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Chemical Action of Sugar.

M. Dabrunfault's examination of the changes suffered by cane sugar, in the fermenting process, previous to the formation of alcohol and carbonic acid, has led him to the conclusion that the altered cane sugar—or its analagous grape sugar or fruit syrup—is not a simple variety of sugar; only a certain quantity of it becomes glucose by crystallization, the residue polarizing to the left with the same power that the separated grape sugar polarizes to the right. In the vinous fermentation of the altered sugar, that which disappears in the first part of the process is optically neutral, while the sugar which disappears last polarizes strongly to the left. No one sugar is exclusively decomposed before another in fermented mixed sugars. The sugar produced from starch by the action of malt is not identical with grape sugar; for the former is less soluble in alcohol, less liable to change by ebullition, or the alkalies, and its polarizing power is three times that of the latter.

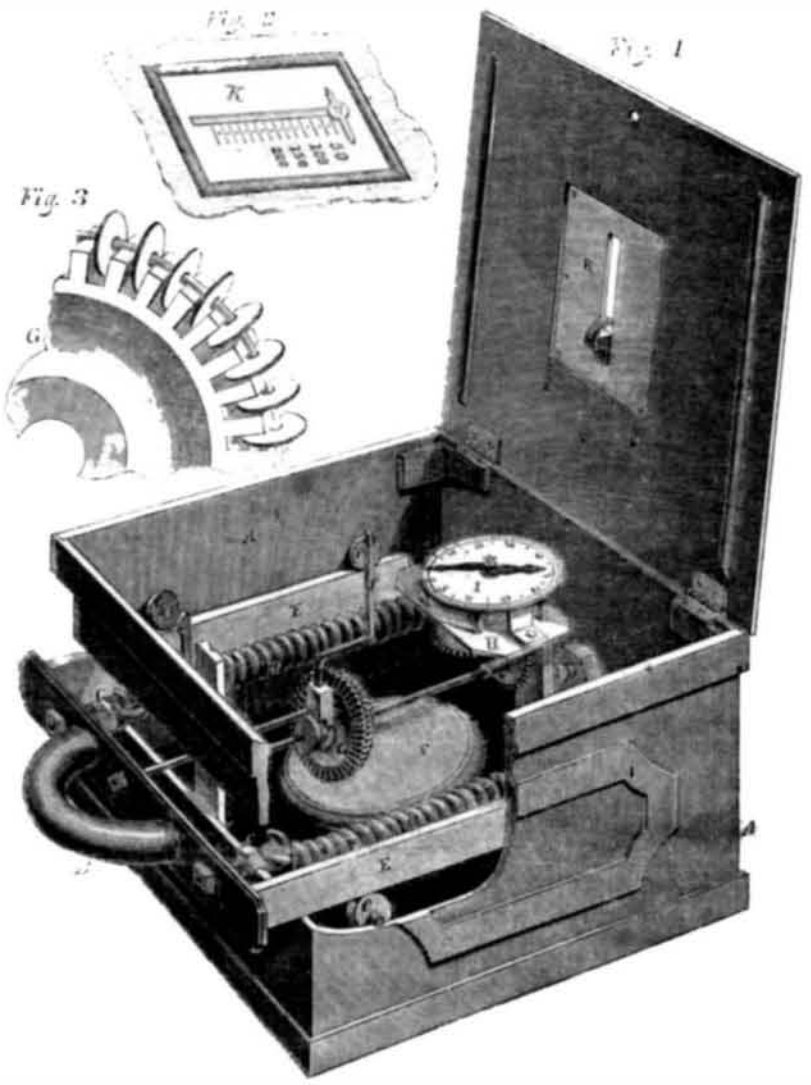
Wood Gas.

Dr. Pettenkofer, of Munich, Bavaria, has been quite successful in his experiments for obtaining gas from wood, being the discoverer of a method of manufacturing this gas, by which a flame of great clearness and strong illuminating power is produced. After the charring of the wood in the retort, the evolved gas is exposed to an extended surface of heated iron, and thence passed through the tar receiver, the condenser, and the lime for purification, into the gasometer, the whole process requiring only about one hour. The gas is not injured by remaining any length of time in the gasometer. According to Briesach, 4½ cubic feet of gas gives per hour the light equal to 15½ wax candles—five to a pound; the same amount of coal gas gives the light of 11 to 13 wax candles. Experiments have also proved that one cwt. of dry fir wood is equal to 759 cubic feet of pure gas, 20 lbs. of charcoal, and 5 to 7 lbs. of tar; the time required for distillation is 65 minutes.

Indigo.

The war in India will cripple our supplies of this article, and as the demand for it is very great, we shall have to look about for some new place whence to obtain it. As it is a native of the southern part of our country, the planters should be quickly stirring to bring its cultivation back again to its native land. It will grow best on recently cleared lands, and requires a very moist soil; it must also be protected from high winds, and in time of draught should be well irrigated. Great Britain has been too smart for us, in making it grow best in her own possessions, and we have been compelled to import it from that country. Let us take our own again, and, by attention to its cultivation, keep it as one of the staples of our commerce.

LEONARD'S DYNAMOMETER.



This is an instrument for ascertaining and registering the draft of plows, mowers, reapers, wagons, carriages, &c., and, as its name signifies, it is a measurer of motive power.

At the present time, when every State and County are holding their agricultural fairs, we would call their special attention to this instrument, which would be so valuable an aid to them in deciding the relative merits of the implements, machines and cattle subjected to their judgment for approval or the reverse. It consists in a small cast iron box, A, having a handle firmly fixed to the back, by which it is attached to the object whose draft is to be ascertained, and another handle in front, to which the horse, or other motive power, is attached, as seen at B. This handle is fastened to a plate having two hooks, C, on it, with which the springs, D, are connected, the other ends of them being firmly fixed to the back plate of the box. The front handle and plate, carrying the springs, which are regulated to the mechanism of the machine, are supplied with two guides, E, running between friction rollers, *e*, thus keeping the whole steady during the strain; these are, so to speak, the power receivers.

Now to describe the measurers, which peculiarly characterize this dynamometer from others. F is a leather disk mounted in brass, which is rotated by a strong marine clock underneath—not seen in our engraving. G is a traveling wheel, which moves up and down the disk, and receives motion from it; it works in a slotted mandrel, so that it can move backwards and forward, and still, when turned by the rotating disk, communicate motion through the train of gearing, H, to the indicating hand, I, and face. Fig. 3 shows an enlarged view of the periphery of this traveling wheel, which is furnished with a number of little wheels, set at right angles to itself, so that it can move with ease along the disk, and ensure a perfect motion. Fig. 2 is an indicator, which is placed outside the box on the lid, and is operated by the projecting wire, J,—K, Fig. 1, showing the back of it. This shows the greatest strain that has been on the machine during the testing.

It is evident that if the traveling wheel, G, be exactly in the center of the disk, F, it will remain at rest, but the further it is pulled from the center of the periphery the quicker will it move, and by the gearing, H, give a faster motion to the hands, I, they being so graduated that with 100 lbs. strain on the springs, the traveling wheel will be pulled out so far as to cause them to move one space of the dial, say from 0 to 1.

The operation is as follows:—The handle at the back of the box is attached to the plow carriage, or other article to be drawn, and the horse, or other motor, hooked on to the handle, B. The clock is then wound up through a hole in the base of the box, and the time noted; the horse is allowed to pull for one minute, and then stopped. The outside register, K, will give the greatest strain that has been exerted on the springs, and the indicating hands will tell the draft of the plow. If, for example, the large hand has moved from 0 to 1, then 100 lbs. strain has been exerted; if from 0 to 2, then 200 lbs., and so on. If, however, an average is wanted, you pull for about a quarter of an hour, and by comparing the time with the number noted, you obtain the average strain required to work the plow, or other machine.

The different modifications which this machine is capable of, will allow it to be used to test the power of steam engines, and mill gearing, and to register the speed of vessels at sea. It is also applied as a water and gas meter.

This is the invention of Mr. W. B. Leonard, Corresponding Secretary of the American Institute, at whose Fair in the Crystal Palace it is on exhibition. Patented December 19th, 1854.

Any further information or particulars may be had of John Sherry, manufacturer, Sag Harbor, N. Y., or Leonard & Clark, 11 Platt street, New York.

The British East India Company.

According to recent and authentic documents, this company now rules, directly or indirectly, an empire of 500,000 square miles, with a population of more than 160,000,000. The nominal money capital of the company is set down at $80,000,000, and its annual revenues are estimated at $135,000,000. The salaries of the principal officers are: Governor General, $125,000—perquisities, $200,000; Members of Governor's Council, $48,000; Bishops, $12,000 to $15,000; Law Judges, (30 in number,) $15,000; Collectors and Magistrates, (45 in number,) from $6,000 to $19,000. In striking contrast with these great salaries is the pay of the native soldiers, being eleven cents per day.

The standing military force of this powerful company is about three hundred thousand men, European and natives—the former the flower of the British army. The department of the topographical engineers is remarkable for its skill and efficiency, and has done much for the material development of the country. Railroads completed and in construction, now span the whole extent of the empire, from Carnatic to the Himalayas, opening a brilliant prospect for the agriculturist at no distant future. There are also in operation at the present time more than four thousand miles of the magnetic telegraph, with which connection will soon be made along the southern coast of Arabia, and through Egypt, submarining the Red Sea, with the Mediterranean lines, thus communicating directly with the whole of the western world. There is special interest attached to this company, at this moment, growing out of the terrible rebellion now fearfully progressing in India, for upon the company devolves the momentous duty of stopping the progress of the insurrection, and the heavy responsibility of its consequences.

Portfolio for Periodicals.

W. Root, of Marietta, Ga., has sent us an ingenious little model of an apparatus for holding periodicals, &c. It is very simple and can be made by any of our subscribers for holding the loose numbers of the SCIENTIFIC AMERICAN, or any other journal which they think worth preserving. It is simply a cardboard back, or an old book back of sufficient size will answer the purpose, and in the top and bottom of the back is placed a bit of wire so bent as to form a loop inside the cover; around each of these loops, from one to the other, a number of strings are tied, and behind these strings each number of the journal is slipped, so that they are held as firmly or nearly so as a bound book.

Issued from the United States Patent Office

FOR THE WEEK ENDING OCTOBER 6, 1857.

[*Reported officially for the Scientific American.*]

MACHINES FOR FORMING AND HARDENING HAT BODIES—A. C. Arnold, of Norwalk, Conn. : I do not claim the picking machine and feeding appendages or chamber, nor the exhaust box, nor fan, nor any of the movements for driving either, or revolving the cone, nor the method of forming a hat by their use.

But I claim the cam shaft, I, worm wheel, L, cam, J, levers, U U′, step, e, cylinders, b, and collar, a, or their mechanical equivalents, arranged and operated substantially as described and for the purposes set forth.

I further claim the shaft, R, lever, V, pulleys, S and T, the inverted cone or disk, m, brackets, p p, shaft, n, pulley, o, sleeve, r, shaft, q, lever, x, lifting rod, y, or their mechanical equivalents, arranged and operated substantially as described and for the purposes specified.

[A notice of this will be found on another page.]

GRAIN DRILLS—Henry Beitzell, of Centerville, Ind.: I claim the combination of the adjustable cutter, B, with the drill tooth, A C, and the draft bar, D, in the manner and form as described and represented.

BRICK PRESS—E. H. Bellows, of Worcester, Mass. : I am aware that plungers have been so arranged as to operate simultaneously at opposite sides of a brick for the purpose of compressing the same. This device is common to many brick presses, and I therefore do not claim broadly such device.

But I claim the combination of the plungers, C C, intermittently moving apron, G, and frame, N, with the case or box, F, the whole being constructed and arranged so as to operate conjointly as and for the purpose set forth.

[This is described on another page.]

STEAM GENERATORS—Julien F. Belleville, of Nancy, France : I claim the general disposition and arrangement of the steam generator, and the parts connected therewith, consisting of tubes in which water or other liquids are converted into steam, substantially as specified.

POWER LOOMS FOR WEAVING WIRE CLOTH—E. B. Bigelow, of Boston, Mass. : I claim, first, The mode of constructing and operating the shuttle and combining it with the selvage-forming apparatus, whereby the filling wire is straightened, the certain action of the shuttle secured, and the width and selvages of the wire cloth preserved, substantially as specified.

I also claim the mode of arranging the parts which connect the selvage-forming apparatus with the loom shipper, whereby the loom is thrown out of gear when the filling wire fails, as set forth.

I also claim the mode of giving a double action to the lathe, substantially in the manner and for the purpose specified.

And I finally claim the mode of constructing and arranging the parts of the warp wire stop motion, and combining it with the loom shipper for stopping the loom when a warp wire breaks, substantially as specified.

STOVE COVER STANDS—Hiram Carsley, of Lynn, Mass.: I claim the improved stove cover screen, composed of a series of shelves, each provided with the space, a, and arranged in combination with the relatively enlarged and flanged base, b, substantially in the manner and for the purposes set forth.

MACHINE FOR PACKING WOOL—Chas. Carlisle, of Woodstock, Vt. : I claim, first, The shaft, G, weighted on its bearings and so adjusted as to rise or recede from the movable table, B, while the fleece is being wound around it, substantially in the manner and for the purpose specified.

Second, The movable table, C, for the purpose of conveying the fleece to and under the shaft, G, while in the process of being wound up.

Third, The oblique anti-friction rollers, F F, for the purpose specified.

Fourth, The folding leaves, B B, as detached from the movable table, C and yet so adjusted as to fold the fleece over and upon the table, and thus to straighten and compress it, preparatory to its being wound up.

Fifth, The method of adjusting the binding twine, c c, so as to bring it under the fleece in position for a neat and expeditious binding of the same.

CURTAIN ROLLERS—D. N. B. Coffin, Jr., of Newton (Center), Mass. : I claim the grooved roll made elastic substantially as described, and so clamping the curtain and its strip with or without the caps.

CORN SHELLER—A. M. Cook, of Milford, Mass. : I claim the perforated revolving disk, K, in combination with the radial arms, I, g, and blocks, M, constructed and operating in the manner and for the purpose substantially as set forth.

MODE OF ATTACHING SCYTHES TO SNATHS—Wm. T. Clement, of Shelburne Falls, Mass. : I claim the combination of the adjustable plate, D, loop, C, and screw, c, when arranged substantially as described for the purpose specified.

[These scythes are attached by means of an adjustable plate to the snath, and a loop which prevents the scythe being set at varying angles with the snath.]

MANUFACTURE OF METALLIC SQUARES—Samuel Darling, of Bangor, Me.: I claim a square when constructed as set forth and described.

SAW FILING MACHINE—Harley Stone and J. S. Cole, of Blackstone, Mass. : We do not claim broadly the use of a gage to prevent the file cutting too low, or the use of a movable carriage, as machine shave been made with these features, but were constructed upon different principles from ours, and cannot accomplish the same results.

But we claim the file holder constructed and described in combination with the stop gage and feeding mechanism, arranged and operating substantially in the manner and for the purposes set forth.

SOD CUTTERS—Nelson Newman, of Springfield, Ill. : I claim the vertical cutters, d d, and the horizontal cutters, i i, in combination with the rotating cutters, D, attached to the wheels, B B′, the whole being arranged to operate conjointly as shown for the purpose set forth.

[A full description of this appears on page 43.]

REAPING AND MOWING MACHINES—M. E. Ellsworth, of Hudson, O. : I claim the seat or stand, B, consisting of the seat board, M, spring, N, standard, G, joint, I I, footboard and rests, E F, when constructed and arranged in relation to and used in combination with Manny's combined reaper and mower, as set forth.

CULTIVATORS—Wm. J. Forshee, of Indianapolis, Ind.: I claim the combination and arrangement of the bar, B, the wheel, C, the bar, H, and levers, G, G, G, and G, when constructed and operated substantially as set forth.

CORN HUSKERS—A. M. George, of Nashua, N. H. : I claim the combination of the revolving cutter wheel, E, with the traveling endless apron, B, slotted arm, g, and the vibrating husking board, L, arranged and operating substantially in the manner and for the purpose described.

MACHINE FOR PACKING WOOL—Albert Dorr, of Orleans, Mich. : I do not claim the movable or folding leaves, h, i, j, and K, as my invention; but I do claim, first, The press follower, H, as in combination with said leaves, or any other box or apparatus for folding or holding wool and being the bottom of the same, and so constructed as to be raised up for the purpose of pressing the wool, and may be operated by rack, W, pinions, v and Q, spur wheel, T, and crank, O, as herein set forth, or in any other convenient way.

Second, I claim the rack, W, pinions, v and Q, spur wheel, T, ratchet, S, ratchet wheel, R, the spring, r, crank, O, with the shafts, P and U, the rack rod, G, as described, for the purpose of operating the follower, H, as set forth.

Third, I claim the crank, X, shaft, Y, pinion, Z, segment, a, and spring, p, substantially in the manner and for the purposes set forth.

Fourth, I claim the treadle, b, arm, d, and the rods, e, m and n, or their equivalents, for the purposes set forth.

Fifth, I claim the slide twine holders, o, o, o, and bails, l l, as described and for the purposes set forth.

CORN HUSKER—H. P. Gerrish, of Sandoval, Ill. : I claim the feeding cylinder, D, or its equivalent, made with a series of spring troughs, E E′, E″ E‴, for holding the blades of corn successively to the action of the knife, and husking cylinder, as set forth.

I also claim causing said cylinder to stop at each time the ear is brought against or to the action of the husking cylinder, in manner and for the purpose as described.

SEED PLANTERS—W. Y. Gill, of Henderson, Ky. : I claim the lever, F, attached to the bar, D, and having the slides, e, connected to its end, by means of the screws, f, the lever being operated by means of the spring, I, and the spring projection, p, on the wheel, B′, the parts being arranged substantially as described for the purpose of distributing or discharging the seed from the hoppers, and regulating or graduating the amount at each discharge, as desired.

[By means of this swinging frame and rollers, the furrows can be made any depth and the seed delivered at any rate or distance, the whole being under the command of the operator.]

SEED PLANTERS—A. M. Gould and Albert Flanders, of Cambria, N. Y. : We do not claim adjustable hoppers irrespective of the arrangement shown, for adjustable hoppers have been previously used.

But we claim the described arrangement of shaft, H, and hoppers, I I and L with shaft, E, and rollers, D D.

[An engraving and description of this device will be found on page 44.]

PLOWS—Manasseh Grover, of Clyde, O. : I claim the combination of hinged forked bar, B, and beam, A, with the segmental bar, D, and the adjustable lever, E, with its roller, J, the whole arranged and operating substantially as and for the purpose set forth.

HILL-SIDE PLOWS—A. J. Hardin, of Shelby, N. C. ; I claim the arrangement of spring, G, with relation to handle, H, and beam, A, in the manner and for the purpose described.

CURRY COMBS—N. C. Harris and Alonzo Butler, of Poultney, Vt. : We claim the employment of a metallic plate, A, to embrace the sheet or plate in which the teeth of the card are inserted in the manner described, for the purpose of adding strength and finish, and for securing the handle thereto.

BRONZING LIQUIDS—Henry Hoffman, of New York City : I do not claim to be the first inventor of bronzing liquids, for I am aware that a compound for this purpose was patented in England, Jan. 13, 1844, by H. Bessemer; that compound, however, is expensive in its nature and difficult in its manufacture, having no ingredients analogous to mine save the powdered metal; Bessemer's compound required the employment of a size in order to secure its proper application, but mine requires nothing of the kind; Bessemer's fluid also requires a long time for drying, but my fluid becomes dry within a few minutes after its application.

I claim the fluid or liquid bronze composition described for the purposes set forth.

[The description of this invention is on page 43.]

RAKES—A. A. and Andrew Hotchkiss, of Sharon Valley, Conn. : We are aware that cast-iron rakes have been made before, and that a ferrule has been braced from the rake head by braces which were riveted to both the ferrule and rake-head; we therefore claim neither of these things.

But we claim the rake-head, A, with its teeth, a, ferrule, C, and braces, b, in one piece, and casting the ferrule, D, with its braces, in another piece, and uniting the two pieces together, substantially in the manner set forth, by which means we produce a new, cheap, and serviceable article of manufacture not heretofore known in the trade.

GUARD FINGER FOR REAPING MACHINES—Charles Howell, of Cleveland, O. : I claim constructing the guard fingers of reaping and mowing machines of sheet metal, in the manner substantially as described and shown in Figs. 2, 3, 4 and 5.

MACHINE FOR SHUCKING AND SHELLING CORN—Sanford Kingsbery, of Carrolton, Ga. : I claim the combination of the toothed face or faces of the wheel, A, with the tapering concave or concaves, B, when the respective series of actuating teeth on the face or faces of the wheel, A, are proportioned and distributed, substantantially as set forth, and for the purposes specified.

GANG PLOWS—S. L. Kingston and David Gore, of Plainview, Ill. : We are aware that series of shares have been arranged in gang plows, so that they could be adjusted vertically or laterally, and we therefore do not claim a series of shares thus arranged, irrespective of the means employed for operating them. Neither do we claim a swivel wheel for guiding and turning the machine, irrespective of the manner in which it is arranged and applied to the machine. Nor do we claim a rotary coulter simply.

But we claim, first, Attaching the bar, F, to the bars, A, by means of the lever, D, and arm, G, and having the ends of the bars, K, connected by chairs, m, to arms, n, connected to a bar, L, to which a lever, L′, is attached, the lever, O, being attached to one end of the bar, A, and to the rod, q, as shown, and the screw rod, V, attached to the bar, B, and passing through the bar, g, whereby the shares may be adjusted vertically and laterally, and also raised temporarily when necessary, as shown and described.

Second, We claim a mold board, constructed of conical wire rollers, X X′, arranged as shown, or in an equivalent way for the purpose of raising and turning the sward as set forth.

[We have given the details of this improvement on page 43.]

SEED PLANTERS—C. O. Luce, of Brandon, Vt. : I am aware that rotating cylinders provided with cells or chambers have been previously used, and form well-known devices for distributing seed; but I am not aware that parts have been arranged as described, whereby the capacity of the seed cells or chambers can be varied with such facility. I therefore do not claim a rotating cylinder or shaft provided with seed cells or chambers.

But I claim the rotating shafts, B, provided with the radial plates, a, and the adjustable or sliding cylinders, C, in combination with the elastic or spring cut-offs, d, the above parts being combined and arranged specifically as and for the purpose set forth.

[This is an improvement on a former patent of June 11th, 1856, and consists chiefly in the construction of the regulating and delivery device, which is composed of revolving wheels placed horizontally, and by the centrifugal force of which a regular and measured quantity is delivered.]

JOINERS' BENCH—J. W. Mahan, of Lexington, Ill. : I would state that I do not claim as my invention, that is, as new, the entire carpenters' and cabinetmakers' assistant work-bench that is illustrated and described by my drawings and specification, for part of it was patented by me March 25 and September 16, 1856.

But I claim the cabinetmakers' and carpenters' assistant work bench, constructed in any manner substantially the same as shown by my specification and drawings.

SEEDING MACHINES—Daniel and A. S. Markham, of Monmouth, Ill. : We claim the inclined screen with the overhanging lip upon the forward side for protecting the grain from the wind, arranged as set forth.

MELTING AND REFINING IRON—G. P. Miller and Hugh Dougherty, of Lancaster, Pa. : We do not claim having discovered the coking of anthracite coal, nor the admixture of such coke with other coals or coke.

But we claim adjusting the proper proportions of these fuels for use in melting and refining iron, substantially as set forth, by which we are enabled to use more scrap iron and inferior pig iron than is now known to be used, and to temper the metal in the manner described with economy of fuels and of time.

LOCOMOTIVE COW CATCHERS—James Mitchell, of Osceola, Iowa : I claim the combination cow-catcher, composed of clearer, A, and grating, C, so constructed that the latter will be brought into action by the lifting of the clearer, and all parts be made to resume their original position by the forward movement of the engine, substantially as set forth.

SHOWER BATHS—Wm. Miller, of Waltham, Mass. : I claim combining with a shower bath, a brush, and mechanism to impart to the said brush movements whereby a person while in the bath may have his back or other part of his body brushed or cleaned, substantially as specified.

SEED PLANTERS—Hosea Willard, of Vergennes, Vt.: I do not claim separately a perforated reciprocating slide, i, for distributing seed, for they are in common use.

Neither do I claim a rotating cylinder for distributing seed, when separately considered.

But I claim the rotating cylinder, D, provided with the taper opening, f, and the adjustable plates, g, in combination with the inclined spout, E, tube, F, and perforated reciprocating slide, i, when arranged as shown for the purpose specified.

[This seed planter is described with an engraving on another page.]

OIL PRESSING MACHINERY—William Wilber, of New York City : I claim the arrangement described of a system of chambers and tubes, in connection with a fan or other proper blowing or exhausting apparatus, for the purpose of circulating hot air through various parts of the machine, and applying it directly to the seeds and pulp, substantially in the manner specified.

SEWING MACHINES—Willford H. Nettleton and Chas. Raymond, of Bristol, Conn. : We claim the spring bed plate, q, in combination with the pressure clamp o, and inclined spring fingers, r, to feed the cloth, substantially as specified.

ROCK-CUTTING AND DRILLING MACHINE.—William Plumer, of Boston, Mass. : I claim first, Feeding the cutter laterally in a direction at right angles to the cut, or nearly so, whether the cutting tool be situated horizontally, vertically, or at any angle, by the devices described, or their equivalents, so arranged that the cutter or drill can be turned at right angles to the straight track of the machine, and also the requisite feeding motion be obtained as set forth.

Second, I claim the slotted arms, c′ d′ and e′ f′, so arranged and constructed as to permit the whole cutting apparatus to be turned at right angles to the cut, and to communicate when fastened together, the lateral feeding motion to the frame, r r.

Third, I also claim the arrangement of devices described, whereby I am enabled to feed the cutter working vertically in a circular direction, and set the cutter at any desired distance from the center upon which the machine turns, by which blocks or pillars of any desired diameter can be cut out as set forth.

EXTENSION ELEVATORS—Pierce Porter, of Hooksett, N. H. : I do not claim any of the above described devices separately.

But I claim the employment of a truss frame extending in a vertical direction, composed of the strips, A A, &c., the cross ties, R R, &c., and the axes, B B′ B″ and B‴, the axis, B‴, being confined in the vertical posts H and H′, and the axis, B‴, free to move vertically in the slots, L and L′, in combination with the pulley, F, and the windlass, E, or their mechanical equivalents, the whole constructed and operating substantially in the manner and for the purpose set forth and described.

SAWING SHINGLES—Jesse Gilman, of Nashua, N. H. : I claim attaching the adjustable guide, F, to the movable arm, E, attached by a joint to the carriage, C, and operated by the movement of the carriage through the medium of the arm, G, lever, J, and groove or guide, H, substantially as and for the purpose set forth.

[This is described on another page.]

PLOWS—Thomas Sharp, of Nashville, Tenn. : I do not claim a hollow or tubular iron beam, for they have been previously used, but, so far as I am aware, for lightness and strength only, without reference to any particular mode of attaching the beam to the plow with a view to the adjustment of the line of draught with the share.

I claim attaching the beam, F, to the plow substantially as shown, or in any equivalent way which will admit of the turning of the beam for the purpose of adjusting the draught hook or eye, b, both laterally and vertically, as set forth.

[By means of this plow the furrows may be controlled in depth and width with greater nicety than the ones in common use. The invention consists in arranging the line of draft of the plow differently in relation to the shears.]

HOT AIR REGISTERS—Sylvester J. Sherman, of New York City : I claim interposing between the top plate of hot air registers, and the spring bar, to which the fans are attached, either directly or by means of a connecting rod, a slide plate, to which the end of the spring bar nearest to said top plate on one side, and the knob or handle on the other side, are permanently fixed, substantially as described.

SPRING BED BOTTOMS—Henry J. Smith, of Washington, D. C. : I claim sustaining the slats forming the spring bottom at and near one end, leaving the remainder of the length of the slats unsupported, by which means they form a series of elastic springs, for the support of the bed.

FOUNTAIN PEN—A. F. Warren, of Brooklyn, N. Y. : I do not claim the employment or use of a valve b, placed at the discharge end or orifice of a tube or fountain, A, to regulate the flow or supply of ink to the pen, for that has been previously used.

But I claim first, The supplementary valve or cut-off, d, used in connection with the valve, b, both valves being within the tube or fountain, A, and placed on the same rod, c, substantially as and for the purpose set forth.

I do not claim, broadly, the plates, f g, for they have been previously used.

But I claim attaching said plates, f g, to the holder D, by means of the pivot, h, for the purpose specified.

[The description will be found on another page.]

LUBRICATING CARRIAGE AXLES—Albert A. Vedder, of Lysander, N. Y. : I claim the manner of lubricating axles by means of a reservoir screw and suitable conduit, as described, or any other manner substantially the same, and which will produce the intended effect.

CORN SHELLER—Ancil Stickney, of Concord, N. H. : I claim the combination of the rocking piece, C, with the flanged piece B, and wheel A, the whole being arranged substantially as described, and for the purpose specified.

CORN HUSKERS—W. H. Smith, of Newport, R. I. : I am aware that machines have been devised in which one toothed endless apron and brush cylinder were used, and a patent was formerly granted to me for an arrangement of such devices in connection with a toothed disk.

I am also aware that circular saws have been used for sawing off the butts from the cars; I do not claim, therefore, separately, the employment or use of saws.

Neither do I claim the employment or use of endless aprons, irrespective of the arrangement shown.

But I claim the combination of the two toothed aprons M M, provided with pressure P, with the brush cylinders, O O′, arranged and operating conjointly as shown, for the purpose specified.

[Full particulars of this invention are in another portion of this number.]

SEWING MACHINES—E. H. Smith, of New York City : I claim a cylindrical annular shuttle constructed as described, in combination with the driver, for holding it place and driving it around.

And in combination therewith I claim imparting to the needle and its thread a constant upward movement, while the shuttle passes through the loop, so as to lift the shuttle completely off its bearings, and thus avoid all friction of a sliding shuttle, and the use of oil thereon.

I also claim, in combination with the above continuous movement, the two thread guides, as arranged and made to operate together with respect to the endless movement and shot of the shuttle, essentially in the manner set forth and represented, for the purpose of causing a positive withdrawal of the loop from the shuttle at the moment the latter has passed through it.

I further claim the employment of the smaller or auxiliary foot to hold the cloth to the feeding teeth in their forward movement, and to release the pressure therefrom when they return, substantially as set forth.

Finally, I claim the use of a series of laterally reciprocating teeth, to carry the cloth along in their forward movement, in combination with a series of vertically acting teeth, to assist in holding the cloth, and counteract the retrograde tendency in the return of the feed, when such teeth act independently of the foot to which they are attached.

MACHINE FOR PICKING COTTON IN THE FIELD—Jos. W. Thorn, of Courtland, Ala. : I claim the method described of delivering the cotton within the receptacle, G, by means of the teeth, d, turning on shafts, b, in combination with the cam rods, K, and toes, h, for returning said teeth to the position for picking the cotton, substantially in the manner set forth.

SEED SOWING MACHINES—William C. Squier, of Rockford, Ill. : I claim having the bed piece, E E′, which carry the hopper, F F, capable of turning on pivots a a, of the circular bed plate, C, and the short axles, H H, on pivots, b b, of said bed pieces, E E′, and the whole retained in proper condition when expanded, by means of braces, J J, stop pins, d d and e e, and coupling, g g, on end of axles, substantially as and for the purposes set forth,

[For information about this machine we refer to page 43.]

COAL STOVES—William H. Stinson, of Baltimore, Md. : I make no claim, broadly, to the heating of rooms by means of currents of air introduced from without and circulating in chambers or passages around a stove situated within the fireplace.

Neither do I claim the introduction of cold air from without into a fire chamber, and thence into the room in a heated state, as these devices are well known in the Franklin stove, and the stove of Feinour.

Neither do I claim the construction of a stove with a vacant space around the stove, closed in front, except the space between the cylinder and sides, the heated air being forced out between the cylinder and sides, as in the stove of Latrobe, as these devices fail of effecting the purposes which are perfectly fulfilled by my invention, viz. : the control of the source from whence the cold air is derived, the dividing and passing it over a great amount of heating surface, and by the arrangement of the air passages, aid its flow into the apartment, in such volume and temperature as, while it is sufficient to warm the room, is not so heated as to vitiate its quality, while the radiated heat is thrown to the front of the stove, rendering it warm to the feet.

Neither do I claim, broadly, and as separate devices, the various parts as described, and forming my stove, as these parts have been before and variously applied.

But I claim the arrangement of the air passage E, the division plate or partition, H, and the inclined flue, D, with its corresponding air passage, F, made, combined, and operating substantially as described.

WIND WHEEL—William Zimmerman, of Quincy, Ill.: I claim a wind wheel with radial sails arranged upon an upright shaft, when provided with the regulating apparatus first described, or its equivalent.

I claim the arrangement of the partitions and inclined guides which conduct the wind received at the front of the wheel-house on to the four quarters, or the several parts of the wind wheel, substantially as described.

I claim a vacuum escape cap above or around a wind wheel, for the purpose set forth, substantially as described, whether made adjustable, so as to enlarge the vacuum area or otherwise.

I claim the revolving wind receivers or catchers with their conducting flues, for the purpose of catching the wind and supplying it to the wheel substantially as described.

BALANCING THRESHING CYLINDERS—Damon R. Averill, (assignor to himself, James F. Davis, and Henry Twitchell,) of Pulaski, N. Y. : The particular improvement which constitutes my said invention, and which I claim, is

Hanging the movable weights or sliders in circular slots, concentric with the axis of the cylinder, by which means the centrifugal force of the cylinder is prevented from throwing them out of position, as set forth.

SEWING MACHINES—William C. Watson, (assignor to himself, George H. Wooster and Ira W. Gregory,) of New York City : I claim the specified device set forth, being the vibrating hook operating to catch, spread and carry the loop upon the stationary hook, where, by the action of the bolts, the said loop will be held securely open in the path of the needle, when the feed is given so as to insure certainty of action without extending the loop more than is requisite for the passage of the needle through it.

CUTTING METAL CAPS FOR NAIL HEADS—Zachariah Walsh, (assignor to Cornelius Walsh,) of Newark, N. J.: I do not claim separately, the dies for cutting and forming the covers or caps for the nail heads, for there is nothing essentially new in their construction, nor in their mode of operations.

But I claim first, Feeding or presenting the plate, N′, to the dies, substantially as shown, or in any equivalent way, so that said plate will be moved vertically between its longitudinal or lateral movements towards the dies, for the purpose specified, and this I claim whether used with the dies, arranged as shown, or otherwise.

Second, The bed, U, slide, G′, and griping levers, J′, operated as shown, and constituting the feeding device, in combination with the dies, b P c d, arranged and operated substantially as described.

[Another notice of this invention appears in this paper.]

WOOD BORING MACHINES—Lafayette Stevens, (assignor to William L. Gibson,) of Elmira, N. Y.: I claim employing the elastic force of air when introduced as a blast through one or more tubes or jets, immediately at, or closely following, the bit or cutters as described, or by any analogous means of application having substantially the same effect, for the purpose of removing the chips and dust.

RE-ISSUE.

MANUFACTURE OF SULPHURIC ACID—Alfred Monnier, of Camden, N. J. Patented August 7, 1857 : I claim the process of preparing native metallic sulphurets by pulverizing them, and mixing them with the substances above described, in order to extract all, or nearly all,

the sulphur from them, for the purpose of making sulphuric acid.

DESIGNS.

CLOCK CASES—Pietro Cinquinni, (assignor to Bradley, Hubbard & Bradley,) of West Meriden, Conn.

[This is a pretty and easy design, consisting of a man laden with toys, the clock case being the body of the figure, and the face in the center. It is termed the "Santa Claus."]

COAL SCUTTLES—Gootfried Thurlemeyer, of New York City.

[This design is elegant and chaste, and consists of shells and curves, which harmonize well together.]

ADDITIONAL IMPROVEMENTS.

LOCOMOTIVE BOILERS—James E. McConnell, of Wolverton, Eng. Patented June 2, 1857. Ante-dated Dec. 2, 1856: I claim the fire-box extended into the barrel of the boiler, in combination with the transverse fire brick bridges, and with water bridges or chambers fitted with tubular stays, through which a fresh supply of air is admitted to the combustion chamber, or extended portion of the fire-box, for the purpose of assisting the combustion, and of preventing the formation of smoke, substantially as set forth.

LOOMS—Daniel W. Snell & Stephen S. Bartlett, of Woonsocket, R. I. Patented January 13, 1857. Ante-dated September 1, 1856: We claim as additional to our re-issued patent dated September 1, 1856, first, The application of the worm gear, F, in combination with the pinion shaft, E, and pinion, C, as and for the purpose represented.

Second, The spring, H, acting as shown, for the purpose of giving a yielding motion to the beam at the change of harnesses and beating up of the reed.

NOTE.—In the above list of patents issued last week, we notice the names of no less than NINETEEN inventors whose cases were prepared at this office.

Descriptive Index to Chemical Patents.

An index to the chemical patents issued by the United States Patent Office during the year 1854. Prepared for the SCIENTIFIC AMERICAN by Dr. D. Breed, solicitor of patents, Washington, D. C. Continued from index to 1855, 1856, and 1857, published in SCIENTIFIC AMERICAN.

Archil—Extract of; mixed with calcined magnesia, (instead of ammonia,) and gum water, for dyeing: Jonas Eberhardt, June 27.

Cement—Ashes of cotton seed, or of other oleaginous vegetable substance, as ingredient, mixed with rosin, or oil, and earthy matters: W. H. Poindexter, administrator of J. R. Remington, July 4.

Dyeing—Exhaustion and pressure of vat, in connection with moving the fabric: Charles T. Appleton, May 30.

Fat—Purified by water at high temperatures and pressure: R. A. Tilghman, October 3. England, January 9, 1854.

Fire—Extinguishing of, by mixture of sulphur nitre, sawdust, and tow, set on fire to absorb oxygen: Ralph Bulkley, March 21.

Flax—Boiled in alkali, washed, then steeped in bleaching solution, to which is added borax, sea salt, saltpeter, glauber salts, epsom salts, sal ammoniac, or other salt to separate the fibers: Jonathan Knowles, February 14.

Flax—Bleaching of, facilitated by agitation and squeezing between rollers when immersed in bleaching solution: J. Augustus Roth, April 18.

Gas—From wood; heating gas after it leaves retort to convert tar into gas: William P. McConnell, September 26.

Gutta Percha—Treatment with a small amount of sulphur, (1 oz. sulphur to 1 lb. of gutta percha,) and heating to 285° Fah. to expel volatile ingredients before vulcanizing: John Murphy, May 30.

Hemp—Use of salt or other saline in steeping hemp to remove the gum. 2, Immersion of hemp in boiling tar before making into twine: Lewis C. Sugett, May 22.

Hemp, Straw, etc.—Treated with steam or hot water, to remove extractive and coloring matters: William Watt, November 21.

India Rubber—Hollow articles of; fitted to mold by use of water, which, during vulcanization, is converted in part into steam: E. D. S. Goodyear, March 28.

India Rubber—Curing of vulcanized by heating in water to 300° Fah.: L. Otto P. Meyer, February 28.

India Rubber—Treated with hydrogen gas during the heating process of vulcanization, in order to remove excess of sulphur: Rider & Murphy, November 7.

India Rubber—Vulcanized with selenium: E. E. Marcy, November 7.

India Rubber—Molded and then covered with tin-foil, to preserve form during curing process: L. Otto P. Meyer, April 4.

India Rubber—Sheets of covered with paper, and confined between plates of metal during vulcanization: Charles Goodyear, April 4.

India Rubber—Use of steam jacket both for the mold and for the die, for re-molding worn out rubber: Daniel Hayward, August 29.

Iron—Making direct from ore; Use of blasts forced on the deoxydizing ore on the hearth, to aid in decarbonizing: James Renton, October 24.

Iron—Enameling of; treating surface with mucilage, and dusting over with frit: Thomin & Stumer, October 17.

Lime—Neutral sulphite, for neutralizing chlorine in bleaching: Professor E. N. Horsford, October 30.

Marble—Fusible artificial; mixture of asphaltum, clay, calcareous loam, and silex: Henry P. Gengembre, July 11.

Marbling Stone—Use of gum kauri with drying oil in bath to prevent colors from commingling: Hiram Tucker, February 21. England, September 23, 1853.

Marbleizing—Use of a syringe to lay down veins or designs of marble, either on cement or on the mold: William Bonney, August 8.

Oil—From rosin; mixed with clay (instead of alkaline earths,) and then distilled, to avoid obtaining pitch with oil: Halvor Halvorson, May 2.

Oil—Purified by agitation with alcohol: Thomas Drayton, July 4.

Oil—Kerocene; distilled from petroleum at 800° Fah., then redistilled at a low temperature, and treated with sulphuric acid, peroxyd of manganese, and lime, etc., three products obtained: Abraham Gesner, June 27.

Paint—Use of dried albumen to harden and fix paints by coagulation. Two patents: Gabriel Blondon, Sune 20.

Paint—Steaming iron ores in manufacture of pigments: Joseph H. Davis, August 8.

Paper—Pulp from wood; use of alkali and chlorine, or its compound, to disintegrate wood: Watt & Burgess, July 18. England, August 10, 1853.

Telegraph—Insulation by composition of gum shellac, rosin, tar, oils, bitumen, (asphaltum, or mineral pitch,) and india rubber: Thomas, Earl of Dundonald, June 13. England, October 6, 1852.

Tallow—Hardening by nitrate of ammonia, or niter and sulphate of ammonia, for making candles: Charles Schinz, June 13.

Varnish—Crude turpentine, spirits turpentine, and sulphate of zinc: Jonathan Burrage, March 14.

Zinc White—Jet of air for cooling, conveying and oxydizing vapors. Two apparatuses: Richard Jones, March 28.

Salt Works—Mother liquor of; treatment of to obtain epsom salts, iodine, bromine, and common salt: Edward Stieren, December 12.

Soap—Mixture of spirits turpentine, spirits camphor, alcohol, nitric ether, aqua ammonia, to be used with soap suds: C. W. Crozier, July 11.

Soap—Use of bran dissolved in caustic alkali, as ingredient of: T. Chalkley Taylor, June 13. England, September 17, 1853.

Soap—Potatoes with skins treated with alkali as ingredient of: T. Chalkley Taylor, June 13.

Stereotype—Composition of gutta percha and either pulverized graphite, soapstone, plaster, chloride of lime, or peroxyd of manganese: Julius Herriet, October 24.

Sulphuric Acid—Gaseous: purified from hypo-nitrous acid by sulphurous acid in the leaden chambers. Two apparatuses: D. E. Contaret, June 13. England, December 16, 1853.

The Compressed Air Bath.

We have received a long letter from Dr. Taylor in answer to the one from Dr. Gleiwitz which appeared in our columns of Sept 19th; and were we to publish it, a long discussion would be originated quite foreign to the object of our paper. We have neither space nor inclination to open our columns to a medical argument on a subject which is of little interest to our readers. But as the letter contains answers to certain objections advanced by Dr. Gleiwitz, we feel in justice bound to publish them: "First, this bath is not intended to *force* air into the lungs, for the cure of consumption, but simply to supply the requisite amount that the system requires, and gives the blood a better chance of aeration. 2d, It is not easy to breath at great altitudes, as any one who has ascended a mountain or been up in a balloon knows very well; testimony enough to fill a volume might be adduced on this subject. 3d, Carbon is not an essential component of the air, it is purely accidental, and only one part of it occurs in ten thousand of air. 4th, There is no doubt that the laborers about salt works are remarkabably exempt from pulmonic diseases, so are all persons who live an entirely out-door life, if in a good climate; and lastly the compressed air bath does not claim to be a specific for anything, it is no Holloway or Morrison, but only a valuable aid in medical hygiene." This is the essence of Dr. Taylor's reply, with all personalities and unmeaning explanations suppressed; and we hope that this will be satisfactory to both parties.

Chinaware.

This elegant, useful and important kind of pottery was, as its name implies, first manufactured in China, where it attained the highest perfection. Travelers often took specimens to Europe, which excited the ambition of the potters, and for a long time they tried in vain to imitate it, for not having the exact kind of clay, their experiments were fruitless. In the commencement of the last century, however, a clay was discovered in Germany by a gentleman who proposed to use it for hair powder, but a druggist's apprentice by the name of Bottcher seeing it, concluded he could put it to a better use, and from it he made first porcelain, or Dresden china, which has since become so celebrated. A clay was again accidentally discovered in France, and the manufactory of Sevres was the result; and lastly, a far superior variety of china clay, or, as it is called from the Chinese word, *kaolin*, was discovered in Cornwall, and the English china began to far surpass all the others in richness of tints and clearness of structure until very recently. With clay in abundance, and all the requisites at command, we were content to import all our chinaware from England, and this to the value of about two million dollars a year. Several potteries for making china had been established in this country, and for some unaccountable reason, failed. But now there are many successful works in operation, and one of them at Gloucester, N. J., is on an extensive scale. They obtain their clay from Delaware, and it answers the purpose well.

It is, perhaps, unfashionable to drink tea or coffee out of American china cups,; neither might we think as much of a porcelain figure, however artistic, made at home, as we should of one which had crossed the Atlantic. One thing is certain, and that is, if we only make the progress in this department of manufacture which we have in others, we shall not import chinaware from Europe, but export it there, to adorn the tables or drawing-rooms of the great and rich. American china will then become as celebrated as that of Dresden, Sevres, or Worcester.

A Machine for Forming and Hardening Hat Bodies.

This improvement consists in a new arrangement of the parts of the ordinary hat cone, and adding to the picking machine and exhaust box in common use, a revolving adjustable heart-shaped cam and sundry incidental parts, by means of which the cone receives a graduated vertical alternating motion during the formation of the bat, for the hat, accelerated or retarded by the shape of the cam, or the application of a hand lever, so as to increase or diminish the quantity of fur deposited upon particular portions of the surface of the cone. By means of another cone, centrifugal motion, and steam, the whole is hardened to the proper degree. It is the invention of A. C. Arnold, of Norwalk, Conn.

The claims of the various improvements noticed below may be found by reference to the List of Claims on another page.

Caps or Covers for Nails.

T. Walsh, of Newark, N. J., has recently invented a device whereby he saves a great quantity of metal in the cutting by dies of nail covers. In the ordinary method a number are cut out of a strip of metal, and the metal is thrown away. He, however, employs strips nearly twice the usual width, and cuts out two rows, each alternating with the other, so that comparatively little metal is wasted. The invention consists in the feeding arrangement, which is very ingenious.

Gang Plow.

This improvement professes to surmount the difficulties that usually attend the use of gang plows, by allowing them a vertical and lateral adjustment, and also that they will ride over any obstruction independent of each other. They are also provided with rotating coulters and a swivel wheel, by which they may be guided. It is the invention of S. L. Kingston and Daniel Gore, of Plain View, Ill.

Saw Mill.

The object of an invention or improvement in saw mills, invented by Jesse Gilman, of Nashua, N. H., is to make suitable provision to prevent the stuff, when it is sawed from the bolt, from binding or wedging against the saw. This is attained by having the guide attached to a movable arm so arranged as to keep the stuff from the saw after being cut.

Fountain Pen.

The great objection of fountain pens generally, is that they do not deliver the ink regularly, and that they are very difficult to clean. This pen, the invention of A. F. Warren, of Brooklyn, N. Y., by having its valves so connected that they work simultaneously, prevents the former evil, and the general arrangement of its parts renders it easy of being cleansed.

Seeding Machine.

This improvement, the invention of Wm. C. Squier, renders the seeding machine capable of being expanded when required for use, and folded and contracted when not required, or while being transported from the field to the house, or *vice versa*. Thus all inconvenience in passing through narrow gates or passages, and economizing room in the farm yard or implement house after the planting season is over.

Fluid Bronze.

The ordinary bronzes are of some trouble to apply, but the inventor (H. Hoffman) has succeeded, by a combination of gilding powder, any of the common bronze powders, and collodion, in making an article which can be applied to wood, stone, or metal with ease and certainty. It may be had of H. Bridgeman & Co., publishers of the *Druggists' Circular*, 36 Beekman street, New York.

Novel Plow.

This plow first cuts the sod clear away from the subsoil, and then cuts it up into strips, thus presenting a rich and mellow subsoil to the seed. This is done by means of vertical and horizontal cutters and cutting wheels all arranged to work conjointly. It is the invention of N. Newman, of Springfield, Ill.

Corn Husking Machine.

A new device for this purpose has been patented by W. H. Smith, of Newport, R. I., whereby the corn may be husked direct from the stalk. Endless bands take the stalk up to saws which cut off the stalk, the corn is then stripped by brushes, and other bands take it away.

Polishing Bricks.

Where a neat facing another lings or warehouses is required, this invention will be useful. The bricks are polished by being allowed to become partially dry and then subjected to further pressure. It is the invention of E. H. Bellows, of Worcester, Mass.