

THE
Scientific American,

PUBLISHED WEEKLY
At 128 Fulton street, N. Y. (Sun Buildings.)
BY MUNN & CO.

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

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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.

TERMS—\$2 a year, \$1 in advance and the remainder in six months.

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Subdivisions of Chemistry.

The following extract from a recent lecture by Prof. Campbell Morfit, presents useful information in clear and comprehensive terms:

"Chemistry is that branch of knowledge which teaches the internal nature of bodies, explains the manner in which they re-act upon each other, and affords the means of rendering them available for many useful purposes to which they would be, otherwise, unsuited.

The grand practical division of modern chemistry is into organic and inorganic chemistry. The former, in contradistinction to the latter, relates to the study of substances having life, and existing according to the original formation by nature. A more critically exact classification would be into, 1st, Mineral chemistry, or inorganic chemistry proper; 2d, The chemistry of organized beings, which we so term because though now dead they have had their origin in a vital principle; and 3d, organic chemistry, comprehending those substances which have a present or very recent vital existence.

Analytical chemistry devises methods for detecting the various elements of a compound, and estimating their proportions. Synthetic chemistry enables us to form homogeneous compounds of dissimilar substances, and is sometimes used to verify the results of analysis. Assaying is analysis by the dry method, and without the use of liquid re-agents. Practical or applied chemistry consists in the application of chemical principles to the arts, for example, to the making and fixing of colors for paints or dyes, to the processes of bleaching, soap-making, distillation, brewing, pottery, and glass-making, and to culinary and domestic operations. It is more elegantly termed technical chemistry, and to this branch belongs also metallurgy, or the chemical arts of separating metals from their ores.

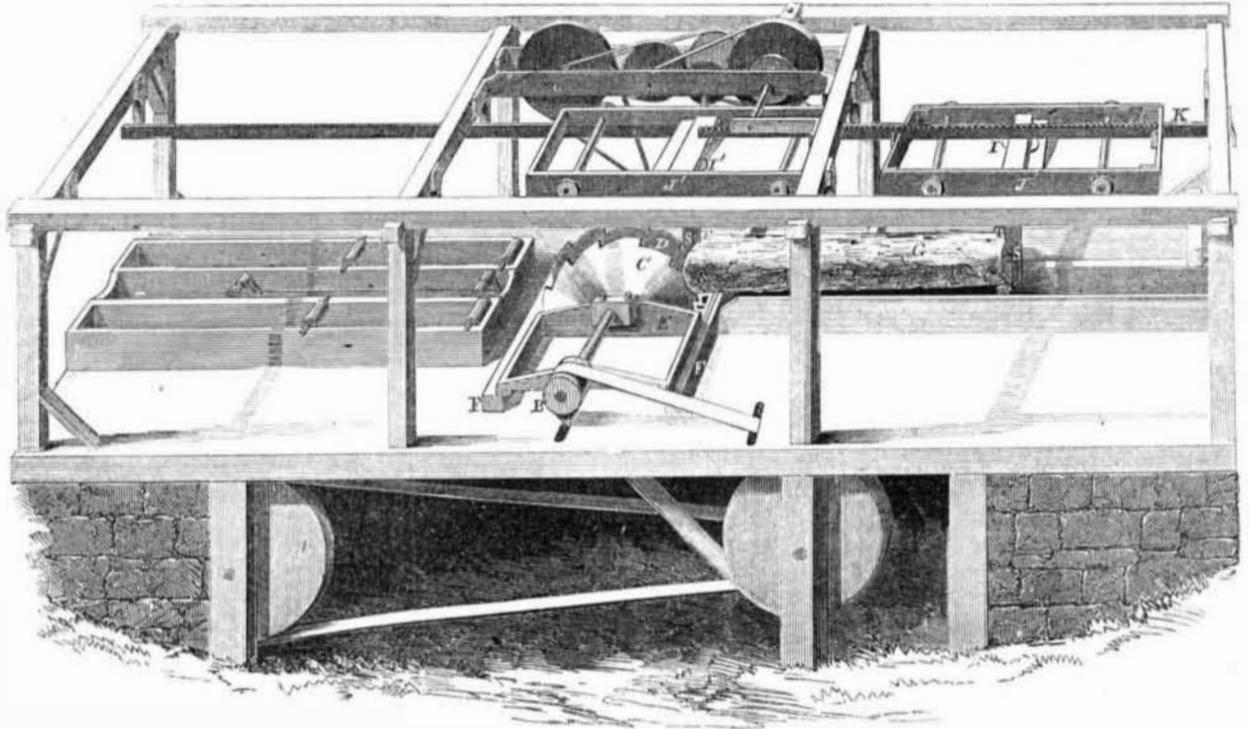
Pharmaceutical chemistry relates to the preparation of remedies employed in medicine. Medical chemistry is allied to physiology, and treats of the application of chemical principles and products in the theory and practice of medicine. Toxicological chemistry refers to poisons,—their special action upon the animal system, and the means of detecting them. Forensic chemistry embraces both of the latter branches, and assists in the legal adjudication of questions concerning life, health, and property.

The subdivisions in the science are many and increasing; and the varied uses to which it is now applied, for the convenience, economy, and profit of the world are so great, that even subordinate branches are growing or taking place out of those that had previously existed.

Legal Tender.

The following item from *Thompson's Bank Note Reporter*, may be new to some of our readers: "American gold coin in any amounts—American silver to the amount of five dollars—three cent pieces to the amount of thirty cents, and one cent pieces to the amount of ten cents are legal tender."

EGGLESTON'S IMPROVED SAW MILL.

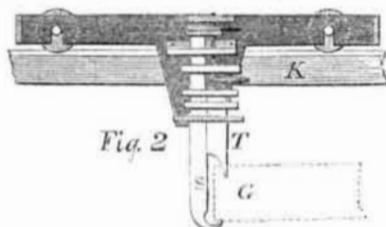


The valuable invention here represented contains two principal features. Two circular saws are employed, and so arranged on sliding frames that they may be moved simultaneously in opposite directions, so that by allowing the saws to approach each other by the proper amount, after each board is removed, each saw is set to the log instead of the log to the saw, as usual: and two cuts are made at the same time on opposite sides of the log. The carriage for the log is also placed overhead, and the log ingeniously suspended thereto, so as to be out of the way, and not to interrupt the movements of the attendants about on the floor.

Fig. 1 is a perspective view of a whole mill, and fig. 2 a section of one of the elevated carriages, J. The same letters being employed to indicate the parts in both figures.

G is the log to be sawed, and C and D are the two circular saws, each mounted on independent arbors. Each arbor is mounted on a separate frame, E, which frame is carried on guide ways, F, in lines transversely to the axis

of the log. Both the frame which carries C, and that which carries D, are provided with long racks, not represented, and these racks mesh into opposite sides of a small gear wheel not represented. This gear wheel is fixed on a shaft which is under control of the Sawyer, and retained by obvious means in any required position. Thus, by turning this pinion, the saws, C and D, are moved toward each other, or separated at pleasure, and the saw-



ing, which is commenced by removing a slab from each side, progresses further into the log as each sawed piece is removed, until there remains a piece of a thickness only equal to the thickness of the dogs, S and T, which

hold the log.

These dogs, S and T, of which there are two pairs, one for each extremity of the log, are precisely similar, except that they face in opposite directions, and each pair is attached to separate carriages, J and J', which carriages run on the same track, K, and can be placed at any required distance apart, according to the length of the log to be sawed. Both carriages are moved steadily forward as the sawing progresses, by the usual means, as represented. By turning the hand wheels, I and I', easily reached from below, the dogs, S and T are made to release their holds on the stuff, and again to seize very firmly on the ends of a new log so soon as it can be placed in the proper position. Every facility is thus provided for working very rapidly and accurately, and the advantages arising from the arrangement are too obvious to require rehearsal. The invention was patented on the 3rd of March, inst., by Mr. Philander Eggleston, of Mobile, Ala., from whom any further information may be obtained.

Hydro-Steam Engine.

A large silk manufactory is being constructed in Newark to be driven by a water wheel, the water for which is pumped in a continuous circuit by steam. The pressure maintained on the jet of water is very great, and the wheel is a small and exceedingly well finished turbine, the diameter of which is only about one foot. The revolutions are consequently so rapid that instead of multiplying the speed in transmitting it to the shafting, as is usually necessary with all machinery of this description, whether impelled by water or steam power, it has in this case actually to be reduced. It is claimed by the inventor, Mr. Wm. Baxter, that the simplicity and economy of the steam pumping machinery employed, is such as to more than balance the waste in transmitting the power through the water wheel, and that consequently the power is produced and given off to the machinery at a less cost for fuel, and with less wear and tear of the machinery, as well as also more steadily, than in the ordinary steam engines. We shall watch the result, and refer to it again.

Endurance of Submarine Cables.

At a meeting of the Institution of Civil Engineers on January 27, there were exhibited

portions of the submarine cables leading to Calais and Ostend, which had been ruptured during the recent gales by a vessel dragging her anchor, as described on page 213. The iron protecting wire had been twisted and ruptured by the force of the vessel hanging upon these cables successively, but the gutta percha covering of the copper wire was but little injured, and exhibited no ragged or disturbed condition, but only a simple and clean break or section. The rest of the covering was represented to be in as good a state as when first laid down five and a half years before.

New Process of Tanning.

We have received from Edwin Daniels, of Elkhorn, Wis., a sample of calfskin "upper leather," tanned by a process for which a patent was issued to him on the sixth of January last. It is well tanned, firm, yet soft and elastic. No bark was used in preparing it, and the inventor informs us that the outlay for buildings and fixtures is just about one-tenth that of tanning with bark, only one vat being required for every ten used in the common process.

Catechu (old *terra japonica*) contains more tannin than any other substance employed in the manufacture of leather; hitherto, how-

ever, it has not been used for making the best qualities of leather, because it rendered the skins tanned by it brittle, and liable to crack. This defect has been overcome by Mr. Daniels, who employs it as the principal agent in his process, combined with the sulphate of aluminum, the nitrate of potash, and an acid, by which the skins and hides are "plumped" in a high degree, and the tannin made to combine with the gelatine in proper proportions to form soft and firm leather, susceptible of a fine finish, free from brittleness, and not liable to crack.

Catechu comes to us from India in the form of a concentrated crystallized extract; it has simply to be dissolved in warm water, and is then ready for use. Considerable machinery and apparatus, such as bark, mills, etc., required for bark tanning, are unnecessary for this process. Persons interested in the manufacture of leather will be furnished with samples by addressing Mr. D.

The Wethered system of combining superheated with common steam, an American invention, is now in use in the British Admiralty yacht *Black Eagle*, and also in H. B. M. steamer *Dee*. The officials report a saving of from 31 to 38 per cent in consequence.



[Reported officially for the Scientific American.]
LIST OF PATENT CLAIMS
 Issued from the United States Patent Office
 FOR THE WEEK ENDING MARCH 17, 1857.

ENEMA-GIVING APPARATUS—B. T. Babbitt, of New York City: I do not claim, in the abstract, the employment of hydrostatic pressure, to give injections.

But I claim the combination of the portable reservoir, A, the flexible tube, C, and the nozzle, D, substantially as described, to form portable apparatus for the purpose of giving enemas or injections by hydrostatic pressure.

[This simple improvement consists in giving a pressure to the fluid, by conducting it from an elevated reservoir. A sufficient height is readily attained by suspending the reservoir from a nail or other fixture near the ceiling of a room. Its convenience can be readily appreciated.]

MACHINERY FOR FELTING HAT BODIES—J. B. Blacklee, of Newtown, and E. R. Barnes, of Brookfield, Conn.: We claim giving to the endless rotating bed of felting machines, periods of rest during the continuous motion of the upper deck, substantially as described.

POWER LOOMS—J. L. Cheney, of Lowell, Mass.: I do not claim supporting the picker staff by a rocker and horizontal rail or stand.

Nor do I claim applying to the picker staff, and its supporting bracket, a curved slotted guide and a roller, as the same is shown in Albert C. Williams' application for a patent.

Nor do I claim applying to the picker staff a spring for the purpose of retracting such a staff.

Nor do I claim applying to the rocker and its stand a spring to bring the rocker back to its place after having picked, and also to secure it to the rail while in the act of picking.

Nor do I claim making the striking point of the picker staff to travel in a straight horizontal line.

I claim my improved picker motion or mechanism as made with a guard stand and rocker, a stationary guide, Q, and a stud or roller, P, and with reference to the picker staff, I substantially as described.

Also, so arranging the top bearing surface of the stand of the rocker that it may incline downward as specified, and so as to obtain all the advantages of a spring without the actual application or use of the same, meaning to claim such an arrangement of the top surface with respect to the rocker and staff, as an improved equivalent to the spring.

LARD LAMPS—J. N. Coffin, of Washington, D. C.: I disclaim the arrangement of flat inclined wick tubes at right angles to each other, that having been done by H. W. Revely.

But I claim the combination of the flat inclined wick tubes at right angles to each other, with the concave reflector, as described, for the purposes mentioned.

ROTARY PRINTING PRESS—J. C. Davis and William Miller, of Elizabeth, N. J.: We do not claim the separate parts of the machine as new.

But we claim the combination of the rollers, E, G, with the shoes, I, Z, and the inclination of the ways, or planes, J, A, and the upright screws, H, for operating the type bed, as substantially as described.

VENERING THE WALLS OF BUILDINGS—George B. Field, of St. Louis, Missouri, and Benj. F. Field, of Beloit, Wisconsin: We are aware that veneering of walls and buildings with iron and stone plates of itself is not new, and we therefore do not claim it.

But we claim the mode or manner described of securing these thin plates of slate or marble to the walls and ceilings of buildings which have been previously built, meaning the combined arrangement of the strips of wood, cement and screws, or the alternative method of the angle iron with iron and stone castings, plasters, cornice string courses, or other ornamental attachments, combined with the cement for the same purpose.

TELEGRAPHIC REPEATERS—M. G. Farmer, of Salem, Mass., and A. F. Woodman, of Portland, Maine: We claim the mechanical obstacle essentially in the manner as set forth, whereby, when the independent circuit has broken the dependent circuit at the instrument, the dependent circuit is prevented from breaking the independent circuit.

BILL HOLDER—E. F. French, of Franklin, Vt.: I claim the pockets, B, placed between the two lids or covers, A, A, the pockets and lids being connected by a cord, b, and having a rod or axis, C, passing through them at one end, substantially as shown and for the purpose set forth.

[The effect of this ingenious device is to very securely enclose and protect the bills when the holder is shut, and to plainly expose the endorsement on the back of each when the file is opened, so that the finding of any particular one is accomplished very readily. The cord, b, regulates the amount of motion allowed.]

GAS GENERATOR—A. M. Giles, of Boston, Mass.: I claim the inner door, E, operating in the manner substantially as described, whereby the heat of the retort is rendered much more intense and uniform, as set forth.

Second, I claim the pipes, D, in combination with the inner door, E, arranged and operating in the manner substantially as set forth.

HINGE—Kingston Goddard, of Philadelphia, Pa.: I claim, first, the socket in the end or (adjusted to the end so as to form part thereof) of the hinge to be acted upon directly by a torsion bar, as specified.

I am aware that torsion bars are used in various ways to close doors, I therefore do not claim the torsion bar, but only the hinges as specified.

PIANO-FORTE ACTION—J. A. Gray, of Albany, N. Y.: I do not claim the general arrangement of the action composed of the various parts, as shown, which is known as the French action, and in common use.

I claim the application of a spring to the hammer butt and jack-fly, causing the hammer to be so raised and kept, in position, that it will allow the jack-fly free play under the shoulder of the hammer butt, when the key is pressed down and the action in motion, as specified.

I also claim the application of the hook to the hammer butt and jack-fly, as herein described, so as to cause them to work together with more precision, and also to bring the hammer to its place after the key has been struck and released.

MACHINERY FOR CLEANING AND SEPARATING COTTON, WOOL, FUR, AND OTHER FIBROUS MATERIALS—Isaac Hayden, of Lawrence, Mass.: I claim, first, increasing the area of the trunk above the screen, or making it larger towards its rear end by increasing its height or width, or both, as may be desirable, so that the blast of air which conveys the materials into or through the trunk will move gradually slower, so as to allow the light and fine, or such portions as are intended to be separated, time to be precipitated and pass through the screen, before the air, which holds them in suspension, escapes from or passes out of the trunk.

Second, and in combination with a trunk made gradually larger towards its rear end, as above claimed, I claim a screen of woven wire or twine arranged upon a series of partitions, as set forth.

MACHINES FOR STUFFING HORSE COLLARS—W. H. Haworth, of Philadelphia, Pa.: I claim, first, the employment of two stuffers, stuffing against each other from both ends of the collar, when such stuffers are made to recede automatically as set forth.

Second, I claim the employment of two alternating sets of such stuffers for stuffing both rolls of the collar, as set forth.

HERNIAL TRUSERS—A. J. Hardin, of Shebby, N. C.: I claim the position and application of the lever, H, in the manner and for the purpose specified.

HARVESTERS—C. Halloway, of Petersburg, Va., assignor to J. B. Maney, of same place: I am aware many devices have been arranged for raising and lowering the cutters from the tongue of the machine. This I do not claim, independent of my special manner of accomplishing this end.

But I claim, in combination with the cam, P, connected to the frame by a link, Q, and to the tongue by a strap or yoke, the slot O, at front, and the lever connections, L, M, at the rear, so that the machine may swing forward and back as it is lowered or raised, but be rigid when the draft is on, as set forth.

PRINTING PRESSES—Horace Holt, of Winchester, Mass.: I claim operating the "platen," G, by means of the cam, C, slide D, and arm E, connected with the platen by the rod F, and also operating the plate J, to which the form, I, is attached by means of the rod, e, connected with said plate, and made to bear against the face of the cam, when said parts are arranged as shown, or in any equivalent way, so that the platen, G, and form, I, may be operated conjointly by the cam, C, as described for the purpose set forth.

I also claim, in combination with the means above named for operating the platen, G, the rotating and vibrating ink-distributing roller, M, when operated as shown and described.

I further claim throwing the printed cards from the platen, G, by means of the levers, N, O, attached respectively to the platen G, and plate J, arranged as shown and described, or in an equivalent way.

[This press is designed more particularly for printing cards, and as all the movements are derived from a simple motion of a cam, it is susceptible of being worked either by hand or by power.]

METHOD OF CLEANING FIBROUS MATERIALS—John Howarth, of Salem, Mass.: I claim the described process of cleaning fibrous materials, as set forth.

BRICK MACHINES—A. V. Hough and R. W. Jones, of Green Castle, Ind.: We claim the use and application of two horizontal shafts, provided with oval or flanged wings, V, on one side, and arms or beaters, Y, on the opposite side, in the lower perforated chamber, O, and in combination therewith, for the purpose of moulding and pressing the brick in the manner and for the purpose set forth.

HARVESTERS—M. G. Hubbard, of Penn Yan, N. Y.: I claim a shiffling seat, when constructed, arranged and combined with a harvester, substantially in the manner and for the purposes set forth.

PHOTOGRAPHIC PLATE VISE—J. W. Jarboe, of New York City: I do not claim the employment of a cam to bring the moveable jaw up and to tighten it upon the work.

But I claim the combination of the screw, F, and its attached cam, G, with the moveable jaw, K, and the sliding piece D, the said jaw and sliding piece working in separate grooves or their equivalents, and the whole operating substantially as described.

[This novel arrangement enables the moveable jaw to be very readily and rapidly adjusted to any size of plate, and to be tightened upon the plate in a very expeditious manner. It will commend itself to photographers as one of the best and simplest devices for the purpose.]

COMPENSATING THE LOCAL ATTRACTION OF THE MAGNETIC NEEDLE ON SHIPS—Calvin Kline, of New York City: I claim the surrounding metallic ring or rings, r, the modifications thereof, constructed, combined and arranged with the needle of a compass, substantially in the manner and for the purpose set forth.

FIRE ARMS—S. K. Lovewell, of Gardner, Mass.: I claim the use of the spindle as above described, and in the manner above described, applied to guns of any size and calibre.

CONVERTIBLE CIDER MILL—Samuel Males, of Cincinnati, O.: I do not claim as new any improvements in the separate machines.

But I claim rendering the machine readily convertible from a cider mill to a corn sheller, and vice versa, by making the concaves, D, K, hoppers, H, n, and cross beam, m, in the described form, the "cylinder" and driving gear being the same in both cases as set forth.

GAS BURNERS—John McHenry, of Cincinnati, O.: I claim the removable disc, e, as a means of varying the size of the throat of the burner, as and for the purposes set forth.

MACHINE FOR PLANING TAPERING STAVES—Valentine Munk, of Carrollton, La.: I claim the adjustable table, n, and n', and making said table guide the cutting head, t, substantially as and for the purposes set forth.

I also claim, in combination with the table, n and n', and cutting head, t, the angular side cutting heads, W, 2, to secure from the variation of the table, n, 2, tapered planing on the edges of the lumber, substantially as specified.

SEWING MACHINES—J. J. W. Robertson, of New York City: I do not claim the broad idea of pulling the cloth through a sewing machine, independent of any tool or contrivance for so doing.

Neither do I claim the broad idea of moving cloth by means of hooks in all kinds of machines, for an example of such a movement is seen in the weaving temple of J. G. Tilton, patented 1835.

But I claim feeding the cloth in sewing machines by means of a hook, having one or more points constructed, and operated substantially as described.

CAST IRON WHEELS FOR RAILROADS—J. M. Ross, of Springfield, Mass.: I claim nothing in Mr. J. M. Sigourney's mode of constructing his wheel.

But I claim my mode of constructing the plate, A, viz., by gradually increasing the thickness of the disc, as it recedes from the hub and tread of the wheel, in the manner and for the purposes substantially described.

FLUID LAMP BURNERS—R. W. Sargent, of Philadelphia, Pa.: I do not claim the burner tube, chamber A, the arrangement of the mainwick or tube, a.

I claim, first, the making of the chamber for the heat ing flame in lamps, in which burning fluid, spirit gas, or other highly volatile fluid is used, so that it nearly or wholly surrounds the burner tube, and is so arranged, in order that the heating flame being sheltered from the exterior and confined within the outer chamber, and in immediate contact with the inner chamber, may effect its purpose more steadily and with less consumption of fluid, the form of the outer chamber being substantially as above, and as represented in the annexed drawings.

Second, I claim surrounding the tube with a wick and packing, substantially as above described in order to supply the heating flame with fluid and the making of the burner tube with a flange and shoulder as described, in order to afford space for said wick and packing, and the perforating the burner tube with apertures, through which fluid may be supplied with fluid.

Third, I claim the regulator substantially as above described, moveable up and down upon the burner tube, in order to regulate and control the heating flame.

CUTTING AND BENDING SHEET METAL—Elliot Savage, of East Berlin, Conn.: I do not claim so applying the clamps and cutters to separate frames or a bow and half bow, that the cutters jointly be moved in halves or away from the clamps, without any disturbance of the positions of the cutters relatively to one another.

But what I do claim is constructing and arranging the frame which carries the clamps with respect to that which carries the cutters, substantially as described, that is so that while the clamps are being forced together or made to seize a plate of metal they shall not spread the cutters apart.

I also claim the mode of constructing the compound lever of the bending rollers, and arranging the rollers thereon, the said compound lever being composed of a bent lever and arm, and the rollers being applied to them respectively in a manner as above explained.

I also claim combining with the clamps, their crank shaft and the bending rollers, the auxiliary crank shaft, or equivalent means by which the bending roller, M, may be rotated independently of force applied through the clamps, and so that the middle of the metallic plate shall not be subjected to injurious strains by the bending rollers.

METALLIC SEALS—Joseph Wappenstein, of Philadelphia, Pa.: I claim a metallic seal, wafer, or fastening, for securing letters, packages, &c., composed of two pieces of the shape described, and united together, and to the thing to be fastened, substantially in the manner set forth.

RECIPROCATING CIRCULAR SAWING MACHINE—Osborn E. Stephens, of McCall's Ferry, Pa.: I claim a saw arranged to traverse horizontally, so as to cut a score in one side of the log to be sawed, and then moved perpendicularly, so as to traverse horizontally in the opposite direction, to cut a score in the opposite side of the log, to correspond with, and cut into the first score, and cut off a portion of the log, substantially as described.

I claim the devices substantially such as are described, for changing automatically or by hand the motion of the carriage which traverses the saw horizontally in each direction, for the purposes set forth.

I claim the devices, substantially such as are described, for changing automatically or by hand the motion of the carriage that traverses the saw perpendicularly, for the purposes set forth.

I also claim the devices arranged to fill the scores in the guide, e, so as to let it slip by the locking lever, h, as described.

MOWING MACHINES—John Taggart, of Roxbury, Mass.: I do not claim a series of cutters in their application to grass and grain harvesters.

Neither do I claim a knife sharpener.

But I claim a series of rotary cutters working in recesses or guides, S, S', in combination with a knife sharpener, T, when the said parts are constructed and arranged for operation in the manner and for the purpose as set forth.

GRADUATING CARPENTER'S SQUARES—Hem an Whipple, of Shaftsbury, Vt.: I claim, first, the scale index, m, mounted upon the carriage, B, and regulating the extent of motion given to said carriage from the truck, v, and pusher point, whereby the length of the scale, and bringing them to the exact position from the edge of the square, substantially as specified.

Second, I claim the arrangement of the rack, r, lever, k, and its actuating cam or pin, pawl, y, rod, n, and weight, x, or its equivalent, for moving and adjusting the index, m, to be acted on by the pusher, v, substantially as specified.

Third, I claim arranging the graver stocks, g, within the carriage, b, substantially in the manner and for the purposes specified, when said graver stocks are governed by the levers, L, adjusting rail, h, and springs and rods, S, or equivalents, for pressing down the graters in cutting, and thus lifting the same up off the square while returning, as specified.

Fourth, I claim the arrangement of the scroll cam, D, and its actuating cam, a, lever, b, latch, i, inclined wedge, f, and clutch or friction lever, p, for moving said bed, c, and its squarewise the required integral part between each stroke of the graters, and then stopping the machine when the divisions are completed, substantially as specified.

Fifth, I claim the manner of securing the graters, e, in place, and bringing them to the exact position in the stocks, g, by means of the mortise bolt, b, constructed and operating substantially as and for the purposes specified.

I do not claim regulating the extent of motion given to the graver stocks in drawing back by means of cams, as these have been used, it being understood that I do not intend a mortise bolt to secure a bar or tool, as this has before been used.

But I am not aware of any mortise bolt having before been constructed with the mortise for the tool eccentric, or one side of the mortise partially removed, so that the flat side of the graver is pressed to the side of the mortise in the graver stock, by the turning of said mortise bolt, and brings the same correctly to its position, irrespective of the thickness of the graver itself.

UNMAKING ROPE OR CORDAGE—Joseph Wood, of Brooklyn, N. Y.: I disclaim the invention of the revolving roller head itself, and its use for any other purpose than that of unmaking rope.

But I claim the combination of the rotating roller head and the pointed mandrel, to operate in the manner and for the purpose set forth.

[This is a very valuable machine for performing the first stage of the reduction of old rope to the loose fibrous condition, in which it takes the name of "oakum," and is used for caulking. The machine separates the strands by conducting the rope between rollers, the rotation of which in the head gives the rope a rotary motion in a direction opposite to the lay of the rope at the same time that it drives it upon the point of a mandrel.]

COMBS—Thomas L. Calkins, (assignor to himself and J. W. Bliss), of Hartford, Conn.: I claim the use of the sheath, substantially as and for the purpose set forth and described.

PISTON FOR MUZZLE-LOADING GUN—John T. Foster and Jacob J. Banta, of Jersey City, N. J., (assignor to themselves and James H. Banta, of Piermont, N. Y.): We do not claim a piston actuated by a rod passing through the breech of the gun, as the same has before been used.

But we claim the combination of conical packing rings having over before been applied to said piston for the purpose of cleaning and rapping off all scale and soilage from the interior of the gun, and delivering the same at the muzzle, and also providing for the instantaneous insertion into the barrel of the said packing rings.

And we are not aware that the barbed fingers have ever before been applied to said piston to seize and draw in the ordinary conical packing rings.

We claim the conical packing rings, I, on the piston, d, for the purposes and substantially as specified.

We also claim the barbed fingers, e, in combination with the piston, d, to seize and draw in the ordinary cartridge, substantially as specified.

HAND PRINTING PRESS—Francis S. Coburn, of Ipswich, Mass., (assignor to W. W. Messer, of Boston, Mass., and Geo. F. Gray, of Albany, N. Y.): I do not claim combining the inking roller arm, F, and its spring, I, with a lever, K, applied to the frame, A, and the vertical shaft, c, and operated by the latter substantially as described.

But I claim the application or arrangement of the stops, M and b, and the spring, I, with respect to the frame, A, and the lever, K, and so as to arrest the upward movement of the roller, under circumstances as stated.

ROPE MANUFACTURE—Michael H. Johnson, of St. Louis, Mo.: I do not claim the condensing rollers.

Nor do I claim, of themselves, the bobbin and calendar roller.

But I claim the combination of the condensing rollers with the calendar roller and bobbin, as described, whereby the sliver may be condensed to a greater degree than is admitted under the ordinary circumstances governing the aforesaid manufacture with advantages as set forth.

PARING APPLES—Benjamin F. Joslyn, of Worcester, Mass.: I claim the spurs, i, either rotating or stationary, attached or connected to the cutter rod, and placed obliquely or angularly with the apple, or its axis of rotation, when said spurs are used in connection with a sliding mandrel, C, substantially as shown and described, for the purpose of feeding the apple to the cutter, as set forth.

[This is an admirable feeding device for parers. The spur wheel is set obliquely to the axis of the fork shaft, and by the rotation of the apple which it presses on, feeds it ahead without any necessity for other mechanism.]

BABY WALKERS—Joseph Thomas, (assignor to himself and C. A. Duggin), of Brooklyn, N. Y.: I am aware that a circular cushion or annular table is constructed in halves and hinged together to lock the child therein, and placed upon vertical vibrating springs, has been used in the patent of Euclid Rice, of Oct. 28th, 1851; and I therefore disclaim the use of his invention.

But I claim the combination and arrangement of a circular cushion, having attached thereto straps, as described, for confining the child in a vertical position, and also allowing it to turn at will within the cushion, which is placed upon vertical adjustable legs, for the purpose of suiting the height of the child, whereby I am enabled to make a cheap and useful article of furniture, protecting the child from injury and assisting it in walking, substantially as specified, and for the purpose set forth.

SCREW WRENCH—Benj. F. Joslyn, of Worcester, Mass.: I do not claim a hollow shank.

Neither do I claim a screw for operating the sliding jaw, irrespective of the arrangement shown.

FIREMAN'S MASK AND RESPIRATOR—Israel P. Nelson, (assignor to himself and Geo. N. Davis), of Cambridge, Mass.: I claim the described mask, with its tubes C, and valves, d, operating in the manner substantially as set forth.

COMBING WOOL—Michael H. Simpson of Boston, Mass. Ante-dated Sept. 17th, 1856: I claim the combination and arrangement of an extra doffer L, and stripper M, or equivalents thereof, with the main card cylinder, the combing doffer, I, and the combing belt, N, the whole being substantially in the manner and for the purpose as specified.

I also claim the described improved arrangement and construction of the draft rollers, U, V, with respect to each other and the combing belt, N.

I also claim making the wires of the fringe belt, W, to extend below the table, Z, and to run through a passage, c, formed between the part, Z, and the combing belt, or in the table, as specified.

I also claim combining with the curved belt, R, when such is employed in connection with the doffer I, and the combing belt, N, a steam heating chamber, S, or other suitable means of heating such plate, a set forth.

COMBING FIBROUS MATERIALS—Milton D. Whipple, of Charlestown, Mass., (assignor to A. B. Ely, of Boston, Mass.): I claim inclining the comb teeth to the axis of the cylinder, and covering them with the guard at the point of draft, in the manner substantially as set forth, for the purpose specified.

HARROWS—Sidney S. Hogle, of York, Ohio: I am aware that horizontal harrows have been so constructed that they could be rotated upon their axes.

I claim causing the forward movement of a pivoted horizontal harrow to impart a rotary motion thereto by means of the auxiliary action of a weighted roller, or its equivalent, upon one side or the other of said harrow, substantially as set forth.

WEAVING PILE FABRICS—Erastus B. Bigelow of Boston, Mass.: Patent dated Dec. 18th, 1855: I claim, first, successively drawing the pile wires from the cloth by a latch or hook, substantially as described.

I also claim constructing and operating said latch or hook so that after drawing said pile wires from the cloth it successively delivers them to a carrier or other apparatus, which completes their movement, substantially as specified.

I also claim in combination with a latch or hook for drawing the pile wires from the cloth, a carrier or other apparatus to successively receive said pile wires from said latch or hook, and transfer them to the fell of the cloth, substantially as specified.

And I finally claim the method of inserting the pile wires into the upper shed of the warps, while the sliver is passed through the lower shed, substantially in the manner and for the purpose specified.

RUNNING GEAR OF CARRIAGES—Gustavus L. Hanssnecht, of New Haven, Conn.: Patent dated Jan. 13th, 1856: I am aware that carriages have been described where the pivot which connects the front running gear with the hind part or body thereof, is placed behind the fore axle, and combined with two segments of circles resting and sliding, the one on the other, and the center point of which rests over and some distance above the center of the front axle, and I therefore do not claim this as my invention.

But I claim first, the combination and arrangement of the pivot in the rear of the fore axle, and the segments with the perch and head-block or perch cross bar of carriages having perches, as described, or the equivalents thereto, for the purposes of enabling carriages to turn in a shorter space than by the common mode of coupling, with perfect safety.

Second, I claim the additional set of segments, or their equivalents, the pivot placed perpendicularly above the lower turning point, to be employed where the springs are fastened to the axle, and move with the same.

SAWING OFF LOGS—Cornelia Waterman, of Brooklyn, N. Y., (administratrix of Stephen Waterman, deceased, of Greenwich, Conn., assignee of Isaac D. Russell, of New York City): Patent dated May 19, 1843: We claim revolving a log or block while being sawed, in order that the pieces sawed off may be of uniform thickness on all sides, and the mechanism described, or its equivalent, for raising and lowering said block, that it may be sawed into pieces of any desired thickness without being removed for the machine, said block being centered but once in sawing up the entire log, substantially as set forth.

SUGAR WORKS—Noebert Billieux, of New York City. Patent dated Aug. 26, 1843: I do not desire to claim the application of the vapor arising from one heated fluid to the heating of fluid contained in other vessels, if in such cases the fluid in the second vessel is not under a vacuum or partial vacuum.

I claim, first, the employment of a vacuum pan or pans, in combination with an evaporating pan or pans, or boiler in which the saccharine juice or other fluid is evaporated under a pressure lower, equal to, or greater than the atmosphere, which last mentioned pan or pans or boiler, prepares the saccharine juice, etc. from the vacuum pan or pans, and at the same time supplies the necessary vapor from the saccharine juice, &c., to complete the evaporation or concentration of syrup, &c., in the vacuum pan or pans, as fully described.

Second, I claim the employment of a weighted throttle or other regulating valve in the main steam pipe, arranged and operating in the manner and for the purpose as described.

FORMING THE WEB FOR CLOTH OF WOOL, HAIR, OR OTHER SUITABLE SUBSTANCES WITHOUT SPINNING OR WEAVING—The Union Manufacturing Company, (assignees of John Arnold and Geo. G. Bishop), of Norwalk, Conn.: Patent dated Oct. 20, 1846. Extended by Commissioner from Oct. 20, 1850. Extended by Act of Congress March 23, 1851: We claim the mode of operation substantially as described, by means of which the slivers of the web fibres are kept properly distended until their entire surface is in contact with the surface of the sliver of warp fibres, substantially as described.

Saw Mill Wheels.
 At what angle should water fall on the wheel of an undershot saw mill, with 25 feet fall? And what size wheel should be employed to make 150 revolutions per minute when cutting?
 R. N. B. McL.

The angle must depend on the construction of the wheel, and may be a matter of discussion. It is really immaterial so long as the water is ranged so as to act fairly on the floats. The velocity of the water striking the floats under a 25-foot head is very nearly 2,400 feet per minute; and allowing your wheel a reasonable breadth of float, so that the water shall spend its force on points considerably inside the wheel, 5 feet 6 inches diameter will give you very near the speed desired.

The daily papers have asserted that the new style of valves tried on the *Adriatic* steamship have been abandoned, and that common balance puppet valves will be substituted, a change which will involve another long delay. We think this has not been absolutely determined on, but simply to commence making patterns for puppet valve-chests, anticipating a possibility of the final failure of the rotary valves. The condenser and other parts are to be quite extensively changed, and considerable time will be consumed.