmounted, and who can form a sound opinion of the hand labor. The man who invents the first successful machine for cutting down standing great size is soon to be erected.

It appears to us that conical bullets can be cast of a uniform density, but these, in a smooth bore, will not do so well as in a rifle.



Papier Mache Manufactory.

The progress in the manufacture of papier mache, since its introduction into this counstood as asserting that machinery could not try, has been most remarkable. A company was started in this line in Boston two years ago, when the art was in its infancy, and now they are doing an immense business and sending articles from their extensive establishment all over the Union. There are economy of the two methods-machine and now two large factories in Roxbury, Mass., in constant operation, and another factory of

TO CORRESPONDENTS.

C. C., of N. Y .- Smee's work on Electro Metallurgy will give you the information desired. You can find the price at the book stores

S. C. N., of N. Y.-We regard your proposition in pro pulsion as impracticable. W. C.F., of N. Y.-H. Ruttan, Esq., of Coburg, C. W.,

is the inventor of the best plan of ventilation with which we are acquainted. Correspond with him, both in reference to dwelling and barn. We know of no cheaper motive power to employ for irrigation than the wind-mill. The cost of Artesian wells increases with their depth. Cannot inform you as to the muslin preparation.

J. T., of Ohio-Air expands to double its volume by the pplication of four hundred and ninety degrees of heat. Water expands to seventeen hundred times its bulk by the application of twelve hundred and twelve degreessay less.

H. J. R., of Pa.-The time cannot be far off when coal or coke will be used on all locomotives.

J. M., of Me.-We do not know where you can get the machine you need. We do not understand your steamer in

vention. W. H., of Pa-Lasts made in sections and spreading in different parts by the turning of screws, are not new. Per haps your particular combination is new, and if so, patentable. To determine on those points we need a model or sketch.

B. P. B. of Pa.-Yourideas are good, but old. Dividing vessels into compartments, providing inflatable vessels all connected by tubes, and extending the steam pipes to apartments, are plans well known, and on some vessels the steam pipes are in use.

D. P., of N. Y.-Yours has been received.

A. A., of Me .- See the advertisement of S. C. Hills with regard to a small steam engine. We cannot give any more information on the other subjects to which you have al luded.

G. W. S., of N. Y.-If you will inform us what number re wanting, we will supply such as we may have of them. W. H. C., of Ill.—The adaptation of sheet metal riddles for grain separators could not be patented. Coal screens for separating ashes from the coal are usually provided

with the same kind of riddle as you describe. S. C., of Va.-We know of no better way for you to find customers for your railroad sleepers than to advertise them in our columns. They are an article in great demand in many sections of the country.

H. W., of Vt.-A citizen of this country cannot obtain a patent in Canada unless by special act of Parliament, which convenes at Montreal. They have no patent laws in Canada which provides for protection to any but their subjects.

S. C. of Va.-The idea of resting vessels upon capaciou air-tight drums, on the periphery of which are the floats for propulsion, is far from being new. A modification from your plan we took patents for in this country and England, for a Capt. Tucker, some years ago. The \$30 we have ap plied towards the fees on your valve motion, which we as now preparing the application for.

L. F. H., of Vt.-You ask if air is necessary to the production of butter. You also state that you are a mechanic, and have reasoned on the subject, although not a farmer You appear to have reflected correctly. All churns are made to admit air as necessary to form butter in churning but you can churn butter in a bottle, tightly corked.

J. W.R., of N. H.-If you will send us one of your mite oxes, or the Letters Patent, we will inform you by mail what the expense of engravings will be. We cannot give you the information solicited without first knowing the amount of work it would require to prepare them suitable for our use.

F. B. C., of Miss .- The multiplicity of your inventions have no doubt befogged you, and we would advise you to ahandon all but the best, and experiment on that until you get it as near perfection as possible, and then apply for a patent. An inventor can no more manage a dozen different inventions well, and do them all justice, than a merchan can carry on a dozen branches of business, under different heads, and neglect none of them. It is folly to get too many irons in the fire in any business. A concentrated mind produces the greatest results in inventing, as in every thing else.

J. R. M., of C. W.-Your water wheel is similar to hun dreds in the States. It is a very good one, and you deserve credit for inventing it, you not having been acquainted, as you state, with any but those in Canada.

T. P., of Ky.-Your brick press is a good one, but there is only a small part of it patentable-that relating to the

discharge. H. B., of Ohio.-We thank you for your compliments respecting the minute directions for dyeing, and are glad you have been benefitted.

W. McQ., of Pa.-There can beno question about he cor rectness of your views regarding the electric fluid.

E. H., of Ohio.-The Ericsson is no more a caloric ship, but a steamer. You had confidence in what we said, and you say that the result was never doubted by you. We have been informed that the Ericsson is going to use an outside condenser, which will soon be abandoned also, or we are very much mistaken.

E. & B., of Ill .- You will please to bear in mind that American citizens are debarred the privilege of taking pat ents in Canada. The law excludes all who are not subjects and inventors of the device to be patented.

H. F., Jr., of Pa.-The question you propound has been H. F., Jr., of Pa. – Inequestion you propound has been submitted to us before. We cannot throw any satisfactory light upon the subject. It must rest upon mere conjecture. R. E., of N. Y. – We think your improvement in railroad switches possesses novelty of a patentable character. It

M.G.C., of Pa.-We replied to your letter of the 9th ult on the 17th ult., by mail, and stated that we did not think your alleged improvement in pipes could be patented. See advertising page for information about stave machines.

H. B. H. of Ohio-We do not think our designer will be able to make the alterations you suggest for the engraving, without the aid of another model. This will be the sures way.

E. B., of Mass.-Your book holder will not interfere with the book brace. We think they are used for entirely differ ent purposes, although we have not examined the latter.-

Had you not better send us a model of your invention. "Pacific," of N. C.—The reply to which you refer was intended for you. We cannot say more in reference to your

process H. E. D., of Pa.-You must send us a model of your wheel for examination before we can give any advice in regard to its novelty. From the description given we do not

find anything novel in its construction. S. O., Conn.-Yours has been received, and will meet with

F. N. B., of Wis .- The great object is to regulate the sup oly of steam automatically to the marine engine with great rapidity, according to the work it has to do. Your plan has

een applied to land stationary engines by the governor. W. D. M., of N. Y.-The common substance to put of mery cloth is glue. We do not know of a better, at present

T. W. McK., of Pa.—Your improvement in locomotives for burning coal appears to be good. We hope that no other than coal burning engines will be running in three years from the present date.

C. Ten B., of N. Y .- There are sixty-two and a halfpound in a cubic foet of water. A gallon amounts to ten pounds. How can we tell you the power of your wheel unless you give us the quantity of water and the hight of the fall? You must find out the quantity of water yourself.

R. R. McD., of La.-The best proportions you can use for ent, is six ofsand to one of white lead.

Money received on account of Patent Office business for

the week ending Saturday, Feb. 10:--E. A. J., of N. Y., \$30; C. W. F., of Mass., \$65; S. H., of N. Y., \$55; C. C., of Mich., \$25; I. G., of Ct., \$25; N. E. G., of Miss., \$30; J. W. P., of Va., \$32; G. G., of Ct., \$50; D. W., of N. J., \$30; W. & P., of Ct., \$30; J. G., of N. Y., \$30; W. G., of N. J., \$30; M. S., of —.., \$8; B. & H., of N. Y., \$25; T. N. L., of Va., \$25; R. & A., of N. Y., \$250; P. M., of Ill., \$30; S. L. M., of N. J., \$30; J. B., of O., \$25; A. J. S., of N. Y., \$30; J. W. D., of N. Y., \$30; S. & C., of N. Y., \$10; J. W. H., of R. I., \$15; W. T. M., of Pa., \$20; S. C., of Va., \$30; G. D., of Ind., \$25; J. R. G., of Pa., \$5; S. McF., of Pa., \$30; G. & G., of L. I., \$30: H. & A., of N. Y., \$25: L. & S., of O., \$20: E. B. L. of L. I., \$25; J. J., of N. Y., \$35; J. M. B., of N. Y., \$-

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, Feb. 10 :--

S. H., of N. Y.; T. N. L., of Va.; H. & A., of N. Y. E. R., of O.; I. G., of Ct.; B. & H., of N. Y.; S. & C., of N. Y.; J. B., of O.; G. D., of Ind.; J. W. H., of R. I.; G. M. Jr., of Ill. ; N. L., of Ind. ; E. B. L., of L. I. ; J. J.

Important Items.

MODELS-We are receiving almost daily, models of inven tions which have not the amos of their inven marked upon them. This usually prevents us from taking any no tice of them whatever. We shall esteem it a great favor if inventors will always attach their names to such models as they send us. It will save us much trouble, and some

times prevent the model from being mislaid. BACK NUMBERS AND VOLUMES-We have the following num

bers and volumes of the SCIENTIFIC AMERICAN, which we can supply at the annexed prices :--Of Volume 5, forty bers; price in sheets, \$1; bound, \$1,75. Of Volum 6, all; price in sheets, \$2; bound, \$2,75. Of Volume 7. all; price in sheets, \$2; bound, \$2,75. Of Volume 8, non complete, but about 30 numbers in sheets, which will b sold at 50 cents per set. Of Volume 9, complete in sheets \$2; bound, \$2,75.

🔊 We are able to furnish all the back numbers of the pres ent volume of the SCIENTIFIC AMERICAN, and to new subscribers we shall continue to send the back numbers a long as we have them, so as to render their volumes complete.

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-When money is paid at the office for subscription a receipt for it will always be given, but when subscribers remit their money by mail, they may consider the arrival of the first paper a bona fide acknowledgement of the receint of their funds

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American and Foreign Patent

American and Foreign Patent Agency. MPORTANT TO INVENTORS.-MESSRS. MUNN & CO., Publishers and Proprietors of the SCIENTIF-IN AMERICAN, continue to prepare specifications and drawings, and attend to procuring patents for new inventions in the United States, Great Britiain, France, Belgium, Holland, Austria, Spain, etc., etc. We have constantly employed under our personal supervision a competent board of Scientific Examiners, which enables us to despatch with great facility a very large amount of business. Inventors are reminded that all matter in-trusted to our care are strictly confidential, and hence it is unnecessary for them to incur the expense of at-tending in person. They should first send us a sketch and description of the invention, and we will carefully examine it, state our opinion, and the expense of mak-imgen application. If deemed new and worthy of it. Models and fees can be sent with safety from any part of the country by express. In this respect New York is more accessible than any other city in our country. Circulars of information will be sent free of postage to any one wishing to learn the preliminary steps toward making an application. It is branch of our business receives the especial attention of one of the members of the firm, who is pre-pared to advise with inventors and manufacturers at all times, relating to Foreign Patents. It is very important that trustworthy and competent agents should be employed in securing patents, as press, as well as integrity in taking proper care of the care is necessary in the previous in our hands care rely upon prompt and faithful attention. Most of the patents obtained by Americans in foreign countries are secured through us: while it is well known that the argest proportion of patents applied for in the U.S., go Horigh Patent Agency are at 128 Fulton Street. New york: London, No. 32 Essex st., Strand ; Paris, No. 28 Delevard St. Martin : Brussels, No. 6 Rue D'Or.

Boulevard St. Martin : Brussels, No. 6 Rue D'Or. TECHNICAL DICTIONARY - In the English, French, and German Languages; by Messrs. Tol-hausen and Gardissal. Civil Engineers. Ready (first part). French, English German, price \$1,50. These vel-umes are designed for the general use of Engineers, Ar-tists, Manufacturers, Foremen, Artisans, in short, of all those who in some way or other are concerned in Arts and Manufactures. The present work is the kay through which the foreign reader may penetrate into a language which he may know but imperfectly; it is the instantaneous translator of the corresponding techni-cal term, or its equivalent, in the three great industrial languages. For sale at this office.

AWRENCE SCIENTIFIC SCHOOL-Harvard University—The next Term of this Institution will open on the first day of March, 1855, and continue twen-ty weeks. Instruction by Recitations, Lectures, and Practical Exercises, according to the nature of the study, will be given in Astronomy, by Messrs. Bond ; Botany, by Prof. Gray; Chemistry. Analytical and Practical, by Prof. Horsford; Comparative Anatomy and Physiology, by Prof. Vyman; Engineering by Prof. Geustis; Mathematics, by Prof. Pierce; Mineralogy, by Prof, Cooke; Physics, by Prof. Pierce; Mineralogy, by Prof, Cooke; Physics, by Prof. Lovering; Zoology and Geology by Prof. Agasiz. For further information con-cerning the School application may be made to Prof. E. N. Horsford, Dean of the faculty. Cambridge, Mass., January, 1855. 23.2*

HE NEW BRICK MACHINE-Was last season THE NEW BRICK MACHINE-Was last season in daily operation at my yard, on Locust Point. If driven by steam, the clay is taken from the bank, passed through a pulverizer (which removes the stone) into the soak pit, where it receives the water: thence to the ma-chine which is gared to make 61-2 revolutions per min-ute, turning out five bricks each time, or 1750 brick au hour, including contingencies. Nine men and five boys, all common laborers: take the clay from the pit and place the bricks on the floor. If there be no stone the pulverizer is not required; the clay is then thrown into the pit, mixed with water, and afterremaining nt night is ready for use. Machine \$400: Pulverizer \$75, with right to work it. 1* Baltimore, Md.

DARTNER WANTED-Active or silent, with about **15** 000 capital, in a well established foundry bus-iness. The frm has been doing a business of over \$50, 000 for the last year with about \$5,000 profits and wishes to enlarge the same. To a silent partner ample securi-ty will be given, and 15 per cent, on the above capital guaranteed. Address R. E. SCHROEDER, box 753, R-chester, N. Y. 1

NEW HAVEN MANUFACTURING COMPANY Machinists' Tools. 65 Iron planers of all sizes : 530 Engine and Hand Lathes, all sizes : 50 Upright and Horkontal Drills : 25 Bolt Cutters : 10 Gear Outers : all kinds and sizes of Chucks, Silde Rests, Hand Drills, &c. These tools are of superior quality, and as they are built by the quantity, can be afforded and willbe sold at low rates. For cuts giving full description and pri-ces, address New Haven Manufacturing Co., New Ha-ven. Conn. 21 tf

The term of the second second

MPORTANT IMPROVEMENT-In Rotary Pla-ning, Tonguing, and Grooving Machines. Patented November 21st, 1854. These machines have been thor-oughly tested, and their superiority over all others proved beyond a doubt, They will plane very much better and faster than any others no win use, never tearing or throwing out losse knots. Applications for rights and machines, or for further particulars can be made to the patentee. JAMES A. WOOPBURY, Winchester, Mass., Jan. 5, 1855. 18 4eowt

Winchester, Mass., Jan. 5, 1855. 18 4eow* OIL ! OIL ! OIL !--For railroads, steamers, and for machinery and burning-Pease's Improved Ma-chinery and Burning Oil will save fifty per cent., and will notgum. This oil possesses qualities vitally essen-tial for lubricating and burning, and found in no other is offered to the public upon the most reliable, thorough, and practical test. Our most skillful engi-neers and machinists pronounce it superior and cheap-er than any other, and the only oil that is in all cases reliable and will not gum. The Scientific American, af-terseveral tests, pronounced it "superior to say other they have ever used for machinery." For sale only by the inventor and manufacturer. N. B.-Reliable orders filled for any part of the United States and Europe. 19 eowtf

TO ENGRAVERS AND CALICO PRINTERS-The subscriber would like to sell State, county, or individual rights for his patent self-facting punching apparatus for shading small pattern and plain figured. It can be attached to any old screw machine for a tri-fing expense, and is warranted to give satisfaction or no pay. Reference, Messrs. Abbot & Saunders, Cromp-ton Print-works, Warrick, R. I., James Arthuren, fore-man engraver. Baxendale's patent eccentric doctor motion also for sale. For further particulars address JAMES BAXENDALE, care B. Dean & Son, Providence, R. I. P. S. Wanted, an old second-hand screw engra-ving machine. 222² ving machine.

DORTABLE STEAM SAW MILL ENGINES and Pennsylvania State Agricultural Society in 1851, 1853, and 1854. A number of these engines are now at work driving portable up and down, and circular saw mills, also mills where the water power has failed. Cir-culars will be sent by addressing the inventor, A. L. ARCHAMBAULT, 18th and Hamilton sts., Philadelphia, Pa. N. B. Portable engines always on hand. 224

ELECTRO MAGNETIC MACHINES—Telegraph Registers, Receiving Magnets and keys manufac-tured and for sale at No. 3½ South Seventh street, Phil-adelphia, by W. C. & J. NEFF. 227

TEVIS & BARBAROUX, LOUISVILLE, KY.-Manufacturers of Steam Engines, Mill Machinery, superior Force and Lift Pumps, cast iron Screw Pipes for gas, steam, or water, largely used by railroads in sup-plying water stations, or suction pipes for pumps, etc., etc., being cheaper and better than copper or lead. To-bacco, Lard, Timber, and Mill Screws, always on hand. Castiron Railings, Railroad and Car wheels, other cast-ings for railroads, and general job work. 20 4⁴

A NGLO AMERICAN AGENCY -Office No. 20 Hat-ton Garden, London, for the introduction and sale by commission of American Manufactures, machinery, Inventions, and articles suitable for the European and British markets. Parties desirous of introducing their goods to the notice of the European public, will find this the most advantageous, direct, and economical method. All communications must be post-paid, addressed to No. 20 Hatton Garden, London. 21 4

A CLIPPER AMONG THE MONTHLIES The Monthly Nautical Magazine. devoted exclu-sively to the Maritime interests of the United States, embracing ship-building, commence it second volume in April, 1856, enlarged to 96 pages. This work contains fraughts of some of the finest vessels of the age, with other engravings, and is one of the most valuable publi-cations in the country. Terms, single copies \$5 per an-num, or \$250 per volume. Club Rates—Five copies for \$20: thevieve copies for \$50. Sample copies sent when re-quested. Address GRIFFITHS & BATES, Editors and Proprietors, 75 John st., New York. 214

Our CATALOGUE, of Optical, Mathematical, and Philosophical Instruments, in pamphlet form ; a new editiou, with numerous illustrations, is now in press and will be issued in a few weeks. This Catalogue is furnished on application, and sent by mail to all parts of the United States and the Canadas freeofcharge. McALLISTER & BRO., Opticians, (Established in 1796,) at their new store, 194 Chestnut street, Philadelphia. 213

THUB MORTISING MACHINE—Price Reduced— We have finished a few of Roys and French's pat-We have finished a few of Roys and French's pat-ent, undoubtedly the best machine for the purpose ever invented. We will take back the machine and refund the money, in all cases, if they fail to satisfy buyers. Wagon and carriage makers will do well to give them a trial. They will bore and mortise thirty to forty hubs a day, and answer also for other work. 204 TEVIS & BARBAROUX, Louisville, Ky,

DOWE: Apply to M. J. GAUDU, Engineer, 102 Walkers. 204 March 2010 Strain Stra

MACHINE GROUND CIRCULAR SAWS—(Pat-ment applied for.) Mill men would do well to try these saws, are perfectly free from thin or thick places, can be used thinner and with less sett, and run faster than any other hitherto made. All diameters and thick-nesses warranted perfectly true. HENSHAW & CLEM-SON, 31 Exchange street, Boston. 198*

THE FRENCH EXHIBITION—Parties who have applied for space in the French Palace of Industry, and who do not intend to be present at the Exhibition, are recommended by the undersigned to arrange with Messrs. Gardissal & Co., No. 29 Boulevard St. Martin, Paris, who are prepared to put upon Exhibition, attend, and effect sales of articles intrusted to their care. It is a responsible concern. S. H. WALES, State Commis-sioner, Scientific American Office.

BuffALO MACHINERY DEPOT-Terrace St. Band 36 Lloyd st., Buffalo ; J. W. HOOKER, Proprie-tor, H. C. Brown, Superintendant, offers for sale Ma-chinists' tools of all kinds : Engine Lathes, Planers, Drills, Chucks, Boring Mills ; also machinery of all kinds on hand or furnished to order.

STAVE AND BARREL MACHINERY-Hutchin-son's Patent. This machinery which received the highest award at the Crystal Palace, is now in daily op-eration there. Staves, heading, &c., prepared by it are worth to the cooper 20 to 40 per cent. more than when finished in any other way. Special attention is invited to the improved Stave Jointer. Apply to 0. B. HUTCH-INSON & CO., Crystal Palace, or Auburn, N. Y. 13 tf

ATENT DRIERS-Zinc Driers, Graining Colors, Stove Polish, Gold Size, &c., &c., 114 John street, New York. QUARTERMAN & SON, Manufacturers. 1 6m

HARRISON'S GRAIN MILLS-Latest Patent.-\$1000 reward offered by the patentee for their stons paid to agents. For further information address New Haven Manufacturing Co., New Haven, Conn., or to & C. HILLS, our agent, 12 Platt Street, New York.13 tf

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 Rotary Planing Machine for Planing Boards and Planks, is not an infringemet of the Woodworth Patent, Rights to use N. G. Norcrois's patented machine can be purchased on application to N. G. NORCROSS, 208 Broadway, New York, Office for sale of rights at 208 Broadway, New York, Boston, 27 State street, and Lowell, Mass. 16 6 m² CHFAP LIGHT-A M MACE manufactures of at-

S. 183

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Science and Art.

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Annual of Scientific Discovery.

PAPER-The Annual of Scientific Discov ery for 1855, edited by Prof. D. A. Wells, will soon be issued by Messrs. Gould & Lincoln, of Boston, and will contain a great variety of useful and scientific matter. From the proof sheets we copy the following extract of an article on paper making in the United States, a subject of very great importance at the present moment :-

The enormously increased consumption of rags and other materials used in the manufacture of paper, with the consequent increased scarcity of the raw material, and the enhancement of the price of paper, have caused much attention to be given to this subject, both in England and the United States, during the past season. Efforts have accordingly been made to introduce new materials to serve as paper stock, to improve the method of working old materials, and to diminish the cost of the mechanical operations. The cause of the scarcity of paper-stock, in spite of an increased demand, would appear to depend on the circumstance that the raw material of paper-making is, in reality, the product of the wear and tear of a substance of very advanced manufacture, and depending for its quantity on the collateral causes which produce a greater or less activity in the latter. Hence, the stoppage or partial suspension of cotton and other textile manufactures is sufficient to account for occasional, and especially for local, scarcity.

We find that there are, in the United States, 750 paper-mills in actual operation-Allowing 4 engines to each mill, and calculating that each engine will make 300 pounds of paper a day, the quantity of paper made in the year will be as follows :-

Number of mills, 750; number of engines, 3,000; number of pounds of paper per day, 900,000; number of pounds of paper in the year, allowing 300 days to the year, 270,000 000; value of this paper at 10 cents a pound, \$27,000,000.

It is estimated that one and a-half pounds of rags are required to make one pound of paper. Adopting these data, we find that 405,000,000 pounds of rags are consumed in one year; their value, at 4 cents a pound, being \$16,200,000.

The cost of labor is 1¹/₄ cents upon each pound of paper manufactured, and is, therefore, \$3,375,000 a year; and the cost of labor and rags united is \$19,575,000 a year.

The cost of manufacturing, aside from rags and labor, estimated from adding together the cost of felts, wire-cloth, bleaching powders, fuel, machinery, interest, and fixed capital, cost of manufacturing paper worth \$27,000,-000, a measure of profit by no means unreased small, were not the manufacture comparatively free from those sudden changes that

Light as we may esteem it, there are few ture was 6° below zero; at Albany, N. Y., it and curved guides, Y. Z is a roller intendbranches of business of more importance than ness with which error is combated and false theories are was 20°, at Syracuse, N. Y., 20°, and 30° at ed to relieve stop, a, from the catch, as soon the rag trade. No other country in the exploded. Ogdensburg, N. Y. In some parts of Ver-Mechanics, Inventors, Engineers, Chemists, Manuas the weighter, X, has received, enough of world, strange to say, is more dependent upfacturers, Agriculturists, and PEOPLE IN EVERY PROmont and New Hampshire, the mercury was on rags than the United States; and this is, grain to form a sheaf, and to cause it to grav-FESSION IN LIFE, will find the SCIENTIFIC AMERICAN in a great measure, attributable to the imitate below the end of the catch. The frozen, so that, according to an Irishman's to be of great value in their respective callings. Its counsels and suggestions will save them HUNDREDS OF DOLLARS annually, besides affording them a con opinion of the subject. "it couldn't have mense consumption of paper in the publica weigher being a broad cylindrical rec been any colder unless the glass had been tion of newspapers, magazines, and works of with the chambers, X, after it has descended tinual source of knowledge, the experience of which is until it is below the roller, z, immedimade longer." all kinds, besides what is used for commerbeyond pecuniary estimate The cold was indeed intense, and the poor The SCIENTIFIC AMERICAN is published once a cial and mercantile purposes. ately revolves one-third of its circumferweek; every number contains eight large quarto pages, suffered dreadfully. This winter, in our For the four years, 1850, '51, '52, '53, the ence, deposits a sheaf, and resumes its propforming annually a complete and splendid volume, illarge cities, has been more trying to the quantity of rags imported into the United lustrated with SEVERAL HUNDRED ORIGINAL ENer position by the weight, b, which pre-GRAVINGS. poor than any in the history of our country. ponderates, and it is again arrested by the States amounted to 97,846,035 pounds, cost-TERMS! TERMS!! TERMS So many are out of employment, and pronext radial stop, a, coming in contact with ing \$3,262,000, or about 31 cents per pound. visions are so dear, that the suffering is not One Copy, for One Year \$2 \$1 the catch, which holds it in position until In 1850 we imported rags from nineteen Six Months only very wide spread but very severe. Well countries : in 1852 from thirty-two : which the next cell, X, below W, receives its pro-Five conies, for Six Months **\$4 \$**8 Ten Copies for Six Months, fed persons can endure more cold than per quantity of cut grain to form a sheaf, increment seems to have arrived near the Ten Copies, for Twelve Months **\$**15 those who are poorly fed; now it so hapultimate limit. when the weigher relieves itself as before, Fifteen Copies for Twelve Months \$22 pens that fuel being so very dear, as well as carrying down and depositing the succeeding Italy seems to be the great source of sup-Twenty Copies for Twelve Months \$28 Southern, Western, and Canada Money taken at par for Subscriptions, or Post Office Stamps taken at their provisions, that the sufferings of the poor bunch. It is thus a self-acting rotary bundply. In 1850 we obtained nearly half as have become doubly complicated and intensling and weighing apparatus, combined with many pounds from there as from all other par value. Letters should be directed (post-paid) to places, while the amount paid exceeded half the cutting and conveying machiney. C' is ified. We hope for an early Spring, and bet-MUNN & CO. 128 Fulton street, New York. the whole sum. In 1851, the quantity and one of two stationary arms, one is made ter times.

of the amount by a trifle.

In 1853, there were 304 paper-mills at Ireland, The duty (three half-pence per pound) amounted to upwards of £925,000, so that the annual value of paper manufactured in those countries could not be less than £3,700,000, the average value of paper being estimated at sixpence per pound.

France, with a population of 36,000,000, turns annually into paper 105,000 tuns of rags. Of these 6,000 tuns are imported. In that country the exportation of rags has been prohibited by law since 1850.

England, with 28,000,000 inhabitants, requires yearly 90,000 tuns of rags, 15,000 of which are imported.

The consumption of paper in the United States is said to be equal to that of England and France added together. There are used here 6,000 tuns of straw for wrapping paper and paste boards, and during the last few years the importation of rags has averaged 10,000 tuns.



On January 8th, 1851, Edward Neely, of Savannah, Ga., obtained a patent for a rotary reaper, embracing three claims relating to the suspending of the cutting ring, and the method of raising the cutter over obstructions, and guiding the machine: (see claim, page 142, Vol. 6, Sci. Am.) On the 5th of Feb. following a patent was obtained by Sidney S. Hurlbut of Racine, Wisconsin, embracing two claims, the object of the whole point of the-invention being embraced in a method of conveying the cut grain from the sickle, and weighing it in bunches of a uniform weight, then depositing them upon the ground, ready to be bound.

The annexed figure (45) being a front elinsurance expenses, &c., we find to be \$4,the sea, and the whole interior of New York evation of the weighing machinery. W is ANDA : Proceedings of Scientific Bodies; Accounts of 050,000. Adding this to the cost of rags and State, and a number of our Western States, Exhibitions.-together with news and information upon one (the top ene) of two movable rods to labor, we find that \$23,625,000 is the total afford numerous evidences of having once THOUSANDS OF OTHER SUBJECTS. receive the grain as soon as it begins to as-Reports of U.S. PATENTS granted are also published every week, including OFFICIAL COPIES of all the PAbeen covered with water. cend the inclined plane, and they press upon -TENT CLAIMS: these Claims are published in the Sci-Intense Cold. the grain until it arrives at the weigher; donable, and which might even be considerentific American IN ADVANCE OF ALL OTHER PAPERS. On the nights of the 6th and 7th inst, the are levers whose fulcra are at i. The weigh-The CONTRIBUTORS to the Scientific American are weather was colder over a wide extent of among the MOST EMINENT scientific and practical er is divided into three compartments. X. men of the times. The Editorial Department is univerour country than has been experienced for It may be made of light sheet iron. Upon affect the manufacture of cloth and metals. sally acknowledged to be conducted with GREAT ABILfifty years. In New York City the tempera-ITY, and to be distinguished, not only for the excellence and truthfulness of its discussions, but for the fearlessthe front end of the weigher are stops, a_i

price of Italian rags only exceeded one-third | fast to the front, and one to the rear end of the frame; the ends of these act as fulcra for the levers. d. In the upper end of these work in England, 48 in Scotland, and 28 in levers the journal of the weigher revolves; i, is a pin, on which these levers are hung at their middle, and their lower ends are let into the bar, e, which extends across the end of the frame, from the middle of which the forked rod descends, and is attached perpendicularly to the balance beam, g. This weigher, with its contents, can be regulated so as to make a sheaf of any desired size or weight by simply sliding the weight, b, in or out-nearer or further from the end of its lever. A ratchet and pawl are employed to make this rotating weigher always revolve in the direction of the arrow: (see claim on page 174. Vol. 6 Sci. Am.) On May the 20th following, W. Watson, E. S. Renwick, and P. H. Watson, of Washington, D. C., obtained a natent. the object of the inventors being to cut, rake, and bind the bunches by automatic movements. The patent embraces six claims: (see page 294, Vol. 6, Sci. Am.) On June 10th, same year, N. T. Allen, of Ludlowville, N.Y. obtained a patent for operating the gearing of the machine from both wheels to equalize the driving power upon each: (see claim, page 318, Vol. 6, Sci. Am.) On the 24th June, 1851, a patent was granted to Wm. Start, of Smyrna, Ill., for an improved harvester, which is illustrated by a perspective view on page 393. Vol. 6, Sci. AM.; the claim will be found on page 334, same Vol.

The Bottom of the Ocean.

The bottom of the ocean is as unequal as the surface of the earth. Beneath the waters of the seas there are mountains, hills, and valleys. Some of these have bold and precipitous sides, while others swell gradually from base to summit. The average depth of the sea between England and France, in the Channel, is only 30 fathoms, and is uniform, as has been proven by laying down the telegraph cable. The bottom of the Mediterranean sea, on the other hand, is very deep, being no less than 250 fathoms, and in one place 350. In laying down a submarine telegraph cable last summer, between Piedmont and Corsica, Mr. Brett, the gentleman who constructed the line, came to a place where the cable flew off with a frightful velocity, and it was found that the depth suddenly varied from 100 to 350 fathoms. No map better explains the varying depth of the ocean, its hills and valleys, than the one on page 256, Vol. 9, SCIENTIFIC AMERICAN, which exhibits the deep sea soundings taken by American naval vessels. A very good idea of what the bottom of the sea is like may be obtained from the face of the dry land, as there is abundant proof of many parts of it being once the floor of the ocean. All Long Island was at one period covered with

A Small Earthquake.

A severe shock of an earthquake was felt throughout Maine and New Brunswick on the night of the 7th inst, the night of severest cold. The earth below seemingly was affected by the cold, as the atmosphere is during great heat. May there not be some relation between the phenomena.

The Minie Bullet in America.

We have been shown one of the Minie bullets which are now being extensively manufactured at C. Sharp's factory, at Hartford, Conn., to be used in his breach-loading rifles. We are told that they are the very things for his rifle, rendering it perfect in its action.

LITERARY NOTICES.

ENGINEER'S POCKET COMPANION FOR THE FIELD-This is a neat and very useful work, by Walter Griswold, of Buffalo, N. Y., and published by Miller, Orton, and Mulli-gan, of the same place; it is a book composed of notes, which the author had been collecting for a long time. It contains a most instructive and most useful chapter on the "Art of Levelling," which is intended for new beginners. It is plain and clear, dispensing with terms that are liable to confuse the mind,-using only plain language. This lit-tle volume will no doubt meet with an extensive patronage.

The WORSTMINSTER REVIEW- No. 1 of Volume 40, of the above-named excellent Review, has just been issued by the enterprising American publishers, Leconard Scott & Co., No. 54 Gold street, this city. The leading article is on the An-glo French Alliance, and is both able and profound. The second article is on the Ballads of the People, and is arich intellectual treat. An article on Poland—her history and prospects—should be read by every person who wishes to be intelligent regarding the present state of Europe. This is an excellent time to subscribe for this Review; tils liber-al its opinious. The price is only \$3 per annum.

Bitactwoor's Magazine.—The first number of Vol. 40, of this able and monthly magazine, republished by Leonard Scott & Co., No. 54 Gold st., this city, contains a severe ar-ticle on the British Ministry for the manner of managing the warin the Crimea. It also contains one of the most useful and instructivearticles we have ever read on the Ru-ral Economy of British and Ireland. It also contains the continuation of lettersfrom the Crimea, by an officer. It is an excellent number. The price is \$3 per annum. It has no superior as a literary publication.

THE PHRENOLOGICAL AND WATER CURE JOURNALS— These Journals continue, as usual, to dispense a monthly treat of the most useful and instructive matter. The Preno-logical Journal contains the most entertaining articles in every branch of mental science, and the Water Cure Jour-nal as faithfully explores every branch of physical educa-tion, both being presented in a homely and agreeable style. Messrs. Fowlers & Wells, 308 Broadway. Price \$1 a year.

THE WAY OF LIFE—This is a neat little volume publish-ed by Fowlers & Wells, 3(8 Broadway, this ciy. The an-thor is the Rev. G. S. Weaver; its object is to point out the way that men should walk to enjoy happiness hereand bere-after; it inculcates spiritual mindedness and a devotion to truth and morality.



Inventors, and Manufacturers

The Tenth Volume of the SCIENTIFIC AMERICAN comnenced on the 16th of September. It is an ILLUSTRAT-ED PERIODICAL, devoted chiefly to the promulgation of information relating to the various Mechanic and Chemic Arts, Industrial Manufactures, Agriculture, Patents, Inventions, Engineering, Millwork, and all inter-ests which the light of PRACTICAL SCIENCE is calculated to advance.

Its general contents embrace notices of the

LATEST AND BEST SCIENTIFIC, MECHANICAL, CHEMICAL, AND AGRICULTURAL DISCOVERIES, -with Editorial comments explaining their application ; notices of NEW PROCESSES in all branches of Manu-factures; PRACTICAL HINTS on Machinery; information as to STEAM, and all processes to which it is applicable; also Mining, Millwrighting, Dyeing, and all arts involving CHEMICAL SCIENCE; Engineering, Architecture; comprehensive SCIENTIFIC MEMOR-