Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

VOL. XIV. NEW YORK, APRIL 9, 1859. NO. 31.

THE
SCIENTIFIC AMERICAN,
PUBLISHED WEEKLY
At No. 37 Park-row (Park Building), New York,
BY MUNN & CO.

O. D. MUNN, S. H. WALES, A. E. BEACH.

Responsible Agents may also be found in all the principal cities and towns of the United States.

Single copies of the paper are on sale at the office of publication, and at all the periodical stores in this city Brooklyn and Jersey City.

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Weather Prediction.

Although we have no faith in the predictions of Thomas, the almanac maker, or any of the weather prophet fraternity, we will publish the information of a correspondent —J. Royal, of White Rock, Ill.—who professes to be able to foretell the weather one year in advance for any locality where there is an almanac calculated. Here is the prophesy:— "The first half of April will be wet, the last half fair; the first week in May will be wet, the balance, fair; the first half of June will be fair, the last half changeable; July will begin and end with a few days of changeable weather leaving the middle of the month dry; August will have a great many wet days; September will set in fair, but the balance of the month will be changeable, the last part being wettest; October, changeable, gradually increasing to wetness; November, like the preceding, only commencing fairer and ending wetter; December, fair weather." On this, we are told we may rely, with the exception of September, where there has "to be added the extra stormy weather caused by the sun crossing the line." This truly depends on the prevailing winds at the time; if the winds be southerly, the month will be wet; if northerly it will be as dry as if the sun were at his extreme distance from the line.

To Waterproof Fabrics.

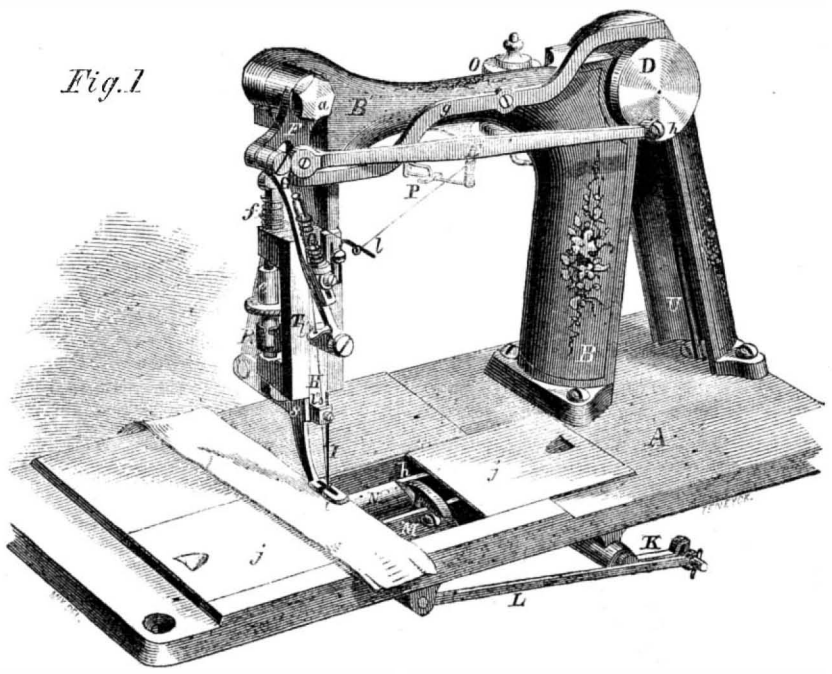
Take a pound of glue and one pound of tallow bar soap and dissolve them in five gallons of water. Now bring the water to the boiling point, and add carefully and slowly one and a half pounds of alum. When this is all dissolved, cool down the liquid to about 130° Fah. and plunge the articles to be prepared into it, then hang them up to dry. When they have become quite dry, they should be washed in soft water and dried a second time. Such articles should not be used for wearing apparel, excepting for loose tunics to be put on in rainy weather. Any person may thus prepare at little expense a coarse cloth water-proof fabric.

Breaks in Levees.

In a paper recently read before the New Orleans Academy of Science, by Dr. R. Cartwright, he attributes the breaks in the levees of that city to the burrowing of crawfish. He says these animals build their houses near the base of the levee and next the river, for the convenience of catching fish, shrimps, &c. When the water comes up against it, they burrow through the levee, and go on the other side, to prevent being drowned. The most effectual method to drive them away is to throw on the base of the levee the crushed stalks of the sugar cane, called *bagasse*.

BURNET AND BRODERICK'S SEWING MACHINE.

Fig. 1



The sewing machine is now a peice of mechanism of such extended utility and application, that every contribution to its improvement or simplification is to be regarded with due attention and respect, and each invention which has for its object the more perfect action and the production of better work deserves to be examined impartially and with care.

The illustrations of the present article show a perspective view, Fig. 1, and a front end view, Fig. 2, of a new sewing machine, invented by S. S. Burnet and W. Broderick, of Chicago, Ill., and patented November 30th, 1858, in following the description of which, we ask the reader to remember the above remark.

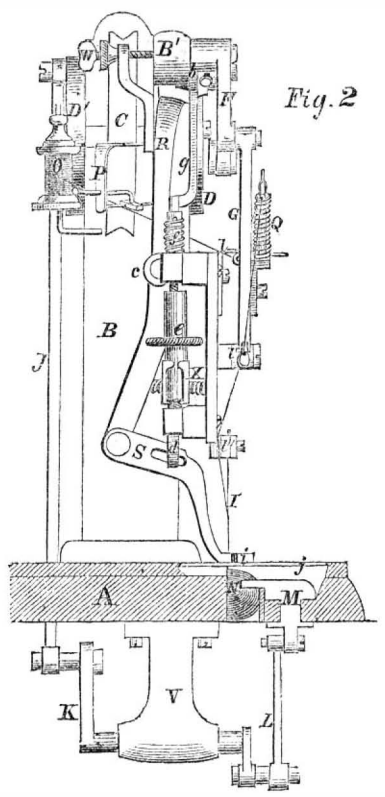
Upon the table or bed, A, a frame, B, and attached arm, B′, is secured. These carry the feed motion and needle and their operating parts. Through the top of B, a horizontal bar is placed carrying a belt wheel, C, and two crank wheels, D D′, the crank wheel, D, serving also as a cam by a small depression being formed at *h*. To D is attached an arm, E, which as D is rotated gives a back and forth motion to the rocker, F, that is attached to B′ by a pin, *a*, and F communicates its motion through a link, G, to the needle carrier, H, and needle, I. H moves in guides, T. The motion of the needle is thus obtained by means the most simple and effective.

To D′ is secured a link, J, that passing through a slot in A, operates the rocker, K, suspended by the bearing, V, under A, and K gives the proper motion to another link, L, that moves the slide, M, in which the shuttle, N, is placed; the shuttle moving in a race-way, *h*. By these means the shuttle motion is obtained.

The thread coming off the spool, O, passes between two thin flat metal plates in P, and a slide on them brings them closer together, or allows them to be further apart to regulate the tension; from P it passes through a small loop, *l*, thence through an eye or forked wire on G, where the tension is properly raised at different portions of the stitch by a spiral spring, after which it passes to the needle, being guided on the way by the eyes, *l′ l″*.

The feed motion is obtained in the following manner; the feed bar, R, is pivoted to the frame at *c*, and it is moved by a small cam, *b*, on F, which forces it forward, and by means of a feed plate, S, the serrated end of which, *i*, moves the cloth. The feed bar and plate are forced back by the spring, X. In S, is a slot that works over a pin in an arm,

Fig. 2



d, that can be lengthened or shortened by the double screw, *e*, a little nut on the bottom of which prevents its moving by the motion of the machine, and a spring, *f*, on the upper end of the device elevates the portion, *i*, from the cloth, as S is being drawn back, and at the same time the end of *g*, which passes over the indentation, *h*, on D, allows this to be done; when *i* is pushing the cloth forward or is at rest, the lever, *g*, keeps it in contact with the cloth, by being all the while on the largest diameter of D. The plates, *j*, serve to cover up the shuttle and race. The whole machine is operated by a band, U, passing over the pulley, C. A perfect loop is formed by this machine, and the shuttle is allowed time to pass through the loop before it is drawn tight, and thereby accomplishes the interlocking of the two threads, and the drawing of the stitch tight upon the cloth. Every part is under complete control, the length of feed being regulated by screw, W, and the machine operates quietly and with great precision and regularity.

Any further information can be obtained by addressing Burnet, Broderick & Co., Chicago, Ill.

Animal and Vegetable Life.

There is nothing short of revelation that more beautifully or satisfactorily proves the existence of an Almighty mind than the fewness and simplicity of the ultimate elements of animal and vegetable life. Thus, there are but four elementary principles essentially necessary, and but six generally employed, to form every variety of organic life; nitrogen, carbon, oxygen, and hydrogen are the bases, to which sulphur and phosphorus may be considered supplementary. With these, infinitely varied in their atomic proportions, are built up not only the whole animal kingdom, but also every variety of the vegetable world—from wheat, the "staff of life," to the poison of the deadly Upas tree. It is also worthy of remark that these four elemental principles are those also of which both air and water are composed, so that air and water may be considered in truth and fact as being the original elements of organic life.—*Dr. Toulmin.*

Gun Boats.

About three weeks since (page 237) we directed public attention to the above subject, in a brief review of Chief-Engineer Isherwood's work on the British gun-boats. Since that period much discussion has taken place in the daily papers in reference to the utility of such war vessels. The brave old Commodore Stewart, in a letter of the 27th ult. to the *National Intelligencer*, expresses a favorable opinion of their qualities for the siege of fortifications. He says:—"They will prove of great importance under the power of steam, in any future operations against ports and permanent batteries."

Peculiar Recording Thermometer.

The following is the description of a very simple recording thermometer, used by J. Gautlett—a farmer of Middlesborough-on-Trent, England—and which is stated to be very correct in operation. It consists of a long tube of thin sheet zinc, containing a loose, dry, wooden rod. The two are fixed at one end only. The relative greater expansion of the zinc, by an increase of temperature, causes it to protrude beyond the wooden rod, and *vice versa*. This varying motion of the zinc is communicated by a lever to a pencil which passes on a revolving cylinder, containing a strip of paper, which is wound off every minute by clockwork.

Measures have been taken to light the city of Honolulu with gas, and it is expected that the works will be completed for this purpose in the course of four or five months at farthest.

Issued from the United States Patent Office

FOR THE WEEK ENDING MARCH 29, 1859.

[*Reported officially for the Scientific American.*]

*** Circulars giving full particulars of the mode of applying for patents, size of model required, and much other information useful to inventors, may be had gratis by addressing MUNN & CO., Publishers of the SCIENTIFIC AMERICAN, New York.

RAILROAD CAR TRUCKS—T. F. Allen, of Dyersville, Iowa: I claim a car truck, sustaining the weight of the car body upon the centre, in a manner to balance or keep it in equilibrium, and free from contact with the side timbers of the truck frame, whatever be the motion imparted to it, and yet provide but the one common axis or bearing for it to turn upon, substantially as described and for the purposes set forth.

APPARATUS FOR DESTRUCTIVE DISTILLATION—Luther Atwood, of Brooklyn, N. Y.: I claim the combination of the vertical distilling tower, A, and appurtenances, with the condenser, b, and the adjustable draft passage, c, or their substantial equivalents in combination, when arranged and combined substantially as described, so as to use the current of heated products of combustion in its upward or natural direction.

HOP FRAMES—Thos. D. Aylsworth, of Ilion, N. Y.: I claim so hanging the main wire, B, upon the supports, F, as that said supports will prevent the wire from slipping through them, should it be accidentally become loose or broken, substantially as described.

And I also claim, in combination with the main wire, suspended as represented, the uniting thereto of the training wires, a', by spring hooks, substantially as described and shown.

FARM GATE—Geo. W. Baker, of Neponset, Ill.: I claim the slide, D, and levers, C C, in combination with the rods, f f, levers, l l, rods, c c, and bars, b b, arranged for joint operation, in connection with the gate sections, substantially as set forth.

CUSHION FOR BILLIARD TABLES—Abraham Bassford, of New York City: I claim constructing the cushion of a billiard table of a metal plate, B, the edge of which is protected by a thin strip of india-rubber, or other suitable substance, substantially as and for the purposes set forth.

[It is requisite that a billiard cushion should be as hard as the ball itself to reflect it at the same angle at which it struck, and yet not hard enough to injure the ball. The smaller the point of contact between the ball and cushion the more true the angle of reflection. This inventor uses a cushion formed of a metal strip, and covered with rubber to protect the ball.]

CUSHION RAIL FOR BILLIARD TABLES—Abraham Bassford, of New York City: I claim, first, The arrangement of the cushion rail of a billiard table, in such a manner that a space is left between the bed and the rail, by securing the same to the bed by means of studs, C, and bolts, a, substantially as and for the purpose specified.

Second, The arrangement of the pocket bows, D, which are made of one piece, with the rail, and secured together by a lap joint, f, and which are beveled down at their lower edge, substantially as and for the purpose set forth.

[The rail of this billiard table is supported by rhomb-shaped studs which have room enough in their centers for bolts to pass through, while they are beveled down towards both ends; so that an open space is left between the bed and the rail nearly all the way round, and a ball can be reached with the cue, when close to the cushion, just as easily as if it were in the centre of the table. The pocket bows are also formed of the same material as the rail.]

HINGE FOR THE REFLECTORS OF STEREOSCOPES, &c.—Alex. Beckers, of New York City: I claim the arrangement of the ears, a a, one on each side of the reflector of a stereoscopic case, or attached in a corresponding manner and for the same purpose to any like part of another similar instrument, in combination with the screw, c, substantially as and for the purpose described.

[This is a very simple and efficient means of adjusting the reflectors of a stereoscope, and does away with any complicated devices.]

MODE OF PREPARING AND MOUNTING SLATES—Hubbard Beebe, of New Haven, Conn.: I do not claim the vulcanized india-rubber, or gutta-percha, or any right to use the same, without the license of the patentee thereof.

But I claim the combination of a metallic band or rim and vulcanized india-rubber frame or mounting, with or without a lining of cloth, to the school slate, whether of stone, slated paper or wood, substantially in the manner and for the purposes specified and set forth.

I also claim, as my invention, the application of the vulcanized india-rubber or gutta-percha frame or mounting, substantially in the manner described, without the metallic rim, to slates of stone or other material of sufficient strength and stiffness to warrant its disuse in any case; but I deem it preferable, in all cases, to combine the two, where durability as well as noiselessness are deemed important.

MODE OF FASTENING SKATES—Edward Behr, of New York City: I claim the arrangement of the screws, b, and the screws, i, or their equivalent, in combination with the toe-cap, B, and with the heel-strap, C, substantially as and for the purpose described.

[The common mode of fastening skates by straps, which are secured in buckles, is very objectionable, not only because the straps themselves, if properly tied, cause great pain to the foot, but also because it is almost impossible to buckle the straps properly, the holes being so far apart; and these holes, when put close together, weaken the strap, and tear out when any strain is put upon them. To overcome these difficulties is the object of this invention, which consists in fastening the skates by means of screws, which are attached to a toe-cap and to a heel-strap in such a manner that the strain of the cap and of the strap can be adjusted by turning the screws, and that the foot can be cramped in the toe-cap by means of the heel-strap without causing any pain.]

MOLE PLOW—Joel Carrington, of Avoca, N. Y.: I claim the combination and arrangement of a replaceable pointed colter, with a continuous plate or solid standard carrying the mole, and a brace in the rear, connecting the said mole to the beam, and also to the handles, in the manner substantially as described.

METHOD OF OPENING AND CLOSING GATES BY WEIGHT OF VEHICLE—Frederic B. Betts, of Brownhelm, Ohio: I claim the combination of the roller, B, and its appurtenances, with the levers, F F, and connecting rods, D, and with the gate, for the purpose specified and substantially as set forth.

CONSTRUCTION OF MALLETS—Lyman W. Blanchard, of Whitingham, Vt.: I claim the mode of constructing mallets with wooden head blocks and iron flanges, and a tapering screw, arranged substantially in the manner and for the purpose set forth.

CARRIAGE TOPS—Pardon Boyden, of Sandy Creek, N. Y.: I claim the arrangement and combination of the bows, E, bars, D D, bars, H H, and seat rail, a*, substantially as and for the purpose shown and described.

[The top of a calash, by this invention, is constructed without folding bows, the frame of the top being perfectly rigid and affixed to centers by means of a single radius bar at each side of the seat or vehicle. By this means the calash top is greatly simplified, and rendered more durable than those of ordinary construction.]

FASTENING SKATES—John Charlton, of Newark, N. J.: I claim the arrangement of the self-adjusting toe-cap, D, which is attached to the stock of a skate, substantially as and for the purpose specified.

[In the front part of this skate a cap is placed which can be adjusted, by means of slides, to the size of different feet. It is drawn up to the toes by the straps that serve to fasten the skates to the feet.]

BILLIARD TABLE CUSHIONS—Hugh W. Collender, of New York City: I claim making cushions for billiard tables of what is known as the soft compound of vulcanizable india-rubber, faced with what is known as the hard compound of vulcanizable india-rubber, or allied gum, united in the green or plastic state, and together subjected to the heating process for vulcanization, substantially as described.

SUBMARINE TELEGRAPH CABLE—James M. Connel, of Newark, Ohio: I claim the introduction of the smooth surfaced wrapping between the coil and the insulating covering, and the employment of this last covering as a core for other wires, substantially as described.

CHEESE-PRESSES—Samuel Cope, of Enterprise, Ill.: I do not claim a hydrostatic press as that has been used for many purposes.

But I claim graduating the force of a hydrostatic cheese-press by drawing the water slowly through the stop-cock, S, as described, for the purpose set forth.

APPARATUS FOR SOUNDING HOUSE BELLS, &c.—Joseph Corduan, of Brooklyn, N. Y.: I claim the arrangement of the three separate springs, in combination with the two tubes and escapement bolt, as described.

PILE-DRIVER—Waldo P. Craig, of Newport, Ky.: I claim, first, The described application and arrangement of the guides, K and K', attached to their upper ends by universal joints, to the frame, and at their lower ends, sliding in apertures, l and l', in a collar, L, adapted to fit over the end of a pile and follow the same in its descent,

Second, In combination with the above, the turn table, J, constructed and operating substantially as and for the purpose set forth.

SAWING MACHINE—Wm. H. Crittenden, of Grafton, Ohio: I claim the manner of arranging the compensating levers, K K, and rods, N N, in combination with the straining levers, H H, straining rod, I, adjustable slotted holder, P, saw, J, the whole being arranged and operating in the manner and for the purpose as set forth.

CHOPPING-BLOCK FOR STAVE MACHINES—A. H. Crozier and Cyrus Carrier, of Oswego, N. Y.: We claim the grooved metallic chopping-block, constructed and operating as described.

SEEDING-MACHINES—F. M. Davis, of Footville, Wis.: I am aware that reciprocating seed slides, J, have been previously used, and also that slides, k, with oblique slots, l, have been used for operating seed slides; I therefore do not claim the reciprocating seed slides, nor the slides, k.

But I claim the arrangement and combination of the caster-wheel, C, lever, D, spring rack bar, E, pinion bar, F, pinion, G, rod, H, slide, k, and share, L, as shown and described, so that when the bar, F, is thrown back, and lever, D, is depressed, the bar, F, will carry the pinion out of gear with wheel, M, and thus render the seed slides, k, inoperative, while the front part of the machine will be lifted on the caster-wheel, and the share, L, raised out of the ground, all as set forth.

[This machine is more especially intended for planting corn but may be used for other seeds, for the seed-distributing device can easily be thrown in and out of gear, and the front of the machine elevated or depressed to elevate the furrow shares from the ground when the distributer is not operating, or the reverse.]

PICK HANDLE—James E. Emerson, of Sacramento, Cal.: I claim the iron heading of a handle fitted to the under side of a pick, or other instrument, by means of a pin and hole on corresponding plane surfaces, or a swelling and hollow, corresponding to each other, and securely fastened thereto by means of a stirrup extending over the pick, or other instrument, and secured to the handle by means of a key and wedge, which will, by such combination, form a durable and permanent mode of fastening handles on picks, or other instruments, without eyes therein.

BEDSTEAD FASTENING—Elisha E. Everett, of Philadelphia, Pa.: I claim a plug fastening, consisting of the two plug pieces, A and A', constructed as set forth and described, the same being applied and arranged, in combination with the post and rail of a bedstead, in the manner and for the purposes specified.

TANNING HIDES AND SKINS—Thos. Furgusson, of New York City. Patented in France, August 10, 1858: I claim the method described of impregnating hides or skins with the required liquid, by subjecting them to the action of a current of the liquid, under a sustained and regulated pressure, after they have been deprived of air by a preliminary exhaustion.

STOVES—Francis Gilliland, of Port Jackson, N. Y.: I claim, in combination with the lining, E, and sheet metal case, B, the cylinder, F, placed within the body of the stove, and provided at its top with the register or sliding band, h, and a register or slide, f, on its flanch, d, for the purpose set forth.

[Stoves which have sheet iron cases are, by this invention, lined, and the draft controlled in such a way that the case is protected from the fire and the heat well distributed through the apartment.]

TOOL FOR CUTTING METAL—L. F. Goodyear, of New Haven, Conn.: I claim the arrangement and combination of the adjustable wedges, D, cutters, C, and ring, A, substantially as and for the purpose shown and described.

[The finishing or trueing of turned articles is facilitated by this invention, and articles of medium length, such as the arms of axles for vehicles and the like, can be turned at one operation. The invention consists in placing within two or more rings or bands a series of cutters and wedges, which are adjusted by means of set screws that pass through the bands.]

GRIDIRONS—Wm. A. Greene and John G. Treadwell, of Albany, N. Y.: We claim the check-plate, I, attached to a stove gridiron, B, when the same is constructed and arranged in the manner and for the purpose set forth.

MACHINES FOR PEGGING BOOTS AND SHOES—Alpheus C. Gallahue, of North East Centre, N. Y.: I do not claim a rack block, E, arranged so as to feed the shoe with a continuous motion underneath the awl and peg driver, for such device has been previously used.

But I claim, first, Forming the rack bar, E, of two parts, e f, arranged as shown, so as to admit of being lengthened and shortened, to compensate for different length of shoes.

Second, The adjustable or swinging plate, G, in connection with the inclined planes, i i, or an equivalent device, for actuating the plate, G, for the purpose set forth.

Third, The inclined peg gage, y', in connection with the peg or feed box, S, so as to gage the pegs from their lower ends, as described.

Fourth, The vibrating socket, e', in connection with the plunger rods, u v, arranged in the same slide bar, t, to operate as set forth.

Fifth, The bar, R, provided with the shoulder or bearing, s', and rendered capable of being operated, when necessary, by the adjustable yoke, o', and cam, p', for the purpose of duplicating the row of pegs when required.

Sixth, The combination of the swinging bed-plate, D, with a rack, E, arranged to operate substantially as and for the purpose set forth.

[The object of this invention is to obtain a machine that will perform the whole work that relates to pegging of boots and shoes, to wit, the making of the holes in the soles to receive the pegs, and the driving of the pegs in the holes, and also the splitting of the pegs from the strip or block, as well as duplicating the row of pegs entirely around the sole or only at certain parts, each peg being driven at right angles to the surface of the sole at the point where driven. The invention consists in the means employed for effecting the above results, whereby an automatic machine is obtained—one that will act perfectly and do its work well.]

REVOLVING RETORTS FOR DISTILLING COAL OIL—James Gillespie, of Freeport, Pa.: I claim securing the hopper like cup, I, in position, by means of the pins, o o, or their equivalents, surrounding the exit journal, h, of each retort, the square-headed shaft, J, passing through a hollow journal at the opposite end of the retort, and the external plate, p, the whole applied and operating substantially as described.

[This invention is principally applicable to the manufacture of coal oil, but may also be applied to the distillation of coal or other substances to obtain other products. It consists in the construction of the bodies of revolving retorts in sections, whereby retorts of a much larger size than have ever before been practicable, owing to the difficulty of casting their bodies in one piece above a certain size and the great difficulty of transportation, can be made and used. There is also a new method of connecting the sections, so that longitudinal projections are formed within the retorts for the purpose of carrying up the coal by their revolution. It also consists in having the retort head so constructed that it will not radiate much heat. The charge is distributed equally from end to end when the the coal is supplied to one end of the retort. The necessity of any outside projections from the end of the retort in which the door is placed is obviated, and the plummer-blocks and their framing, in which the retorts are supported, are enabled to be brought close to the head. Such provision is made for the escape of the vapors from the retort through the hollow journal, that the dust and solid matter is more effectually confined within the retort, and a larger charge of coal is permitted in a retort of a certain size. And lastly, the inventor combines a system of effecting the revolution of two or more retorts, so that very little power is rendered necessary, and a system of revolution more effective than a continuous one is obtained.]

PROTRACTOR—Chas. Gordon, of Washington, D. C.: I do not claim any of the devices separately which are referred to, as they have been long known and used.

But I do claim my improved protractor, as described, consisting of the base, the meridian limb, the vernier, the arc and rulers, with the clamping screw, the whole arranged and operated as specified.

METALLIC PEN-HOLDER—Albert Granger, of New York City: I claim the holding of a pen on the outside of a metallic tube (commonly called a pen-holder) in such a manner, by reason of pierces, cracks, and indentations, as to leave the entire length of a pen, when inserted in proper writing position, uncovered.

HOSE-COUPLING—Smith Groom, of Troy, N. Y.: I do not claim as my invention, the arrangement of notched lugs and wedge-shaped flanges upon the collars of hose in the manner shown in No. 9,768 of United States Patents; nor the arrangement of wedge-shaped flanges upon the outside of the female part, and inside of the movable ring or nut, of the two halves of the coupling, as represented in the rejected application of B. F. Joslyn, May 14, 1857.

But I claim the arrangement of the notched lugs, h h, and wedge-shaped flanges, e e, for conjoint operation upon the outside of the fixed part, C, and movable ring, B, of the two halves of the coupling, as and for the purpose described.

And in combination with the lugs, h h, and flanges, e e, constructed and arranged upon the coupling for conjoint operation, as described, I also claim the ratchet teeth, j, and catch, k, when arranged upon the two halves of the coupling, as described for the purpose specified.

PLOWS—Wm. J. Griffles, of Marietta, Ga.: I claim the arrangement of the stock, A, forked and slotted foot, B B, screw, E, shovel, F, brace, G, wedge, C, beam, H, and handles, I I, the whole being constructed as and for the purposes set forth.

WATCHMAKERS' LATHES—Elijah Harris, of Princeton, Ill.: I do not claim the base bar, the fixed or slide head, with slide mandrels, nor the rest, as they have heretofore been known and used; nor do I claim, broadly, the extra slide head, E.

But I do claim the standard, F, with rimmer, b, the standard shown at Fig. 3 and the standard shown at Fig. 4, with dove-tail slide, d, the extra slide head, E, in combination with the standards, F, Figs. 3 and 4, and the slide tongs shown at Fig. 8, substantially as shown and described.

CORN-PLANTERS—Jacob Haynes, of Cameron, Ill.: I claim the hinged shoe, T, formed with a serrated plate, and with the wings, V and W, substantially in the manner and for the purpose described.

I also claim the combination of the movable seat, A', with and supported by the hinged radius bars, B', and by the sliding bars, C', for the purpose of enabling the driver to raise or lower the front end of the machine, substantially in the manner and for the purpose described.

ROCKER BOXES FOR SAW-SHAFTS—Rufus S. Lee and Wm. D. Leavitt, of Cincinnati, O.: We claim so connecting the inner to the outer box, through the medium of a spring, as that said inner box or bearing may have end motion in the outer one against the action of said spring, substantially as described and for the purpose set forth.

And we also claim, in combination with the elastic or spring connection between the inner and outer box, the rollers, h h, for the inner box to move on, substantially as set forth and described.

GRINDING-MILLS—Francis M. Hemphill, of Newport, Ky.: I claim, first, In the described combination with an adjustable bridge tree, the spindle, E, confined below to the tree and hinged above to the cup-formed driving and feeding rynes, N n n', having a hinged attachment to the runner, and enabling a discretionary increase of the stress of the runner on the grain by the lighter screw operating wholly from below, as set forth.

Second, The described arrangement of the cup-formed driving and feeding rynes, N n n', gudgeons, P P', bolts, Q Q, sleeves, q q', and metallic eye, R, having the described or equivalent connection with a runner and spindle respectively, for the purposes set forth.

Third, The cup-formed driving and feeding rynes, N n n', having the described or equivalent hinged attachments to the spindle and the runner respectively, and operating as set forth.

Fourth, The frame, A B C, constructed substantially as and for the purpose set forth.

INSULATOR FOR LIGHTNING-RODS—Russel Hickok, of Fort Edward, N. Y.: I claim a lightning-rod insulator, made in one piece, so as to support and insulate the rod, and also leave open spaces for water to pass through it, and for air, when suddenly expanded, to escape from within it, as set forth.

CHURN—Gardner P. Hopkins, of Cabot, Vt.: I claim the construction of the churn in the manner hereinbefore described, so as to combine the rotary motion of the barrel with the up-and-down and rotary motion of the dashers, and so to prevent the cream from acquiring a circular motion in the process of churning.

MAKING MOLDS FOR CASTING—Robt. Jobson, of Wordsley, England. Patented in England, May 3, 1856: I make no claim to the mechanical parts separately.

But I claim constructing the table platform or bed, b, so that it may turn on or about necks or axes, substantially as described.

HARVESTERS—Henry R. Keese, of Bridport, Vt.: I claim, first, The employment of a hinged supplemental frame, D, in combination with the main frame, A, and driving-wheel, B, when the said frame, D, is provided with an adjustable bearing wheel, E, or its equivalent, all substantially as and for the purpose shown and described.

Second, The combination of a driver's seat, G, with the supplemental frame, D, and driving-wheel, B, as set forth, so that, by lateral change of his position, the driver may elevate or depress the cutters, or diminish the traction and otherwise balance and govern the machine, as shown and described.

Third, Hinging the supplemental frame, D, to the main frame, A, substantially as and for the purpose set forth.

[The object of this invention is to obviate side draft, to facilitate the raising and lowering of the finger bar and the manipulations generally of the whole machine, so as to render the labor of the driver and team comparatively light.]

BREECH-LOADING FIRE-ARMS—Edw. Lindner, of New York City: I claim, first, The method described for operating or closing the breech, and forming a tight joint at the junction of the barrel with the breech by the employment of a screw ferule or sleeve, fitting an outer screw thread on the barrel, and provided with a projecting annular flange for grasping and releasing the breech, and for drawing the same backwards and forwards in the direction of the barrel, to or from the rear end thereof, upon said screw-threaded sleeve, being operated substantially as described.

Second, I claim, in combination with a movable box within the breech, constructed and operating as described, the packing thereof by means of asbestos, or its equivalent, substantially in the manner and for the purposes described.

Third, Locking the screw-threaded sleeve that operates the breech, by forming the pivoted lever which serves to turn said sleeve with an eccentric or cam, arranged to act upon a locking pin by pressing down said lever after the breech is drawn tight, as set forth.

PORTABLE WRITING-DESKS—Wm. H. Lochman, of York, Pa.: I claim the mode and manner of uniting the different parts of a writing-desk by hinges, or their equivalent, so as to admit of its being folded up into a comparatively small space, in the manner substantially as set forth.

LIFE-BOAT—Matthias Ludlum, of Fair Haven, Vt.: I claim providing the exterior of the boat with adjustable side-floats, constructed and hung, or arranged to operate in, or at different fixed positions or distances, to or from the sides of the boat, substantially as set forth.

Also, providing either float, arranged along the outsides of a boat, with an open or trellis-work railing, made to project below the float, essentially as specified.

EXPANDING AUGER—Chas. Meyer, of Fond du Lac, Wis.: I am well aware that expanding augers have been before constructed, in which the sections are moved in and out concentrically, but not in the same manner nor by the same means; and I also know that the dies of universal chucks have been operated heretofore in a manner similar to that in which I operate my cutters; but this is for an entirely different purpose, and I do not claim, therefore, the expanding cutters; neither do I claim, separately, the manner of expanding the sections.

But I claim, as a new article of manufacture, an expanding augur, constructed and operated substantially as described.

[The cutters of this auger are arranged on sections which slide in and out in slots made in the stock of the auger, so as to be all at an equal distance from the centre, leaving the bottom of the hole perfectly flat and even.]

CORN PLANTERS—John G. Mitchell, of Collington, Md.: I claim the combination of the swinging hopper, H, constructed and arranged as described, with the adjustable coverer and dropping tubes, the whole arranged for joint operation in the manner set forth.

HARVESTERS—J. A. Moore and A. H. Patch, of Louisville, Ky.: We claim, first, The enlargement, as at z, of the curved slots, f, of the standards, G, substantially as and for the purposes set forth.

Second, The arrangement, relatively to each other, of the vertically perforated curved stop bar, H, slide, d, constructed as described, and lever, F, for the purpose set forth.

PRESERVE CANS—Samuel Morrett, of West Pennsboro', Pa.: I claim the covering of fruit cans by means of the concave cover, B, when the same is constructed and applied as described, and retained in place solely by atmospheric pressure.

APPARATUS FOR CLEANSING BRISTLES—Henry W. Mosher and Joseph A. Conboie, of New York City: We do not confine ourselves to any particular number of clamps on the shaft, D, nor to any particular arrangement thereof, for various modifications of the same may be used.

But we claim the rotating bristle clamps, E, placed within a cylindrical box or case, A, provided with diagonal plates, c, and used with or without the brush, C, and soap bar or other cleansing substance, h', substantially as and for the purpose set forth.

[The bristles to be washed are secured in clamps attached to a rotating shaft, which is placed in a suitable box or case filled with suds, and having diagonal plates attached to its inner surface and also a pressure brush and soap bar, or other cleansing material, the whole being arranged to perform the work in a very rapid manner, and with much greater perfection than can be attained by the manual process.]

HAY MANGERS—John Packer, of Philadelphia, Pa.: I claim, combining with a hay manger, a falling rack, B, to prevent the horses from pulling out and unnecessarily wasting the hay therein, and as described and represented.

VENTILATING VAULT COVER—John Patrick, of New York City: I claim the perforated plate and gutter, in combination with the metallic roof, ceiling or walk, for forming a ventilating space and catching any water of condensation, in the manner and for the purposes specified.

And, in combination therewith, I claim the ventilating pipe, d, as and for the purposes specified.

MACHINE FOR BENDING TIRE—Wm. Patterson, of Constantine, Mich.: I do not claim the method of bending tire by means of the segment lever and clevis, neither the combination of these elements as they exist in the patent to Aaron Whitcomb.

But I claim connecting the clevis to the lever and segment in such a manner that the lever will cause the clevis to grasp and release its hold on the bar to be bent, independently of and before said segment commences to move, as illustrated by the red lines in the drawings.

Second, Providing the outer end of the clevis with an arm, L v, so arranged in relation to the circumference of the segment as to bear against the outer side of the tire, and support it (while being bent) above the end of the segment as represented, thereby preserving the circle of the tire by preventing it from springing back during the descent of the lever.

Third, Making the clevis adjustable for the purpose of adapting it to the use of different sized segments in the same machine, as described.

HOOP MACHINE—Henry C. Peirson, of Philadelphia, Pa.: I claim the arrangement of the series of bending rollers, D D' D'', or their equivalents, in rear of the cutter, B, or its equivalent, so as to operate upon the hoops, substantially in the manner and for the purpose specified, as the said hoops pass between them directly from the said cutter.

RAILROAD COUPLING CHAIR—R. S. Potter, of Chicago, Ill.: I do not claim as my invention, a chair with one key or wedge running its entire length; nor do I claim a chair with a cavity for one key or wedge only: nor do I claim, broadly, the use of two wedges or keys in combination with a railroad chair.

But I claim the use of two wedges or keys, in combination with a railroad chair, when the outer lip of said chair is overhung in the manner described and shown, and its inner surface is of a conoidal form, as specified.

SEED PLANTERS—D. R. Prindle, of Bethany, N. Y.: I claim, first, Hinging the frame that carries the seeding devices, and the beams that carry the furrow opener and coverer to the axle, substantially as and for the purpose set forth.

I also claim in combination with the axle and hinged frame and beams, the tongue and lever, for raising, lowering or controlling the planting and covering devices, substantially as described.

I also claim the adjustable hinged clevis irons, make, arranged and operating as set forth

I also claim the combination of the curved spring plates, g, and spring, s i', as applied to the seeding wheels, or cylinders, for the purpose explained.

CLOTH FRAMES—Daniel Read, of Hamilton, N. Y. I claim the combination and arrangement of the standard with the arms, A B C D, the standard i i, and braces, E F G, substantially as and for the purposes specified.

MACHINERY FOR FILLING LOOM HARNESS NEEDLES—L. L. Reynolds, of Manchester, N. H.: I do not claim the mere passing of the twine over the tongue of the needle, as it is old, having been done some twenty years since, by a Mr. Wilson, of Lowell, Mass.

But I claim the hooks, F, or the equivalent thereof, for depositing the twine or coad, upon the outer sides of the score of the needle, when combined with a device for delivering the twine or cord to said hooks.

Second, In combination of the intermittent rotating oval shaped pin, O, with the cam, N, or their equivalents, for depositing the twine or cord evenly around the end, P, of the needle.

FRICTION BELT FOR FLOUR MILLS—L. S. Reynolds, of Indianapolis, Ind.: I claim, first, The sliding knockers, D D D D D D, in combination with the shait, K, ribs, H H H H H H, and rods, E E E E E E, when constructed and operated substantially as and for the purposes set forth.

Second, The springs, G G G G G G, in combination with the knockers, D &c., when operated substantially as and for the purpose set forth.

Third, The elastic bridge-tree, I, when used substantially as and for the purposes set forth.

CULTIVATORS—T. A. Robertson, of Washington, D. C.: I claim the wing, A, extended obliquely from the rear standard, E, to a point, d, from which point projects a straight portion, or divider, B, in combination with with the oblique cutting bar, G, as described.

STOVES—H. R. Robbins, of Baltimore, Md.: I claim the combination of the fire-chamber, A, with the inclined front encircling transparent face plate, E, heat pot, B, pedestal, F, with its doors, b b, upper back encircling chamber, H, with its doors, f, and divided horizontally as described; smoke and heat pipes, I, and g g i, and back case or reflecting bonnet, K, having a conduct, m, arranged to conduct air to the one perforated passage of the upper back encircling chamber, H, as described, the whole being arranged for operation, substantially as specified.

COTTON PRESS—J. G. Roux, of Raymond, Miss.: I am aware that cams and levers have been arranged in various ways, for operating the followers of cotton presses; and I do not claim, separately or irrespective of the arrangement shown, any of the parts described.

But I claim the rotating platform, B, provided with helical ledges, or rails, F F, in combination with the blocks, E E, placed on the ledges or rails, the levers, J J, attached to the follower, I, and the stationary press box, G, the whole being arranged to operate as and for the purpose set forth.

[The followers of this press is operated by means of a rotating platform having a helical ledge or flanch on its upper surface, and placed below the body of the press. The follower has two levers attached to its under side, the lower ends of the levers bearing against blocks which are placed on two helical ledges or rails, and we made to operate the follower when in the act of pressing with a progressive or gradually increasing power as the platform is rotated.]

RAILROAD CATTLE GUARD—J. L. Rowley, of Angola, Ind: I claim the springs, C C, and bar, D, in combination with the chain fedder, F E, and post, J, when constructed and operated in the manner and for the purposes described.

HARVESTERS—I. S. Russell and H. R. Russell, of New Market, Md.: We claim the peculiar arrangement of mechanism, consisting of two segment level wheels, G H, two spur wheels, K K, an independently turning hub, E, having a slotted plate, F, attached to it, and a crank arm, L, having a turning crank pin, J, for giving motion to the rake round the reel in the path of a vertical circle, and over the platform in the path of a horizontal circle, substantially as set forth.

FORGING MACHINE—Erhard Schlanker, of Buffalo, N. Y.: I am aware of the revolving forging machine of D. Noyes' of Abington, Mass., and of attaching the hammer or hammers, each by a pivot to a revolving disk or crank, so as to revolve therewith, and controlling the position thereof, by stops attached to the face of the disk, or crank, and of drawing the hammer or hammers, lengthwise of the anvil; which I disclaim, as being original in principle but defective in operation, by the use of the stops affixed to the disks, or imaginary crank.

I claim that portion of the hammer shaft, Q Q, from the center pins, v v, extending towards the driving shaft, W, to be used as a lever, in controlling the hammers, D D, the center pins, v v, being the fulcrums, in connection with the wrists and friction rollers, Y Y, and X X, the location and position of the spring cams, S S, upon the duplicate face plates, F a F b.

The sections, E E, and the independent operating crank cams, R R, guide plate, a, cranks, h h, levers, c and f, connecting rods, d d u, as described in the specfication.

COFFINS—I. C. Shuler, of Amsterdam, N. Y.: I claim, first, The manner of forming a recess in the sheet metal all around the base inside of a metal coffin, also the arrangement of placing an iron frame, or its equivalent into the recess described, fastening it firmly to the sheet metal, all around the body of the coffin, for the purpose of stiffening the lower edges of the same.

Second, I do not claim the ribs, X, separately, as I do not consider them p tentable, but the ribs being peculiarly arranged, by being placed under the flange which supports the rim, E, and fastened to the frame, D, in the recess at the bottom. I claim this peculiar arrangement for the purpose of stiffening the sides and end, so as to sustain a heavy weight of earth. Also for the purpose of preventing the sides from bilging out, when the handles are placed about an equal distance between the upper and lower edges of a sheet metal coffin, substantially as set forth.

Third, The arrangement of pressing or rolling around the outer edge of the cover of a sheet metal coffin, an inverted bead which forms a tongue on the bottom side of the cover, so arranged as to fill the groove in the upper surface of the rim, E, for the purposes of soldering, or cementing the joints, as described and set forth.

Fourth, The arrangement of placing a galvanized iron rim, or its equivalent on the outside, and over the upper edge of the walls of a sheet metal coffin, fastening the same permanently to a flange formed all around the upper edge of the walls, for the purpose of shaping and strengthening the upper part of the coffin, and at the same time furnishing a means of securing the coffin top at the joints.

Fifth, I am aware that I have claimed in a former patent an iron frame as a cover over the soldered joints on the top of a sheet metal coffin; I therefore disclaim it as an entire frame, but I claim the bisection of the frame, A, and its reconnection by means of spring catches at the widest part or break of the coffin, substantially as set forth.

CULTIVATOR—John Smally, of Bound Brook, N. J.: I do not claim, broadly, hanging the main wheels of a cultivator to cranked axles, for the purpose of deciding the depth to which the teeth shall penetrate the ground, as such a device has been heretofore used in cultivators.

Nor do I claim a central lever, for operating the cranked axle, or the plow-formed teeth, or any other part of the machine separately.

I claim the frame, its adjustable pole, its teeth, m m' n n', and detaching teeth, p p', the cranked shaft, C, its central lever, E, and driver's seat G, when the said seat is so situated as regards the handle, that the driver can operate the latter, without moving from the seat, and when all the parts are arranged in respect to each other, substantially as set forth.

SEEDING MACHINES—Michael Simmons, of Ira, Ill.: I claim, first, the use of the eccentrically cut gear wheel, D, so as to enable me to get my pinion, a, and pinion shaft, h on top of the frame, and above the center of the wheel that drives it, substantially as described.

I also claim the arrangement of the beams, H, with their skewed shovels and adjustable connects, so that they may be transposed from side to side of the machine, at pleasure, in the manner and for the purpose set forth and explained.

SPRING BEDSTEAD—C. F. Spencer, of Rochester, N. Y.: I am aware that wooden slats with metallic springs have been used, and that a patent was granted November 16th, 1858, in which the slats are permanently attached at one end with wooden springs attached at the middle of each resting against a transverse bar, but differing in arrangement and effect from mine; therefore, I do not claim, broadly, the use of spring slats.

But I claim the combination and arrrngement of the spring slats, E F, with the bars, A A, and fulcra, B B, the latter arranged to increase or diminish the effect, and horizontal slats, G, resting at once on the free ends of each reverse series, substantially in the manner and for the purpose described.

SMUT MILL—G. H. Starbuck and D. D. Gilman, of Troy, N. Y.: We claim, first, The combination of the two scouring plates, a a a, placed one above the other, with their roughened or burred surfaces toward each other, in combination with the funneling plates, E, for depositing the grain at the centre of the scourers, between which it is passed, forming a double scourer, attached to, and revolving with the shaft, R, operated in the manner and for the purpose set forth. We do not confine ourselves to any number of scourers for a machine.

Second, The vertical cylindrical opening, as shown at I, in combination with the outer case, K, screen, f, and fans, h, for the purpose of giving free discharge to all tight impurities and foreign matter, and prevent the discharge of grain.

WATCHMAKER'S LATHE—R. H. St. John, of Bellefontaine, Ohio: I claim the combination and arrangement of the steel ring, D, spring, d d, set screws, a a and centering plate, E, substantially as described, and for the purpose set forth.

I also claim the employment of the screw cap, G, for clamping the article to be centered in the manner specified.

CULTIVATORS—J. C. Stoddard, of Worcester, Mass.: I do not claim, separately, the share, A, with adjustable or expanding wings or blades, C C, attached, for that has been previously used. Neither do I claim the shares, m, for they also have been previously used.

But I claim, first, The share, A, and wings or blades, C C, arranged relatively with the wheel or wheels, H H, that is to say, placing the wheel or wheel, behind the share, A, and between the wings or blades, C C, substantially as and for purpose set forth.

Second, The adjustable rotating scrapers, J, applied to the wings or blades C, and arranged to operate as and for the purpose set forth.

Third, The combination of the lateral adjustable hoes, m, share, A, adjustable wings or blades, C C, rotating scrapers, J, wheels, H, one or more, arranged for joint operation substantially as and for the purpose set forth.

[A share with adjustable wings or blades is employed in this invention, arranged relatively with a driving or support wheel, in order to facilitate the manipulation of the machine, and place it under the perfect control of the attendant. The invention also consists in the use of adjustable rotating scrapers attached to the wings or blades, and also in the use of weeding hoes.]

CRESSET FOR HEATING BARRELS—John S. Thompson and Marvin J. Seymour, of Glenn's Falls, N. Y.: We claim the arrangement of the annular bed, D, at the base of the apparatus, and above the escape flue, C, to receive and support the barrel, as and for the purpose shown and described.

[This invention consists in having an upright cylinder or drum attached to an ordinary box stove, the stove and drum being provided with a return flue, and the stove with an annular bed, the whole being arranged so that the barrel or cask may be properly heated, and the staves rendered sufficiently pliable to be bent in the proper or desired form.]

MACHINES FOR DIGGING POTATOES—J. C. Stoddard, of Worcester, Mass.: I do not claim an inclined screen with a share attached to its lower end, for the purpose of digging potatoes, for such device has been previously used. Nor do I claim a receptacle attached to the machine for the purpose of receiving the potatoes.

But I claim, first, The weed eradicator, formed of the vibrating plate, g', with serrated flanges, h', attached and arranged to operate as and for the purpose set forth.

Second, The inclined adjustable screen box, D, provided with a share, E, and spur, j', at its lower end, in combination with the endless chain of carriers, F, arranged to operate in grooves, o o, substantially as and for the purpose set forth.

Third, The combination of the weed eradicator, leveling share, N, inclined adjustable screen box, D, with share, E, attached, and endless chain of carriers, F, with or without the receptacle, C, arranged for joint operation, substantially as and for the purpose set forth.

Fourth, The adjustable or movable roller shaft, L, applied to the machine, and arranged to operate as and for the purpose set forth.

[This invention consists in the use of an endless carrier attached to an inclined screen, a weed eradicator, leveling and opening shares, and a receptacle provided with screens, the whole of these parts being mounted on wheels and used in connection with a peculiar guiding device, whereby potatoes may be dug from the hill or drill, thoroughly separated from dirt and also assorted, the large from the small, and placed in proper receptacles.]

MANUFACTURE OF WOOD SCREWS—N. G. Thom, of Cincinnati, Ohio: I do not confine myself to any particular form of construction as to size, shape, &c., as these may be varied indefinitely, and the same construction is applicable to coach or lag screws, or any other screw in which wood or other yielding substances constitute the material into which the screw is driven.

I am aware that a tapering screw point has been long used upon augers, gimblets, &c., and I therefore do not claim that feature as any part of my present invention.

But I claim, as a new manufacture, the described wood screw, the characteristic feature of which consists in its having two or more porallel threads that terminate at or near the point of a tapering core, substantially as described.

SADDLES—S. E. Tompkins, of Newark, N. J.: I am aware that cast metal saddle-trees have been previously used; and, also, that safety-guards or bridges have been attached to trees to keep the back band from the back of the horse. I therefore do not claim, broadly, the above.

But I claim the bow pieces, b e, connected with the sides, a a, and provided respectively with the head, c, and cantel, f, in connection with the central bow-piece or "safety guard," when the parts are placed relatively with each other, so as to admit of being cast in one piece, to form a new and improved saddle-tree, as set forth.

I further claim, in connection with the saddle-tree, formed as above, the crupper loop, j, attached to the cantel bow-piece, e, by means of the plate, i, substantially as and for the purpose specified.

[This tree is formed all of metal, cast in one piece; it is light, much stronger than wood, and admits readily of the saddle materials being fastened to it. In fact, it is in every respect as good as the wooden one, and in many much superior.]

STOVES—F. E. Tupper, of Nashua, N. H.: I claim the arrangement of the air-chamber, C, with its air-passages or rubes, G, and apertures, a, and openings, i i i, with the casing, A, supporting and deflecting collar, F, substantially in the manner and for the purposes set forth.

HARVESTERS—S. W. Tyler, of Greenwich, N. Y.: I claim giving such a shape to the portions, a and h, of the finger-bar, and to the flanged portions or heads of the fingers, d d, that the same set of rivets will unite all the said parts with each other into a fingered bar of unusual stiffness, strength and narrowness, and at the same time form a dovetail groove for the reception and guidance of the cutter bar, substantially as set forth.

MACHINE FOR ROLLING WHEEL TIRES—Nathan Washburn, of Worcester, Mass: I claim the combination of a set of reducing-rollers, A B, a series of adjustable carrying rollers, d d d, &c., or their equivalents, and a frame or holder, G, supported so as to be capable of rising upward within the wheel tire in proportion as the diameter of the inner periphery of the said tire may increase, during the process of rolling the tire, and having the said carrying rollers arranged and made adjustable with respect to it and the reducing rollers, in manner substantially as specified.

CLOD CRUSHERS—E. B. Way, of Jerseyville, Ill.: I claim the employment of the oblique-sided double tapered slats, f, in combination with the rims, d' d' e, so that the clods that wedge between the slats will be carried up, and then dropped, and then broken within the wheel, as shown and described.

[A rotating slatted cylinder constructed in a peculiar manner is employed by this inventor to accomplish the desired end, namely, the crushing of clods and the pulverization of the soil.]

SAUSAGE STUFFER—John Wagner, of Pittsburgh, Pa.; I do not claim the endless screw, or worm and wheel, this being a well known mechanical device, though the same has, to my knowledge, not been used before in sausage stuffers, nor do I claim any other part of wheel gear arrangement, when considered by itself.

But I claim the arrangement of using in addition to the operating crank, c, for the forward motion, another operating crank, s, or its equivalent, for the backward motion, when applied to the wheel gear arrangement of worm and wheel, in the manner as described, viz: when set on the spindle, a, of the screw wheel. F, substantially as and for the purpose set forth.

HARVESTING MACHINE—William Webber Jr., and John Webber, or Rockton, Ill.: We claim operating the rake of a harvester, by means of the horizontally oscillating arms, c, and h, the rod, g, and the latch, i, when the said parts are arranged relatively to each other, and to the other parts of the machine, in the manner set forth.

STOVES—J. Whitehead, of South Paris, Me.: I claim the combination with the fire-chamber described, and with an oven having hollow walls filled in with non-conducting material, of a removable fire chamber casing, which has hollow walls, filled in with a non-conducting material, and is in shape, externally, nearly the counterpart of the fire-chamber, and serves for encasing the whole of the exposed portion of the fire chamber, and at the same time allows access to the holes in the top of the fire chamber, and to the fuel door thereof, substantially as and for the purposes set forth.

FLY-TRAP—Elisha D. Blakeman, (assignor to Jacob J. Auchampaugh and Levi Auchampaugh,) of New Lebanon, N. Y.: I claim the combination and arrangement of the poison cups, m and n, with the conical chamber, B, and bed-plate, A, substantially as and for the purpose set forth.

MACHINE FOR ROLLING IRON—Henry B. Comer, (assignor to himself and Joseph S. Lewis,) of Temperanceville, Pa.: I wish it to be clearly understood that I do not claim the use of guides in general.

But I claim furnishing rolls which are placed in front of each other and on parallel lines with guides placed between each set of rolls, said guides being so constructed that they will guide and change the position of the iron as it passes from one set of rolls on to another set, as described and set forth.

FOOT-SCRAPER—W. L. Williams, of New York City: I am aware that brushes have been applied to and used in connection with scrapers, but not, so far as I am aware, arranged as described; therefore, I do not claim, irrespective of arrangement, the employment or use of brushes and a scraper.

But I claim the employment or use of the scraper, B, and the brushes. F G, either with or without the brush, J, combined and arranged to operate, substantially as and for the purpose set forth.

[A series of brushes are combined with a scraper plate and so arranged that the action of the foot or shoe on the scraper, in cleaning the dirt from the sole, will actuate the brushes in such a way that they will come in contact with, and clean or brush off the dirt from the sides of the shoe, and all around it.]

METHOD OF OPERATING THE KNIFE IN RIVING SHINGLES—John Wood, of Brooklyn, N. Y.: I do not claim the rhomboidal reciprocating gate, O, with knife, P, attached, for this has been previously used.

But I claim giving the frame, C, in which the reciprocating knife gate, O, is placed, an intermittingly vibrating movement simultaneously with the feed movement of the bolt, substantially as and for the purpose set forth.

[This invention relates to an improvement in that class of shingle machines in which the shingles are rived from the block by a knife placed in a reciprocating gate. The frame in which the gate works is given an intermittingly oscillating movement simultaneously with the forward feed movement of the bolt, in such a manner that the knife, as it descends, will have its cutting plane in an oblique position with the edge of the bolt and consecutively in reverse positions, so that the shingles will be cut in taper form and in a smooth and perfect manner.]

SELF-FEEDING PRESS FOR PRINTING CARDS AND BILL-HEADS—Nathan Ames, of Saugus, Mass., (assignor to himself and Nathaniel Evans, Junr., of Boston, Mass.): I claim, first, The little cams or projections, a b, arranged in reference to the ink rollers, and operating in connection with them and the vibrating type-bed, substantially as and for the objects described.

Second, The combination and arrangement of the spring, P, hinged piece, H, type-bed, E, and spring, L, substantially in the manner and for the purposes set forth.

Third, Attaching the type-bed, E, as shown, at one of its sides only, to the arm, D, so that the inking rollers, N N', may pass over and under it, substantially as described.

Fourth, The pitman, r', screw, r, top piece, X, slot, j, and slides, e e', when combined, arranged and operating substantially as set forth.

Fifth, Attaching the feeding-plate, f, as described, to the slide, e, and causing the latter to move in the groove, g, so that while the upper side of f, bears on the surface of X, the thickness of e, extending below it, prevents the card from ever getting between the surfaces of f and X.

Sixth, The adjustable guide, l, constructed and arranged substantially as and for the purpose described.

Seventh, The adjustable lateral guides, m m, arranged as set forth and for the purpose described.

Eighth, The card-pusher, Z', provided with the slots, P P and 8, substantially in the manner and for the purposes described.

CAR COUPLING—James W. Carrier, (assignor to himself and Able B. Howe,) of Springfield, Mass: I claim the sliding bunter, A, connection pin, d, pin, p, springs, r and l, straps, m, sliding pin, B, springs, k k, rack, f, pinion, g, ratchet, s, pawl t, and pin, v, when constructed and arranged substantially as described.

CORN SHELLERS—Chas. W. Carter, of Westville, Ind., (assignor to Lester L. Bond, and Geo. Coatsworth, of Chicago, Ill.): I claim the sectional truncated cone, P, constructed as described, with the pintle, s, guide spring, u, and hinge, R, and arranged to operate in combination with the outer cone, O, in the manner and for the purposes specified.

MACHINE FOR PREPARING MOLDINGS FOR PICTURE FRAMES—Eleazer Gardner, (assignor to Gardner & Decker,) of New York City: I claim the revolving rollers, arranged and operating substantially as described, in combination with the scraper, n, for the purpose specified.

RETORTS FOR DISTILLING COAL OIL—Joseph E. Holmes, of Newark, Ohio, (assignor to himself and Joseph Palmer, of New York City); I do not claim the invention of a revolving retort, that being specified in the French patent of Mr. Ajasson de Grandsague, dated Oct. 9, 1839; neither do I claim the introduction of steam into the retort during the distilling process.

But I claim, first, The combination with the internal vapor pipe, E F, of a leg, E', so applied as to keep the mouth of the said pipe in the upper part of the retort, either by the direct action upon it of the force of gravitation, or by its dragging in the coal or other matter in the lower part of the retort.

Second, The arrangement of the steam-pipe, a, to communicate through the hollow journal with a passage in the leg, E', of the vapor pipe, E F, for the admission of steam directly into and among the charge, substantially as specified.

[These retorts are designed for coal oil. The invention consists, firstly, in certain means of protecting the hollow journal against the entrance of lumps of coal, and in a great measure against the entrance of dust caused by the agitation of the charges in the retort. Secondly, in a certain arrangement of a double bearing for the hollow journal of the retort, in combination with a water box whereby the connection of the hollow journal with the hydraulic main, or its equivalent, is kept packed, and the journal at the same time lubricated by the water in the box. Thirdly, in a certain method of applying a steam-pipe for the admission of steam into and among the charge during the distilling process. It also consists in connecting a water injection pipe with the pipe which conducts away the liquid and vapor from the retort and hydraulic main to the condensing apparatus for the purpose of admitting water among the vapor in the pipe to assist in its condensation.]

CAMERA STANDS—Henry J. Lewis, of Brooklyn, N. Y., (assignor to himself and Richard A. Lewis, of New York City): I claim the combination of the braces, f f f, and screw clamping blocks, i i i, or their equivalents, with the legs, a, in substantially the manner and for the purposes specified.

MILK PAN—E. L. Pratt, (assignor to himself and R. B. Fitts,) of Philadelphia, Pa.: I claim, as new manufacture, a pan, with a detachable or hinged over, forming when combined a vessel closed, with the exception of a series of minute perforations below for the access of cold air, and a suitable distance above the latter, another series of perforations for the exit of warm air and gases, and otherwise constructed, substantially as set forth and for the purpose specified.

SEEDING-MACHINES—Alonzo R. Root, (assignor to Rufus S. Rickey,) Keokuk, Iowa: I do not claim the invention of the revolving head of Mr. Ring, nor the application of the centrifugal force to the purpose of seed-sowing, nor any other principle secured to A. Ring, Esq., by Letters Patent.

But I do claim, first, in combination with the hopper, I, and the revolving tubes or arms, the regulator,

B, constructed and operating therewith substantially as described.

I also claim, in combination with the regulator and revolving tubes or arms, the vertical and inclined partitions, C C, and lip, D, for the purpose of directing the seed to be sown from the hopper to the openings in the arms or tubes, and to prevent the seed from escaping unduly through the arm or tube, for the time being, immediately under the lip, substantially as described.

GRINDING MILLS—Geo. Selser, (assignor to himself, J. Cook and W. Cook,) of Philadelphia, Pa.: I claim attaching the hollow steel burr to the spindle, D, by screwing or otherwise securing the end of the latter to a plate, I, which is fitted snugly to the inside of the burr, a shoulder, e, on the spindle bearing on the top of the burr, as set forth.

MARINE PROPELLER—John Taggart, of Roxbury, Mass., (assignor to himself and Geo. R. Sampson, of Brookline, Mass.): I claim my improved mode of propelling a navigable vessel through the water, viz.: by the conjoint action of two separate rotary or screw propellers, E and F, respectively operating or screwing into the water and air, arranged and combined substantially as described, and propelled by a steam engine, or motor within, or carried by the vessel.

I also claim arranging the air screw propeller, F, or its axis, at an inclination upward from the keel or plane of flotation of the vessel, substantially as shown, in order that the said propeller, while being rotated, may operate, not only to draw the vessel ahead, but to lift her bow more or less out of water.

GAS RETORTS—Davis L. Weatherhead, (assignor to himself and S. E. Southland,) of Philadelphia, Pa.: I claim the cap, E, with its box or reservoir, F, when arranged in respect to the lower chamber, A, the upper chamber, B, and exit pipe, D, of the retort, substantially as and for the purpose set forth.

SAW-SET—Olive Ann Brooks, of Great Falls, N. Y., administratrix of the estate of Lebbeus Brooks, deceased, late of Great Falls aforesaid: What is claimed as the invention of the said Lebbeus Brooks, is the arrangement and application of the benders and bending screw together, and with respect to the two handles, substantially as set forth, whereby the center of motion of the benders is at the place of contact, or the vertex of the angle of their upper surfaces, and no fulcrum pin is exployed for the support and connection of the levers.

BRICK MACHINE—William Wood, of Hartford, Conn. Patented March 22, 1859: I claim the arms, B B, in combination with the slides, A A, provided with the lever, C, and tappet, c, for operating the molds, M, as described.

RE-ISSUES.

SMELTING FURNACE—Charles C. Alger, of Newburgh, N. Y. Patented June 30, 1857: I claim constructing furnaces with the hearth and boshes of an elliptical or elongated form, substantially as described, in combination with the application of the blast at the sides, so arranged as to introduce the blast in the direction of the breadth, and for the purposes specified.

I also claim, in combination with the hearth and boshes made of an elliptical or elongated form, substantially as described, the construction of such furnaces with two mouths, one at each end, for working and tapping, substantially as and for the purpose specified.

RECLINING CHAIRS FOR RAILROAD CARS AND OTHER USES—Isaac L. Devoe, of Staten Island, N. Y., assignee through mesne assignment of Samuel M. Perry, of New York City. Patented July 27, 1852; I claim, first, to so combine the back, D, with the two end frames, B C, by means of bars, E F, jointed to it one or two studs, a, and one or two series of notches, d d, or equivalents therefor, that the said back, when not a reversible one, may be raised and inclined in various positions, so as to not only support the back, but the head of a person at the same time.

Second, Making the back reversible by means of two series of notches, d d and e e, &c., and two sets of studs, b, or equivalents, the same being arranged on opposite sides of the chair and made to operate as specified.

Third, The improvement of making each arm or bar, E F, with a rack or racks of teeth, or succession of notches, or equivalents therefor, for the purpose of adjusting and securing the backs in the desired position, whereby the occupant can alter or vary said position without rising from the seat, substantially as set forth.

DESIGN.

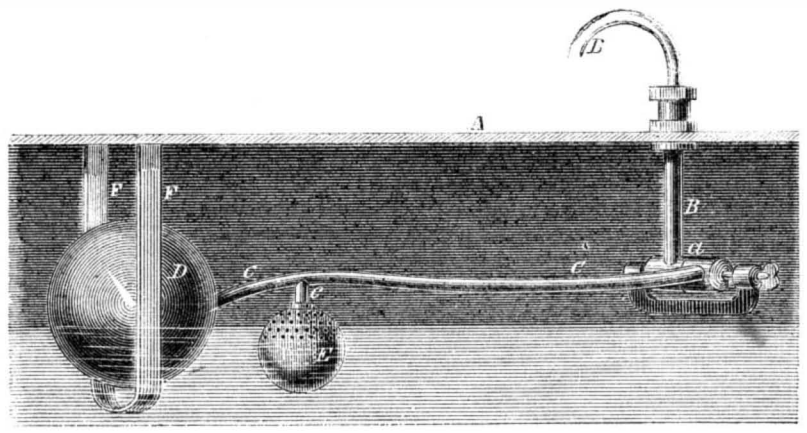
HAT-RACKS—Edward Reynolds, (assignor to Thomas W. Brown,) of Boston, Mass.

Improved Blow-off for Boilers.

This invention makes security doubly sure, and adds an additional protection or preventive of accidents to boilers by the sedimentary deposits from the water. There is much solid matter contained in water, some of it organic particles which when the water ceases to hold them in suspension, they rise to the surface instead of falling to the bottom. The same is true of salt water, the salts in which, as evaporation goes on, rise crystallizing to the surface and afterwards form a scale on the inside of the boiler, causing it to burn out rapidly, and being at the same time a fruitful source of accident. The design, then, of this surface blow-off, invented by J. H. Washington, of 36 Fawn-street, Baltimore, Md., is to prevent the forming of this scale by blowing-off continually from the surface.

A is the boiler, through the top of which projects a pipe B, to the bottom of which (inside the boiler) is attached by a water-tight hinge or joint, *a*, the tubular arm, C, carrying at its extremity the hollow float-ball, D. D moves up and down in guides, F, which are proportioned according to the limits beyond which it is not safe to allow the water in the boiler to rise or fall. A steam whistle may be attached to the end of C, to notify the engineer when the water is too low. Near the end of C there is a small branch-pipe, *c*, projecting vertically downwards, and over this is slipped the perforated hollow ball, E, which is itself half filled with water, the perforations only being made on the upper hemisphere. This can be slid up and down on *c* to take the proper relative position with respect to D and the surface of the water. This it will be seen will accommodate itself by the float, D, to the motion of the water in the boiler caused by the rocking of the vessel, and should any sudden lurch occur, which leaves the upper hemisphere of ball E, entirely exposed to the steam, the contained water has first to be blown out before the steam can escape and by that time the ship will have righted itself, and if not steadied then, will refill E with water which will again act as a preventive to the escape of steam should a similar lurch occur,

WASHINGTON'S BLOW-OFF FOR BOILERS.

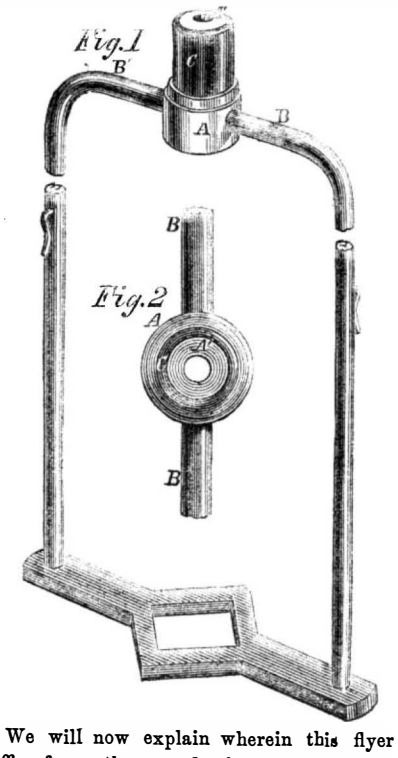


The device is remarkably simple; and, judging from the testimonials we have seen from the engineers of steamships which have it fitted in their boilers, and from the Inspector of Boilers for the Baltimore district, it very thoroughly, efficiently, and perfectly performs the work for which it is designed. It was patented Jan. 25, 1859, and any further information may be obtained by addressing the inventor as above.

Sawtell's Spinning Flyer.

The accompanying figures represent an improvement in spinning flyers, invented by J. N. Sawtell; Fig. 1 is a side elevation and Fig. 2 a plan view of the nozzle. In form it is similar to the common flyer, but in construction quite different.

A is the bronze shoulder of the nozzle and B B are the arms of the flyer. The bronze part extends upwards, forming the tube, A′, and C is the hardened iron capping or collar on the neck.

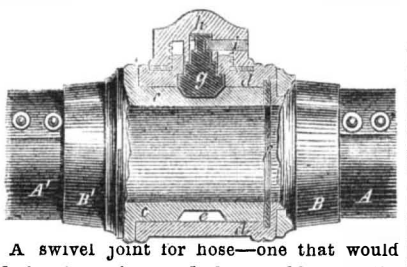


We will now explain wherein this flyer differs from others, and point out its advantages. In making the common flyer, the neck or nozzle is brazed to the arms or wires, B B, but this flyer is constructed by casting the nozzle (which is bronze) on the arms and thus uniting them together in a more permament and superior manner. By the old way of brazing the nozzle and arms, the wires are highly heated, which injures their elasticity and strength, and by the refinishing which they require afterwards they are reduced in size which renders them weaker still. One of the arms is also liable to be reduced somewhat smaller than the other which thus tends to throw the flyer out of balance, and render the operation defective. The brazing is also sometimes imperfect and the arms, as a consequence, soon become loose; and when a nozzle becomes much worn, the cost of repairing it is so great as to render this operation inexpedient.

In constructing this improved flyer by casting the bronze nozzle on the arms, B B, the two metals are permanently united, yet this is done in such a manner that the wires are not overheated, and thereby not softened, nor do they require to be reduced in size afterwards, but retain all their original stiffness, strength and elasticity; they are therefore not liable to work loose, nor be thrown out of balance; and should the hardened capping, C, become worn, it can be renewed at a small cost, and the whole nozzle rendered as good as when new.

These flyers have now been in operation for nearly three years and have given great satisfaction. They are manufactured by the Ames Manufacturing Company at Chicopee, Mass., who will attend to communications addressed to them on the subject. It was patented Feb. 17, 1857. For more information see advertisement on another page.

Lawton & Bliss' Hose Coupling.



A swivel joint for hose—one that would admit of turning, and that could be easily put together—has long been wanted. Here it is. It is the invention of R. B. Lawton and W. H. Bliss, of Newport, R. I., and was patented Feb. 22, 1859. Our illustration fully shows the invention, the coupling being seen in section.

A A′ are the ends of the two hose provided with caps, B B′, by which they are attached to their respective metallic rings or thimbles, *c d*, the one, *c*, fitting into the other, *d*, and pressing against a rubber packing ring, *f*, in *d* which renders the joint water-tight. Around *c* a groove, *e*, is made, and in *d* there is a hole in which a hollow screw is fitted provided with a screw-cap, *h*, through *h* a pin, *i*, projects that fits into the groove in the top of the roller, *g*, that is conical at its end and fits into the groove, *e*, thus securing the thimbles, *c d*, together and allowing one to move round the other with perfect freedom, but at the same time preventing them coming apart. This roller being conically shaped and the groove having inclined sides, the pressure of *g* upon the side of *e* will always tend to keep *c* close o *d*, and thus compensate for any wear by the simple act of connecting them together.

A simpler and more efficient hose coupling it would seem impossible to devise, especially when so many ends are attained by the same device. Any person desirous of knowing more concerning it, in a business or other point of view, should address W. H. Bliss, at Newport, R. I.

Firing of Locomotives.

In the saving of wear and tear, and in the economy of fuel and oil in running locomotives, a very great deal depends upon the engineer. This is very clearly set forth in the recent report of R. A. Wilder, Esq., Superintendent of the Minehill and Schuylkill Haven Railroad, published in the *Miner's Journal*, of Pottsville, Pa. The principle feature of this report is the information contained about the successful use of anthracite coal for fuel. It is used on the engines running on this road, and has been found much cheaper than wood at two dollars per cord. The engines are similar to those in which wood is employed for fuel, excepting that the fire-box is larger in area, but not quite so deep. An engine of 30 tons will take a train of 140 cars, to the summit of the mountain and return loaded—a distance of 65 miles, consuming four tons of coal—the total rise in the road being 900 feet. The coal used is all broken with a hammer, as it has been observed that when broken by rollers, although the work is done more rapidly, it does not ignite so readily, on account of the sharp angles being broken off. The fire in the furnace, is never more than six or eight inches deep, and an experienced fireman never throws in too much fresh coal at once; great care and skill are required in firing—in fact most of the success of coal-burning locomotives depends on this operation. A fireman has been known to burn out a set of grate-bars in one day, while another using the same coal, and raising as much steam, has preserved a set of bars for several months. The rapid destruction of fire-boxes, under the use of coal as fuel, has retarded its introduction as a substitute for wood. As the bottom parts of the fire-box plates are subject to the most rapid destruction; it has been uecessary to remove the entire box to replace the injured parts. This has been owing to the method by which the sheets have been riveted together. On the above road, the lower parts of the fire sheets which are injured are only cut away, not the entire fire-box, and a saving of nine-tenths of the usual cost has been effected. By forming the fire-boxes with a set of lower fire-plates, joined to the upper portion above the fire surface by a horizontal seam, these could be easily removed, when burned out, with but little expense in comparison with that now incurred, according to the method by which fire-boxes are at present constructed. The firemen were very much prejudiced against coal when they first commenced its use, but now they prefer to work on coal-burners rather than those in which wood is employed. Engines which use wood require to stop frequently to obtain a supply of fuel; a tender full of coals will last an entire day. In Pennsylvania, where good oak wood can be obtained for two dollars and a quarter per cord, coal is found to be cheaper, and ten years experience on the above railroad has established the superiority of coal over every other kind of fuel. Common locomotives with large fire-boxes can be altered with very little expense, to burn anthracite; all that is required for their success is careful firing—no large lumps being used, and a thin fire kept up.

CHEAP GAS.—In the city of Dublin, Ireland, a new gas company supplies good coal gas at 80 cents per 1000 cubic feet, and no rent charged for meters. This is certainly very cheap gas in such a city, when it is considered that all the coal used is imported from England.

Scientific American.

NEW YORK, APRIL 9, 1859.

REMOVAL.

The SCIENTIFIC AMERICAN *Office has removed from its old location,* 128 *Fulton st.* (*Sun Building*), *to No.* 37 *Park Row* (*Park Building*), *where all letters, packages, and models should hereafter be addressed. Entrance is had to the office also at No.* 145 *Nassau st. Munn & Co.'s American and European Patent Agency is at the above office.*

The Commissioner of Patents.

The appointment of Hon. J. Holt to the office of Postmaster-General has left the Patent Office without its usual supreme director, and the minds of inventors are naturally stirred with much anxiety in regard to the person who shall be selected to fill such an important situation. The qualifications requisite for this purpose are peculiar. The Commissioner of Patents should not be merely a lawyer, mechanic, or man of science, but he ought to be well informed in the arts and sciences and patent laws. He should also possess laborious habits, an analytical mind, impartiality, and conscientiousness in a high degree. It is admitted by all that the two most successful Commissioners we have ever had were Judge Mason and Mr. Holt, both bred to the legal profession. They brought with them into this office cultivated minds, broad views, generous feelings and deep sympathies; and these qualifications gained for them general respect and a deep hold on the esteem of inventors and all who had business with the Patent Office.

In the appointment of such Commissioners by Presidents Pierce and Buchanan, it is much to their credit that they selected men who were more distinguished for mental endowments, and strict integrity, than for political influence. The same motives and spirit should prevail in making the selection of a successor to Mr. Holt. To administer the affairs of the Patent Office with a due regard for the interests and honor of our country and government, the Commissioner must be a man adorned with the qualifications we have here pointed out, and who will do his duty without fear or favor, in a spirit of honest uprightness and liberality with kindness of demeanor. He must make himself felt as the moving power of the department over which he presides, and he must endeavor to maintain the high reputation which it has recently acquired, or the effect will be deeply injurious to the important interests entrusted to his care. If an incompetent person should be appointed to this office, the result would be disastrous in its bearing upon the progress of improvements in the arts and sciences, and would create distrust in the minds of inventors with respect to the integrity of its management.

We have no name to present for the office. It would be manifestly out of place in us to urge any particular one for the position, but we have pointed out what should be taken into consideration in making the selection and we trust that at an early date we shall see the right man in the right place. We believe the President will be cautious in his selection to fill this important official trust.

Science and Poisoning.

One of the most important murder trials which has ever come before our City Courts, was terminated, after eighteen days sitting, on the 26th ult. in the conviction of James Stephens for poisoning his wife. We do not allude to this case as a criminal topic—because that would be entirely foreign to the legitimate order of our mission—but for the purpose of showing the power and subtility of science, in detecting arsenic, when used for criminal purposes. In this case the victim had been dead and buried for nearly a year before the matter was brought before the courts, the body was then exhumed and the intestines placed in the charge of Dr. Doremus for chemical analysis. The result of this was given in detail, in an examination of two hours on the witness-stand; the following is the substance of it:— He found from four to six grains of arsenic in the remains of the deceased woman. At such a period after death much of the arsenic swallowed by a patient, would be absorbed, and the quantity found in the remains was not an exact test of the amount of arsenic taken. The quantity of arsenic sufficient to cause death varied in different persons and under different circumstances. It was on report that a grain and a half had killed; Sir Benjamin Brodie was the authority for that. Two grains, three grains according to the circumstances, were sufficient to cause death. An analysis of two hundred cases of poisoning by arsenic, made by Dr. Lee, established Professor Doremus' conclusions on the subject of the symptoms produced by poisoning with arsenic, which were vomiting, pain in the pit of the stomach (described as a burning pain), a similar pain in the throat, nervousness, and prostration of the whole system, partial paralyzation, diarrhœa, swelling of parts of the body, and a peculiar anxious appearance of the countenance.

The Healthiness of Swill Milk.

On page 230 of the present volume of the SCIENTIFIC AMERICAN, we gave a table of analyses of milk from the Report submitted to the Academy of Medicine on swill milk by Dr. Saml. R. Percy; we purpose now from that report to give a brief explanation of the table:—

"It is proved conclusively by the analyses of swill milk made by Dr. Reid, Dr. Doremus and myself, that it is different in its component parts from milk obtained from cows in the country. Although the amount of solid particles are not much less than in country milk, the proportion of the different ingredients vary very materially. In all the instances in which an analysis of this swill milk is given, the butter and sugar are very largely decreased, while the casein (or curd) and the saline matters are largely increased. The butter is proved by minute analysis to be entirely deficient in the peculiar phosphoric organic compound which is appropriated specially by the brain and nervous system. Whether, upon minute analysis the casein would be found to contain the same proportionate amount of nitrogenous material, I cannot say; I can only imagine that it would not, from the starving condition that children are in who live upon this milk. The chemical and microscopic investigations I have made of this swill milk prove that it is different in its component parts from country milk, and that the globules which should be contained in it are diseased, dead and broken down, even before it leaves the udder of the cow, and that the majority of the butter globules are coated with a viscid substance, a product of their decomposition, which renders them cohesive and different from those in healthy milk.

"Minute chemical analysis, either vegetable or animal, is yet but imperfectly understood, and nothing is yet known which will detect the numerous gaseous poisons which are absorbed into the system, and float and mingle and destroy the vital properties of the blood and nervous system. Beneath the warm rays of the sun the insalubrious marsh pours forth its pestilential miasma, which prostrates the body in fever; but our senses cannot discover, neither can the microscope or the most delicate chemical tests detect, anything different from the common atmosphere. Chemical tests cannot detect animal poisons combined with the milk more readily than they can detect poisons in the blood; but that distillery milk produces injurious effects when taken into the stomach is as certain as that malarious districts produce ague, or foul unventilated crowded rooms produce typhus. Chemical analysis can at present do but little towards detecting the peculiar changes that take place in the milk of a woman when she is angry or frightened, or why that change should make the child sick, nor does it tell why thunder should turn milk sour.

"But chemical analysis does point out with unerring certainty that milk or blood in a natural state contains certain well defined elements, and any great deviation from this state renders these fluids unhealthy and unfit for sustaining life, How greatly these differ from the healthy standard, may be seen from the tables. Into the very minute chemical analysis I have not ventured, but physiological research, observation and careful attention to the symptoms of the little patients under my care, have proved to me that the secretions from unhealthy cows have produced sickness, disease and death, and that it is incapable of forming healthy tissues or an active vigorous nervous system."

Aluminum Becoming Cheap.

It is only a few years ago that this valuable metal was uncommon and expensive, owing chiefly to the difficulty of reducing it from its oxyde. We believe that about three years ago, the market value was no less than $18 per ounce, but so many improvements have since been made in the manufacture, that it now has become cheaper than silver. M. H. St. Claire Deville, of Paris, was the first chemist who succeeded in producing it in anything like large quantities, but his process was very expensive. The oxyde of aluminum had first to be converted into a chloride, and from this reduced to the metallic state by sodium in crucibles submitted to a high heat. When Deville commenced his experiments, the price of sodium was five dollars per ounce, and it required three ounces to obtain one of aluminum. In a very outcast region of the world—cold Greenland—an aluminous mineral called *cryolite* has been discovered in great quantities, from which the metal can be reduced at a very limited cost, and a large factory has lately been erected at Battersea, England, by M. Gerhard, for this very purpose. To 270 parts by weight of powdered cryolite, 150 parts of common salt, and 72 parts of sodium are added and all mixed together in an earthen crucible, which is then covered and exposed to a red heat in a furnace for two hours. The crucible is now removed, uncovered, and its contents poured out, when the aluminum is found in small buttons among the slag. These are again smelted with common salt, and by this means so reduced that when the scum is taken off, the aluminum is poured out into ingot molds. By this short process, M. Gerhard has been able to obtain aluminum at such a comparatively low cost, that he has been able to sell it for about one dollar per ounce.

Aluminum is the lightest of all the metals, its specific gravity being about the same as glass, or four times less than silver. This quality should recommend it for coinage, to take the place of coins of the lowest value. It forms an alloy with all the metals but mercury and lead, and is well adapted for electrotyping, as it deposits easily with the galvanic current.

The London *Mining Journal* states that very useful hard alloys may be made of aluminum and steel. By adding only 8 per cent of aluminum to common steel, a great improvement is effected, and a steel very similar to Bombay wootz, which is celebrated for making sabres, is the result. If common Kaolin, which contains aluminum, is added to iron when being smelted in a crucible, to convert it into steel, an improved product is the result.

EDWARD EVERETT.—We have received from T. H. Leavitt, Room No. 23, Park Building (above our office) an engraving on steel, of this distinguished statesman, orator and scholar. It is a highly successful work of art and does much credit to the engraver, H. W. Smith. The price of the engraving is $3.

Christian G. Ehrenberg.

This distinguished microscopist was born in Saxonia, and is, next to Humboldt, one of the oldest members of the Academy of Science in Berlin. He has devoted the last 40 years of his life to the investigation and microscopic analysis of one order of animalcules, the *Infusoria*. His patience and perseverance are unequaled; and as a reasoner on the observations he makes, he is generally logical and sound. The microscope owes him many improvements, and his name stands among the highest of those on Science's scroll of fame. Europe, Asia and Africa have seen him wandering in search of *Infusoria* recent and fossil, and his agents in America, Australia, and other countries keep him well supplied with specimens—some taken from the bottom of deep seas and the tops of high mountains, from the Arctic regions and the torrid zone. It is said that he makes 40 different microscopical analyses of every specimen. The works from his pen are numerous, his "Microgeology" being the best known and fullest of original thought and interesting discovery. When he is removed by death from the ranks of living men, a place will be left vacant that will not easily be filled up.

Mr. L. Breisach read a paper on the life and discoveries of this eminent naturalist at a late meeting of the Polytechnic Club of the American Institute, which was listened to throughout with great interest.

Infringements.

MESSRS. EDITORS:—Will you do me the favor of answering the following queries:—Any person using a patented improvement (knowing it to be such) without the consent of the patentee or owner of the right; is that piracy? and can he be prosecuted successfully on the part of the State as a criminal? Is it a Penitentiary act? I am impressed with the opinion that government having granted the patentee an exclusive right and property in his invention patented, makes it piracy for any one to take and use that property without consent of the patentee or owner of the right; just the same as for any one to take another's horse and convert to his own use and profit without consent or knowledge of the owner.

Yet I know it is usual to prosecute for infringement and get damages; but if against a poor willful man, what satisfaction can complainant get? If piracy, then the injured man can prosecute to some purpose, and defend his rights; if it is a criminal act, then there would be less danger of infringements, in such case, one would be more successful in deterring others from using his patent by prosecuting for piracy rather than infringement. I shall feel thankful for any light you may give me on the subject.

A SUBSCRIBER.

A patentee may apply to the Court for an injunction to prohibit an infringer from the manufacture of the patented article. And if the infringer disregards the order of the Court, by continuing to make the article after being enjoined, he is liable to punishment by imprisonment for contempt. The act of infringement, however, is not one of a criminal nature.—EDS.]

BELTING.—A correspondent—C. Green, of Bethel, Ohio—in alluding to the account of experiments with india-rubber and leather belting, published on page 216, states that the difference in adhesiveness of belting under different degrees of tension is very great. He asserts that belts kept in proper order—soft and pliable—have three times the adhesiveness of those made from the same leather, but which are hard and stiff. To keep leather belting in good condition he has never found any thing equal to fish oil mixed with spent gudgeon grease—the grease caught in the waste pans of journal boxes. This makes the leather soft and pliable—an important consideration, more especially for belting running rapidly over small pulleys.

History and Mystery of a Teacup.

[Concluded.]

As all clays are very absorbent of moisture, like a sponge ; when they are heated, this is of course driven off as steam, and consequently the clay shrinks in volume, and could not well be made into any article of regular shape as it would be liable to become distorted in form, and crack ; so that it would be one of those vessels which would "hold no water." To prevent this shrinking, or rather to counteract it, another material is introduced in the manufacture of crockery, and this is pure silica, which is plentifully found in nature in what are known as "flints." These are found rounded, in the chalk rocks, running in parallel lines, and in separate nodules or pieces. It has long been used for gun-flints, its hardness enabling it to strike a spark when struck sharply against steel. Flints will not melt at any heat that can be obtained in the baking furnace, and so when reduced to powder, and mixed with the clay it forms a kind of skeleton on which the clay can shrink without losing its form.

Having got together the materials, let us proceed to see how our teacup was made from them. The clay is first mixed with water in a trough until the mass is like cream, and then passed through a series of seives until the desired fineness is obtained, what remains on the seives being sent back to be, as it is called, "bludged" again. The flints are heated red-hot or calcined and thrown into water where the sudden cooling breaks them into pieces, and they are then ground in a mill, the bottom of which is paved with hornstone (a siliceous stone resembling flint, so that the particles wearing off do not injure the flint), and the rolling stones are made of the same materials. When the flints are ground they form a paste, water being added in the mill. The clay and flint can now be made into "slip," which consists of clay, weighing a pound and a half to the pint measure, and the flint two pounds. This mixture is carefully evaporated during the process, the whole being carefully stirred to the consistence of a tough paste, which the operators work about until it is very perfectly incorporated, and all the air bubbles are expelled. This is left to lay as long as possible, for like many other things it improves with keeping, and is capable of better molding.

Our teacup being now in the chaotic state, an unshapen mass of clay lying in a manufactory, the hand and genius of man have to call forth from that heap of plastic matter articles of beauty, utility, and grand destiny. Wonderful clay! How fit an image of the child, that can be formed and molded in the ways of good or evil, which it will rigidly retain through all its days, according to the molder's hand, skill, and knowledge! Those heaps of different qualities, how different their destinies, and how separate the paths of being of even distinct kinds of clay. That porcelain shall associate with kings and queens ; high lords and rich ladies shall handle it with delicacy, and the fingers of the artist shall decorate it, to suit it for its grand position ; the colors shall be all true, and the pictures good. That common clay, how hard its lot! sold at an auction for sixpence the price of our teacup); it has to battle with misfortune ; to be ornamented with the false and ugly, not the true and beautiful; to be cracked and splintered, and only touched by the hard hand of some heroic son of labor, whose artistic taste it spoils each moment, while it consoles and refreshes by the cheering beverage within. When MM. Delf and Porcelain part company at the maker's gates, what different existences they are fated to lead, what diverse scenes to see, and yet in the end, like rich and poor among men, their equality will be proved by their meeting in the common Crockerydom of earth—the dustbin, or the contractor's cart.

It is not quite fair, for while we have moralized our teacup has suffered. Let us now describe how it was produced from its heap of clay. The potter is sitting at a table on which is a horizontal wheel, placed on a vertical axis, and revolving very rapidly, and some clay in the proper condition of plasticity. He takes the quantity of clay he thinks he will require, and Experience, that great teacher, gives him such just ideas of quantity, that he seldom takes too much or too little; having taken up the lump in his hand, he throws it on the center of the wheel, and putting the fingers of one hand in the center, and the palm of the other outside, and pressing both hands together or to one side, as may be necessary, he draws up or "throws" as he calls it, our teacup in an instant. He then improves its shape with a wooden tool, and when he thinks it perfect, a boy cuts it off with a wire and takes it to dry. When it is hard enough to stand a surgical operation, it is placed in a lathe and turned to a finish, and any parts that could not be produced at the wheel are put on, such as the handle and base, a little moist clay serving for cement. Our teacup has now to commence its fiery trials; being first dried in a stove and then baked. In order to be baked, the vessels are placed in cases of fireclay called *seggars*, piled one on top of the other, but there are never two tiers of vessels in the same seggar ; and a layer of sand prevents the bottom of the vessels adhering to the seggars, while the seggars protect the vessels from the unequal action of the fire. These seggars have no tops, the lower part of one forming the top of the other. They are all placed in a kiln which is heated slowly at first, but when the heat is increased to the proper temperature (known by trial pieces of clay), all the apertures are closed, and the kiln allowed to cool as slowly as possible. The ware is now called "biscuit," and is ready to receive the color. The device being first cut in copper, the copper plate has the color mixed with oil when applied, and it is printed on a piece of soaped paper. The paper is applied with the printed side to the cup while the color is still moist, and the "biscuit" absorbs the color. The articles being placed in warm water, the paper peels off. The oil is then driven off in an oven, and the teacup being dipped in a glaze made from white lead and powdered flints, which is distributed evenly over the surface of the cup, it is placed in a kiln again and heated until the glaze "runs" or covers the whole with a vitreous coating, when our teacup is finished and ready to be packed up, and sent away to—anywhere ; this particular one having fallen into our possession.

How do you like the story? It is plain and simple, but quite true, so that it has an advantage of the fairy tales of childhood, and the lesson we may learn is, that teacups are not immaculate, and their insensible existences not all peace ; for even after they have passed through the critical periods of their manufacture, they are still liable to be destroyed by accident or carelessness. Therefore, say we, be careful of your teacup !

P. S.—As though to enforce our moral in rising from our seat, we have just shaken the bookcase, causing a suddent descent, and the handle has dissolved partnership with "Our Teacup."

Mail-clad War Ships.

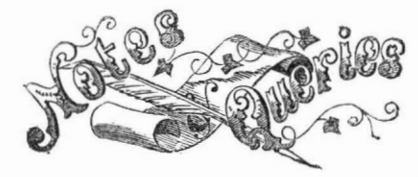
The British Government are about constructing two of the largest class line-of-battle-ships, with steel clad sides—every slab of metal being 4½ inches thick. There are two vessels of the same class now being constructed, for the French navy at Toulon. Uncle John used to boast of "the wooden walls of old England," but in his old days, he is beginning to think that iron sides are better than those of oak.

We are indebted to the Hon. H. F. Clark, M. C. for this city, for a complete set of Patent Office Reports.

A Proposition for Propulsion.

The dynamic force of the waves has been known ever since the sea was first seen, and every mariner or passenger on the "mighty waters" has at some period been uncomfortably impressed with the lifting power of the heaving waves. J. W. Shively, of Washington, D. C., proposes to make good use of this immense amount of power, and by its means propel the ships that ride upon its briny bosom. He proposes to build ships provided with lifeboats, or suitably shaped buoys, at the bow and stern, and along the sides ; these are to be connected by suitable machinery to paddle-wheels or a propeller, which will operate them by the up and down motion caused by the waves. It is true that the ship also rises and falls, but from her great (comparative) weight, she is not affected so much as the buoys, and it is this difference which will move the propeller. He would also erect works upon the coast line, and move the machinery by the force of the breakers or waves elevating and depressing the floats, and this would be conducted by levers and proper mechanical devices into the mill to turn lathes or move planers or any machine tool that may be there.

Mr Shively wants a capitalist to enable him to realize his visions of the cheapest motor known. Who will be the first to speak ?



*** Persons who write to us expecting replies through this column, and those who may desire to make contributions to it of brief interesting facts, must always observe the strict rule, viz., to furnish their names, otherwise we cannot place confidence in their communications.

We are unable to supply several numbers of this volume; therefore, when our subscribers order missing numbers and do not receive them promptly, they may reasonably conclude that we cannot supply them.

J. M. A., of Ill.—Wash your rose-bushes with tobacco water. It will quickly kill the bugs, and the rose will regain its fragrance in a day or two. It should be applied to the bush by means of a syringe.

G. G. D., of Mass.—We prefer a long to a short stroke engine when the cylinder is well protected and the cut-off used ; not otherwise.

A. M'C., of R. I.—It is somewhat difficult to mend torn india-rubber shoes. A warm varnish, made with shreds of india-rubber dissolved in naphtha, is the best remedy that we have tried for this purpose.

P. G. P., of Pa.—If you will read the notice at the head of this column you will understand why we cannot give attention to your inquiries.

J. H. P., of N. Y.—We have not a particle of faith in the "going to bed" nonsense contained in the paragraph you send us. We have reposed with our heads towards every point of the compass, and somehow manage to feel pretty much the same every night.

G. B., of N. J.—We have not seen any of the pressed artificial stone to which you refer. No bricks made without firing have been employed for building in this region, nor would they suit our climate.

C. R., of Mo.—We have stated in former numbers that it agreed with our own practical experience that water-wheels did more work at night than during the day. We never made any critical experiments, however, to test the question. Your improvements in the conical burr mill appear to be patentable.

W. R. L., of N. Y.—Common writing ink is not indelible. Resin in solution is used for sizing writing paper in France and America. In England gelatine is used in many instances. Halvor Halverson's indelible pencil is the best we have seen. It would take up too much time and space to describe it for you.

H. D. W., of Mich.—You have not hit upon the method of moving the "perpetual motion" in Barnum's Museum. Rotary engines have been built with two, three and four steam ports, but no advantage can be obtained from such arrangements.

H. M. S., of Mich.—If you write to Professor Henry at Washington he may forward you a report of the Smithsonian Institution. All sounds travel with the same velocity, but their intensity is greatest in a straight line from the object which causes them. A steel spring will break sooner while running under water, on account of the greater resistance which it has to meet and overcome.

J. W. H., of Ill.—Several devices have been invented for consuming the smoke of bituminous coal under boilers and in furnaces, but none are in use for common grates and stoves. You should try to invent some smoke-burner for dwelling-houses, as it would be a valuable improvement for your region, where bituminous coal is exclusively employed for fuel.

W. R. S., of Pa.—We never heard before of a railroad car wheel having its cohesive qualities uniformly destroyed by running 10,000 miles. We do not believe that this is the case.

P. L. H., of Pa.—Your best way to polish mold boards is to grind them on a rough stone first and then a smoother one, with cold water. Acid will not help you.

E. P. P., of C. W.—Your question is rather ambiguous ; but as near as we can answer you, a bushel of corn and cobs ground together are worth fifty-five cents—*i. e.*, if a bushel of the corn alone be worth a dollar.

E. T. M., of S. C.—In some cases it may be expedient for persons living adjacent to cities supplied with gas, to obtain it in strong portable bags or cylinders, and transport it to their houses, but we believe that it would be much cheaper to manufacture the gas on their premises.

G. O. E., of New Orleans.—Any of the turbine wheels placed in "draft-boxes" will run in what is called "back-water." They operate when deeply submerged as long as they have any head at all.

J. G., of C. W.—A certain amount of steam taken direct from a boiler will heat a certain amount of water to the boiling point sooner than a like quantity of steam admitted to, then exhausted from, an engine. A considerable amount of condensation takes place in steam while it is doing mechanical labor; the heat of the steam is thus converted into work.

T. R. F., of N. S.—We really do not understand your views clearly in regard to submarine telegraph cables. If we are right in regard to their meaning, you believe that magnetism is the sole power which telegraphs messages, and that every cable is a magnet. Electricity, and not magnetism, makes the records in a chemical telegraph; but in the Morse telegraph, electro-magnetism makes the records.

J. T., of Ky.—The way to make sulphurized oil is to add the flower of sulphur very slowly and cautiously to the boiling oil. If you plaster your concrete building on the outside, and paint it with boiled linseed oil, in which one pound of the acetate of lead has been added to the gallon, it will answer as well as the sulphur-oil, You may color such oils with any of the common pigments.

W. W. L, of Conn.—It is a very prevalent but erroneous notion that a rifle ball fired over a sheet of water, is more powerfully attracted—and therefore carried to a less distance—then when fired over land. This opinion no doubt originated in the deceptive influence of vision regarding distances on levels, such as lakes and the sea. There is no difference in the amount of attraction exerted on land and water. A rifle ball fired in the vicinity of a mountain, will be attracted to the elevation, because the attraction is in proportion to the mass.

G. M., of Pa.—An excellent whitewash is make by slacking lime in a barrel or other vessel, then thinning it down to the proper consistency and adding a pound of salt to every five gallons. When cool, add about half a gallon of sweet milk, which will render it less liable to be washed off with rain. Now is the season, for putting in execution good whitewashing receipts. For outhouses and fences, if a pound of copper is added to every five gallons of the above whitewash, a very durable buff-colored wash will be produced.

W. D, J., of N. Y. —About from thirty to fifty gallons of crude oil are obtained from a ton of Breckenridge or cannel coal. There is a coal called Liverpool cannel. The Torbane Hill Scotch coal is the richest for making oil in Europe. From 60 to 70 gallons are obtained from a tun. Retorts six feet in diameter are now used for distilling oil: they are said to be better than small ones. They residue left in the retort after distillation is coke.

T. C., of Me.—The mucilage of commerce is made from dextrine dissolved in water.

Money received at the Scientific American Office on account of Patent Office business, for the week ending Saturday, April 2, 1859 :—

I. K., of Ill., $25; W. K., of Pa., $100; N. B., of Wis., $30; J. C. B., of N. Y., $95; H. A., of Fla., $30; W. D. B., of Ill., $30; G. G. B., of Mass., $30; C. C., of Mass., $10; J. G. E., of Pa., $30; C. L. H., of Vt., $30; A. F. G., of Mo., $34; C. B. C., of R. I., $25; C. H. B., of Pa., $30; H. H., of Mass., $300; J. S. P., of R. I., $25; A. & H., of Ct., $30; H. H. E., of Ill., $34; W. H. K., of Ill., $25; H. H., of Pa., $30; S. A. G., of N. Y., $25; T. R., of N. Y., $30; O. L., of N. Y., $20; H. P. C., of Ill., $30; J. E. C., of Mass., $65; J. W. H., of Tenn., $25; J. A., of Ct., $10; G. J., of N. Y., $90; D. D., of R. I., $62; E. H. W., of La., $48; J. K., of O., $30; M. DeC., of Ind., $10; M. A., of N. Y., $30; L. R., of Ind., $5; G. R., of N. Y., $30; J. R., of Mich., $25; E. O. B., of Ill., $30; E. D., of Ark., $50; W. B., of Ga., $25; W. J. B., of Pa., $25; L. M., of Mich., $25; C. P., of Mass., $30; H. & R., of Ind., $30; H. K. S., of Mass., $30; L. R., of Mass., $27; G. K., of N. Y., $20; G. W. M., of Pa., $30; O. S. Q., of Ct., $30; B. A. G., of Ill., $25; E. C., of Mass., $50; J. D. F., of Iowa, $30; E. T., of N. Y., $30; H. B. K., of R. I., $30; D. H. H., of Ct., $30; J. L., of La., $25; G. T., of N. Y., $30; L. K., of Pa., $25; J. S. S., of Ind., $7; R. J. W., of N. Y., $30; H. W. A., of N. Y., $150; S. B., of N. Y., $20; N. J. H., of N. Y., $25; G. & M., of Pa., $30; J. S., of N. Y., $25; J. A., of N. J., $25; R. M., of N. Y., $55; B. P., of Ind., $20.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, April 2, 1859 :—

J. K. of Ill.; W. J. B., of Pa.; C. W. of Mass.; F. & J. S. of Cal.; J. W. H. of Tenn.; T. R. of Mich.; J. L. of La.; B. & D. of Paris; B. & B. of Ill.; H. H. of Pa.; S. A. G. of N. Y.; J. F. & E. P. M. of N. Y.: J. W. G. of Vt.; J. S. of N. Y.; J. C. D. of Ky.; J. A. of N. J.; J. A. of N. Y.; J. S. S. of Ind.; E. D. of Ark.; A. W. P. of N. Y.; A. & O. of Ill.; J. W. R. of Mo.; E. . W. of La.; W. H. G. of Mass.; C. B. C. of R. I.; J. S. P. of R. I.; J. C. B. of N. Y. (2 cases); W. B. of Ga.; W. H. K. of Ill.; B. A. G. of Ill.; A. D. of Mass.; S. B. of N. Y.; N. J. H. of N. Y.; L. K. of Pa.; R. M. of N. Y.

IMPORTANT TO INVENTORS.

AMERICAN AND FOREIGN PATENT SOLICITORS.—Messrs. MUNN & CO., Proprietors of the SCIENTIFIC AMERICAN, continue to procure patents for inventors in the United States and all foreign countries on the most liberal terms. Our experience is of thirteen years' standing, and our facilities are unequaled by any other agency in the world. The long experience we have had in preparing specifications and drawings has rendered us perfectly conversant with the mode of doing business at the United States Patent Office, and with most of the inventions which have been patented. Information concerning the patentability of inventions is freely given, without charge, on sending a model or drawing and description to this office.

Consultation may be had with the firm, between nine and four o'clock, daily, at their principal office, 37 Park Row, New York. We established, over a year ago, a Branch Office in the City of Washington, on the corner of F and Seventh streets, opposite the United States Patent Office. This office is under the general superintendence of one of the firm, and is in daily communication with the Principal Office in New York, and personal attention will be given at the Patent Office to all such cases as may require it. Inventors and others who may visit Washington, having business at the Patent Office, are cordially invited to call at our office.

Inventors will do well to bear in mind that the English law does not limit the issue of patents to inventors. Any one can take out a patent there.

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Circulars of information concerning the proper course to be pursued in obtaining patents through our Agency, the requirements of the Patent Office, &c., may be had gratis upon application at the principal office or either of the branches.

The annexed letter from the late Commissioner of Patents we commend to the perusal of all persons interested in obtaining patents:—

MESSRS. MUNN & CO.—I take pleasure in stating that while I held the office of Commissioner of Patents, MORE THAN ONE-FOURTH OF ALL THE BUSINESS OF THE OFFICE came through your hands. I have no doubt that the public confidence thus indicated has been fully deserved, as I have always observed, in all your intercourse with the Office, a marked degree of promptness, skill, and fidelity to the interests of your employers.

Yours, very truly, CHAS. MASON.

Communications and remittances should be addressed to MUNN & COMPANY,
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EDWARD CONROY'S PATENT CORK-CUTTING MACHINE.—This machine, which is fully and accurately described in the Scientific American, Vol. XII., No. 46, is now in operation at the patentee's factory, No. 94½ Utica street, Boston, Mass. It is capable of cutting 10 gross of corks per hour, of all sizes, from the smallest homœopathic to the largest jug and demijohn corks. This it effects by means of its adjustable screw, without any expense or loss of time, while its self-feeding and sharpening devices insure the constant motion of the machine, and the most economical and best means of keeping it in order. State rights for sale; or the patentee would be willing to form a company in New York, which should possess the exclusive power to run the machines in that city and State, and in all the Southern States. For particulars address EDWARD CONROY, 94½ Utica street, Boston, Mass. 31 4t

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ANOTHER GREAT COUP D'ETAT IN THE LITERARY WORLD.—Bayard Taylor and the New York Mercury.—The proprietors of the New York Mercury respectfully announce to the public that they have succeeded in effecting an engagement with that distinguished writer, Bayard Taylor, Esq., to devote his graceful pen, in future, to the literary service of the New York Mercury! in which journal he will shortly commence a series of delightfully piquant sketches on the Poetry and Romance of Foreign Travel, being a perfect crystallization of all the humor, wit, anecdote and incident on the Sensation Side of Life Abroad! Full particulars will appear in future announcements. Now is the time to subscribe to the Mercury. $2 per annum or $1 for six months. Specimens sent free. Address

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1* Proprietors, No. 22 Spruce-street, New York.

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A SUBSTITUTE FOR LEAD PIPE.—A New and Valuable Article, viz., a Semi-Elastic Pipe or Hose which can be used with pumps of any kind, for suction, forcing, or conducting water in any and every place where pipe is required. Its properties are:—It imparts no deleterious effects to the water, nor in any way effects it unpleasantly after a few days' use; it is sufficiently elastic to be bent into curves, and it is unaffected by heat or cold: it will not burst if water is frozen into it; it is not injured by exposure to the sun or atmosphere; it is composed of ingredients indestructible, except by fire. Samples of it have been tested by use for three years, without the least apparent decay, and it can be made to bear pressure as high as 400 lbs. to the square inch. Price not far from that of lead pipe. Circulars with prices and particulars furnished by the manufacturers. BOSTON BELTING COMPANY, corner of Summer and Chauncey streets, Boston, Mass. 31 13*

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PATENT HORSE-SHOE MACHINE.—PERsons should be cautious in purchasing patents for Horse-shoe Machines that may be offered for sale. The undersigned has secured the right of the Griffith Patent, and many of the machines now offering are believed to be an infringement on this patent, sold by Robert Griffith to Strickland Knoass, and others, of the city of Philadelphia, Pa. T. SCOTT STEWART.
31 2*

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PERPETUAL MOTION!—THE UNDERsigned has recently invented and patented a wheel, which is both a wind-wheel and a water-wheel. This wheel is remarkably cheap, simple, and strong; and when used as a water-wheel, requires no dam whatever. Any one who wishes to judge of this wheel for himself can easily make a model of it. Take a a number of thin strips of light wood, say ten inches long, and three quarters of an inch wide, bore a hole through the center of each of them, and place them on a common axis; then spread them out like a fan, so that they may slightly overlap each other. Toy-makers will find that a small model of this wheel forms a cheap and beautiful toy for children. For particulars, address W. H. BENSON, Montgomery, Ala. 30 4*

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THE VULCAN FOUNDRY WORKS, LOcated at Frederick City, Maryland, will be sold at Public Sale on the 16th of April inst. These works are driven by steam and water power, and were erected only a few years since, in the most substantial manner, and at a very heavy expense. For full particulars apply to JOHN REIFSNIDER,
WM. H. DOUB,
EDWARD SHRIVER, Trustees of Ezra Doub.
Att'y for McClintock Young. 30 3*

HOLMES, BOOTH & HAYDEN, 81 CHAMbers street, New York, have now in store from their manufactory a complete assortment of Sheet Brass, Copper and German Silver; Brass, Copper and German Silver Wire; Silver Plated Metal, Copper and Brass Rivets, &c., to which they invite the attention of the trade and manufacturers generally, 29 8*

COBURN'S EXTRA OIL—FOR MACHINERY and Burning; warranted first-rate (never gums, will burn in night lamps, &c.) has given satisfaction for ten years during which we have sold it.

JOHN W. QUINCY & CO.,
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GAGE COCKS, OIL CUPS, GAS COCKS, Steam Gages, Globe, Angle and Governor Valves, Flange Cocks, Pumps, &c., manufactured and for sale by HAYDEN, SANDERS & CO., No. 306 Pearl st., New York. 16 13eow*

GROVER & BAKER'S CELEBRATED Family Sewing Machines—495 Broadway, New York; 18 Summer st., Boston; 730 Chestnut st., Philadelphia; 137 Baltimore st., Baltimore; 58 West Fourth st., Cincinnati. A new style—price $50. This machine sews from two spools, as purchased from the store, requiring no re-winding of thread. It hems, fells, gathers and stitches in a superior style, finishing each seam by its own operation, without recourse to the hand-needle, as is required by other machines. It will do better and cheaper sewing than a seamstress can, even if she works for one cent an hour. ☞ Send for a circular.
19 13

WROUGHT IRON PIPE FROM ⅛ OF AN inch to six inches bore; Galvanized Iron Pipe (a substitute for lead), Steam Whistles, Stop Valves and Cocks, and a great variety of fittings and fixtures for steam, gas, and water, sold at wholesale and retail. Store and Manufactory 76 John, and 29, 31 and 33 Platt st., New York. JAMES O. MORSE & CO.
31 13

WATER WHEELS—BALDWIN'S "UNIVERSAL TURBINE" gives better satisfaction than any other water wheel, the overshot not excepted. It gives a higher percentage, with a partially raised gate, than any other. It gives from 75 to 97 per cent, according to the size of wheel and head applied. When you purchase a water wheel, my friends, get the best, if you would save money, as the best is always cheapest in the end, and you will have to make no changes. For further information address, S. K. BALDWIN,
Laconia, N. H.

"We have examined a model and drawings of the 'Universal Turbine,' and believe it to be a scientific water wheel, and one calculated to give the greatest amount of power from a limited quantity of water."
—Munn & Co. 18 13*

EIGHT-HORSE PORTABLE STEAM ENGINE, cylinder 7½ by 15, governor, balance-wheel, &c., attached to a flue boiler, all new. Price $600. S. C. HILLS, 12 Platt-st., New York. 31 c3w

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SOLUBLE GLASS.—TO BUILDERS, ROOFers, Masons and Railroad Contractors.—The Soluble Glass—Silicate of Soda or Potash—with the application of Chloride of Calcium, will make everything fire and waterproof, hardens walls, and produces the hardest roofing cement. For sale by DR. L. FEUCHTWANGER, 143 Maiden lane.

Platina, Cadmium, Oreide, Fluorspar, Oxyd of Manganese, and Aluminum. N. B.—Treatise on Fermented Liquors, with 1,000 Chemical Recipes. 29 6*

LEONARD & CLARK'S PREMIUM LATHES and Planers, Machinists' Tools of all kinds, Portable Engines, at 11 Platt street, New York. 29 8*

BUTCHER'S IMPERIAL CAST STEEL FILES—The subscribers keep constantly on hand a very large assortment of the above celebrated files, which are acknowledged to be unequaled in quality, and to which the attention of railroad companies, engineers, and machinists is invited.

BARTON & SCOTT,
25 26 No. 18 Cliff st., New York.

CLAY RETORTS—THOS. HOADLEY, PATentee of the Patent Pyro-clay Gas Retorts—manufactory Nos. 32 and 34 Front st., Cleveland, O. 24 12*

HYDRAULIC JACKS OF 15, 20, AND 25 Tuns power—Prices, $100, $115 and $130 each. Hydraulic Presses of 15 tuns power, price $150. For sale by JAMES O. MORSE & CO., 76 John and 29, 31 and 33 Platt sts., New York. 25 3mos*

CROZIER'S PATENT BARREL MACHINERY—Five hundred barrels can be made in a day by one set of machines. For machines or rights for State or county, apply to PETER WELCH, Oswego, or to the agents, SLIPPER & GOADBY, No. 2 Broadway, New York. 28 4*

THE DYER & COLOR-MAKER'S COMPANION, containing upwards of two hundred receipts for making colors. 75 cents. Chemistry Applied to Dyeing. By James Napier. Illustrated. $1 50. Either of the above volumes sent by mail free of postage.

HENRY CAREY BAIRD, Publisher,
30 3tc Philadelphia, Pa.

A PARTNER WANTED—WITH A CAPITAL of $2,000, for the building of F. Schott's patented Hand and Power Machines, for the knitting of regular fashionate hosiery. Machines to be seen in operation in Dean street, next to the corner of Grand avenue, Brooklyn, N. Y. 30 2*

EXCLUSIVE RIGHTS WILL BE SECURED to parties in each county to sell Wright's Patent Spring Beds. Where they are not properly supplied, send one postage stamp, and get particulars.

WRIGHT'S SPRING BED CO.,
30 2* 391 First avenue, New York.

PATENT COMPOSITION BELTS—PATENT PACKING—The Company have on hand and are ready to supply all orders for their superior Composition Machine Belting. They are proof against cold, heat, oil, water, gases, or friction, and are superior to leather in durability, and much cheaper in cost. The composition gives to these belts uniform durability and great strength, causing them to hug the pulley so perfectly that they do more work than any other belts of the same inches. The severest tests and constant use in all sorts of places during the last 14 months has proved their superiority, and enables the Company to fully guarantee every belt purchased from them. Manufacturers and mechanics are invited to call, examine, and test these belts. The Patent Packing for planed joints is in every way superior to any other article ever used for that purpose. A liberal discount allowed to the trade. "New York and Northampton Belting and Hose Co.," E. A. STERN, Treasurer, 217 Fulton st., New York. 30 13

DRAINING TILE MACHINES OF THE most approved construction, manufactured by R. R. GIFFORD, Albany N. Y. 23 12*

THE SCIENTIFIC AMERICAN SIGNS, for Munn & Co., were painted by Ackerman & Miller. Refer to the Commercial Agency, McKillop & Wood, Park Buildings. All communications for signs, banners, or other ornamental work, attended to with dispatch. ACKERMAN & MILLER, 101 Nassau st., next to the New York Herald Office. 27 3m

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FOR SALE VERY LOW—SIX FIRST-CLASS Iron Planers, 8 and 12 feet; two Steam Engines, 25 and 30-horse. Z. F. GOODYEAR, New Haven, Conn. 27 7*

WOODWORTH'S PLANING MACHINES of every description, varying in price from $350 to $2,500, and each to plane tongue and groove. Address J. H. LESTER, No. 57 Pearl st., Brooklyn, L. I.
27 8*

IMPROVED MACHINERY.—IF YOU WANT the best portable Engine, Woodworth's or Daniels' Planer, or any other machinery for working wood, for the least amount of money, address HARRISON FLINT, Danbury, Conn. 28 6*

HOYT BROTHERS, MANUFACTURERS OF patent-stretched, patent-riveted, patent-jointed, Oak-Leather Belting; Store, 28 and 30 Spruce street. Manufactory, 210, 212, 214 and 216 Eldridge st., New York. A "Treatise on Machinery Belting" is furnished on application, by mail or otherwise—gratis.
29 12*

CORLISS' PATENT STEAM ENGINES—On application, pamphlets will be sent by mail containing statements from responsible manufacturing companies where these engines have been furnished, for the saving of fuel, in periods varying from 2½ to 5 years. (The "James' Steam Mills," Newburyport, Mass., paid $19,734 22, as the amount saved in fuel during five years. The cash price for the new engine and boilers was but $10,500.) These engines give a perfectly uniform motion under all possible variations of resistance. Two hundred and fifty, varying from about 20 to 500-horse power, are now in operation. Boilers, shafting, and gearing.

CORLISS STEAM ENGINE CO.,
15 26* Providence, R. I.

BOILER FLUES FROM 1 ½ INCH TO SEVEN inches outside diameter, cut to any length desired, promptly furnished by JAMES O. MORSE & CO., 76 John st., New York. 31 13

OIL! OIL! OIL!—FOR RAILROADS, STEAMERS, and for machinery and burning. Pease's Improved Machinery and Burning Oil will save fifty per cent., and will not gum. This oil possesses qualities vitally essential for lubricating and burning, and found in no other oil. It is offered to the public upon the most reliable, thorough and practical test. Our most skillful engineers and machinists pronounce it superior and cheaper than any other, and the only oil that is in all cases reliable and will not gum. The Scientific American, after several tests, pronounced it "superior to any other they have ever used for machinery." For sale only by the inventor and manufacturer, F. S. PEASE, 61 Main st., Buffalo, N. Y.

N. B.—Reliable orders filled for any part of the United States and Europe. 27 13

STEAM ENGINES, STEAM BOILERS, Steam Pumps, Saw and Grist Mills, Marble Mills, Rice Mills, Quartz Mills for gold quartz, Sugar Mills, Water Wheels, Shafting and Pulleys. The largest assortment of the above in the country, kept constantly on hand by WM. BURDON, 102 Front street, Brooklyn, N. Y. 27 tf

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HARRISON'S 20 AND 30 INCH GRAIN Mills constantly on hand. Address New Haven Manufacturing Co., New Haven, Conn. 27 13

MACHINE BELTING, STEAM PACKING, ENGINE HOSE.—The superiority of these articles, manufactured of vulcanized rubber, is established. Every belt will be warranted superior to leather, at one-third less price. The Steam Packing is made in every variety, and warranted to stand 300 degs. of heat. The hose never needs oiling, and is warranted to stand any required pressure; together with all varieties of rubber adapted to mechanical purposes. Directions, prices, &c., can be obtained by mail or otherwise, at our warehouse. NEW YORK BELTING AND PACKING COMPANY. JOHN H. CHEEVER, Treasurer. Nos. 37 and 38 Park Row, New York. 27 13

THE AUBIN VILLAGE GAS-WORKS WERE erected last year by one city and several village companies to their entire satisfaction. Towns having only fifty consumers of gas can rely on the stock-paying dividends; and if one hundred, 10 per cent will be guaranteed. For references, apply to the Company, No. 44 State street, Albany, N. Y. 28 tf

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CARY'S CELEBRATED DIRECT ACTING Self-Adjusting Rotary Force Pump, unequalled in the world for the purpose of raising and forcing water, or any other fluid. Manufactured and sold by

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Also for sale by J. C. CARY, 240 Broadway, New York City. 24 13t

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"They are without a rival."—Scientific American.

WHEELER & WILSON'S SEWING MACHINES—Price greatly reduced. Send for a circular. Office, No. 505 Broadway, New York. 27 tf

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HOLLY'S PATENT ROTARY PUMP and Rotary Engine has no valves or packing, and is the most simple, durable, and effective Force Pump in use, as numerous certificates in our possession will prove. Also manufacturers of the celebrated Rotary Steam Fire Engines, with which we challenge the world, as to portability, time of getting at work, low pressure of steam used, quantity of water discharged, and distance forced. There are now four of these machines in use in the city of Chicago, and one in the city of Boston, Mass. Third class engine weighs about 7,000 pounds, and forces a 1¼-inch stream 200 feet, or two 1-inch streams 180 feet, or one 1¼-inch stream 240 feet, with a steam pressure of from 40 to 60 pounds. Generates a working pressure of steam in from 4 to 6 minutes from cold water. Descriptive catalogues of pumps, engines, &c., sent to all applicants.

SILSBY, MYNDERSE & CO.,
23 13 "Island Works," Seneca Falls, N. Y.

IRON PLANERS AND ENGINE LATHES of all sizes, also Hand Lathes, Drills, Bolt Cutters, Gear Cutters, Chucks, &c., on hand and finishing. These tools are of superior quality, and are for sale low for cash or approved paper. For cuts giving full description and prices, address "New Haven Manufacturing Co., New Haven, Conn." 27 13

WOODWORTH PLANERS—IRON FRAMES to plane 18 to 24 inches wide—at $90 to $116. For sale by S. C. HILLS, 12 Platt street New York. 27 tf

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WOODWORKING MACHINERY—WOODworth's Daniels' and Gray & Woods' planing machines. Sash molding, tenoning and mortising machines. Scroll saws, arbors, &c., made of good materials, and by experienced workmen, at Worcester, Mass., by BALL & WILLIAMS. 22 10*

CALIFORNIA AGENCY FOR PATENTS—WETHERED & TIFFANY, San Francisco, will attend to the sale of patent rights for the Pacific coast. References:—Messrs. Tiffany & Co., New York; Wethered, Brothers, Baltimore; George W. Ponds & Co., Boston. 23 13*

LARD OIL MANUFACTURERS—MESSRS. WM. SKENE & CO. manufacture purified Lard Oil of the best quality, for machinery or burning, in Bullett st., four doors below Main, Louisville, Ky. 25tf

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A MESSIEURS LES INVENTEURS—Avis Important.—Les inventeurs non familiers avec la langue Anglaise, et qui prefereraient nous communiquer leurs inventions en Francais, peuvent nous addresser dans leur langue natale. Envoyez nous un dessin et une description concise pour notre examen. Toutes communications seront recues en confidence.

MUNN & CO. Scientific American Office, 37 Park Row, New York.

Zur Beachtung für Erfinder.

Erfinder, welche nicht mit der englischen Sprache bekannt sind, können ihre Mittheilungen in der deutschen Sprache machen. Skizzen von Erfindungen mit kurzen, deutlich geschriebenen Beschreibungen beliebe man zu addressiren an

Munn & Co.,
37 Park Row, New-York.

Auf der Office wird deutsch gesprochen.

Science and Art.

Glycerine.

Under a process lately patented in England, this substance is stated to be obtained from spent soap-lees, by forcing dry steam of a temperature of 400° Fab. through them. By this means the glycerine is evaporated, and condensed in a separate vessel, upon the common principle of distillation. Glycerine has also been used lately in England mixed with paper pulp whereby the paper so made is rendered soft and pliable, and especially useful for some kinds of wrapping paper.

The Coal Oil Controversy.

MESSRS. EDITORS :—Will you allow me to express to you my feeling of sincere gratification at the broad, manly and consistent course that you have pursued concerning the "coal oil" question. It is unfortunately too rare at the present day to find a journalist who will, without fear or reward, boldly defend the truth or the claims of an individual as you have done. And let me say that I do not doubt but that the minds of all your unprejudiced readers are with you. I think that unless an individual is blinded by interest he must see that Young's claim covers the ground justly, if any claim does. Was india-rubber the special discovery or invention of Goodyear? Was it not kuown, and all its qualities as an impervious material perfectly understood long before his day, yet a patent was obtained for a mode of preparing it so that it could be used for all purposes of life. So, as you remark, Young appears to have been the first to have so prepared coal oil as to adapt it to, and design it for, the general purposes of illumination.

For one, I thank you for the true, disinterested and manly stand you have taken; although I am no more interested in the question than yourselves, yet I love to see courage, honesty, and generosity. R. W.

New Berlin, N. Y., March, 1859.

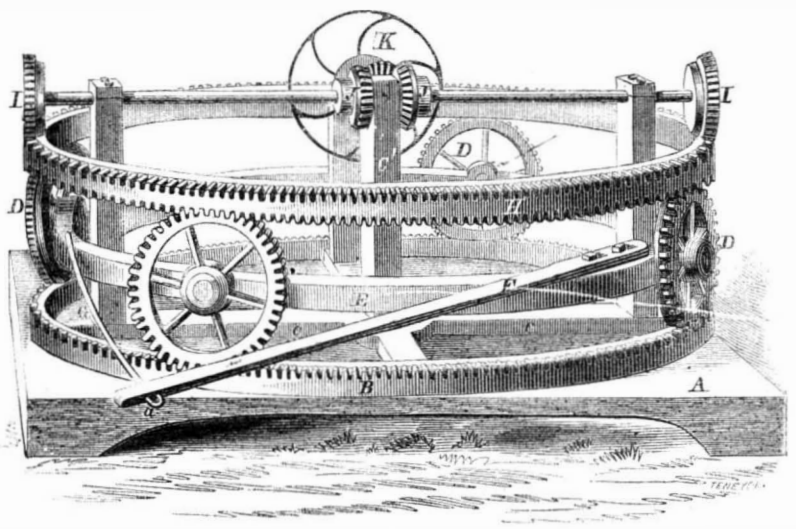
[We cannot refrain from the publication of the above letter, as it is from one of our oldest and most respectable subscribers, and whose calling forbids even the supposition that he is in any way interested in Young's coal oil patent or any other of a like character. He takes a fair and candid view of our position in this discussion, and has also a just appreciation of Mr. Young's rights.

New Horse-Power.

It is not always economical to have a steam-engine to do the work of a farm, but it can never be otherwise than the cheapest in the end for every farmer to obtain some mechanical device with which the strength of the horse can be at any time made available in turning machinery, such as cotton gins, lumber saws, threshing machines, &c. To provide this device, what are called "horse-powers" have been invented, and the subject of our illustration is one of the more recent of them, which we introduce to the notice of our readers, as this is the season when such things are purchased. It has been tested by the proprietors, by gearing it to a forty-five saw-gin, and two mules were sufficient to turn out from 1,500 to 2,000 pounds of lint per day. It is very portable, and any number of horses from one to eight can be applied to it. The inventors are T. H. Wilson and Brothers, of Athens, Ga.

In fixing it for use, it should be secured to some level floor or surface such as A, by pins or clamps. The base of the power that is thus placed is an annular ring, B, provided with cogs and attached to frame, C. On A rest four small cog-wheels, D, connected together by having their axles or shafts at right angles to each other upon a common ring, E; to this ring, E, is also secured a bar, F, the end of which is prevented from being pulled off by a tire, G, that passing through E is looped at *a*, on the other side, and so forms an attachment for the horse, it will be obvious that, although only one is shown in the engraving, as many as there is room for on E can be used. On the wheels, D, rests a ring, H, as large as the lower one, B; H being cogged on its upper and under surface and from receiving motion through the intervention of D which have not only a rotary movement but also a progressive one, H performs two revolutions while the horses are performing one, thus doubling the velocity of the machine at the outset. H gives motion to wheels, I, that run on shafts whose bearings are posts of the frame, C, and whose other ends carry bevel wheels, J, close

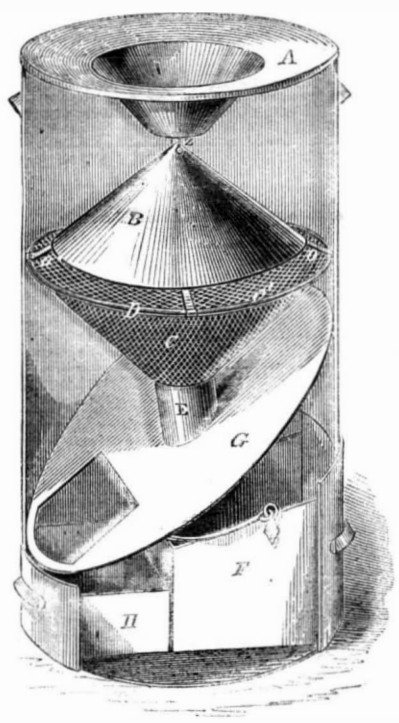
WILSON'S HORSE-POWER.



to the central upright, C′. The bevel wheels, S, give motion through another one to the belt wheel, K, by which the power can be conveyed to any machine desired. By varying the proportions of these wheels, any desired relation between the velocity of the horse and *k* can be obtained, and this excellent horse-power adapted to fast or slow machinery.

It was patented June 1, 1858, and any further information can be obtained from the patentees as above, or John R. Cecil, No. 11 Park-place, New York.

Cummings' Ash-Sifter.



Plentiful as coals are, they are not too cheap to be wastefully burned. By this we do not mean that waste is at any time excusable, but it will pay for the labor and time expended, to sift coals and save the cinders to be reburned, especially when the labor consists simply in throwing the contents of the ash-pit or stove into a sifter, and the ashes and cinders separate themselves, as in the invention we are about to describe.

Our illustration is a perspective view, with half the case removed to show the interior arrangements. The ashes are thrown into the top, A, which is inclined inward and brings them to the top of the cone, B. B does not reach quite to the case but is supported by bars, O, from a ring D, that fits in the case and rests on the top of the seive, C. The ashes and cinders in sliding down the cone are perfectly distributed and fall by their own gravity through the space from O to O on to the seive, C, that is also conical, inclining inwards. The fine dust and ash of course falls through the meshes of the seive on an inclined plate or floor, G, by which it is conducted into a box, H. The cinders, on the other hand, pass through a central tube, E, which opens into the lower part of the seive, and are received in their proper box, F. Should the seive at any time become clogged, the top, A, can be removed and the cone, B, taken out by its handle, *z*, and free access had to the seive, to clean it. This device acts entirely by the gravity of the ashes and cinders, and is one of the best ash-sifters we have seen.

Any information concerning it will be given by the inventor and patentee, Allan Cumming, of 420 Fourth-avenue, New York. The patent is dated March 18, 1858.

Discovery of Noah's Ark.

It appears that in the eastern portion of that good old State whose staple productions are "pitch, tar, turpentine and lumber," some remarkable fossil discoveries have been recently made, among which, is what appeared to be a portion of a vessel's deck, some forty feet in length and bearing a close resemblance to lignite. The time has been when the discovery of such a remarkable fossiliferous specimen would have set all the geologists and archæologists of the country on their heads; but at this enlightened period of the world's history, when the duty of not only managing, but explaining all things terrestrial, has devolved upon a class of men known as editors, it excites no surprise; for the simple reason that, whatever occurs on the earth, or whatever is discovered above or beneath, or in the waters around it, is certain of a speedy and satisfactory solution. See how easily the editor of the Wilmington *Herald* settles this fossil matter:—

"How this vestige of human labor and art came there, is a question easy of solution. We understand that some erudite geologists say that somewhere in Baden county is found the oldest known geological formation in the world. If this be so, if this is the oldest part of the world, it must, of course, have been the first ready for the residence of man, and the first occupied by him; *ergo*, the Garden of Eden was somewhere in the Cape Fear region, which was then a better fruit growing country than it is now. We think Adam must have settled somewhere around this way, for all the people claim to be descended from him. If Adam and Eve started life in eastern North Carolina, it is not probable that Noah wandered far from the old homestead. This supposition gains strength when we consider how Noah pitched his ark. Where else could he have got so much or so good pitch or other naval stores to pitch her within and without? Following up the train of reasoning, why should not these fossil remains have come down from Noah—be, in fact, portions of his ark? To be sure, the absence of Mount Ararat is a little in our way, but when we get to be philosophically regardless of all facts that stand in the way of our hypothesis, we won't mind little trifles like this."

Artificial Fuel.

Little or no attention has been devoted to this subject in our country, and yet it is one which should not be treated with indifference. In England there are several large factories where it is made for ocean steamers especially; and if found to be a profitable business there, we do not see why it may not be made so here. It is generally composed of coal-tar mixed with saw-dust and coal-dust, all heated together and then pressed into square blocks. Fine coal and sawdust, that would otherwise be considered waste, are thus converted into a useful fuel, capable of being packed neatly and carried to any distance.

Morse Honors.

Professor Morse has received intelligence that the Queen of Spain has created him Knight Commander of the Order of Isabella the Catholic. The Swedish Royal Academy of Science at Stockholm has also elected him a foreign member of the academy. Our distinguished countryman enjoys these honors with an additional grace when it is remembered that he has a handsome fortune to couple with them. As the chemist would say, there is a remarkable affinity between these two elements.