

Facts for the Ladies.—Mrs. H. F. Taylor, Brasher Falls, N. Y., has used a Wheeler & Wilson Lock-Stitch Machine since 1858 in dress-making and family sewing, without any repairs and has broken but 2 needles in 13 years. See the new Improvements and Woods' Lock-Stitch Ripper.

Burnett's Cocaine gives new life to the hair.

To lead all competitors is the aim of the proprietors of the New Wilson Under-Feet Sewing Machine. It is founded on the very best principles known to the sewing machine science, and improvements, in advance of all other sewing machines, are being adopted constantly. The Wilson is rapidly gaining the preference of all parties that are acquainted with sewing machines, and it has already taken the front rank among the first-class machines of this country; and its price, owing to its being manufactured where labor and material are much cheaper than in eastern cities, is fifteen dollars less than all other first-class machines, which fact alone is sufficient to induce all to examine the New Wilson before buying any other. Sales-room, 707 Broadway, New York; also for sale in all other cities in the U. S.

Business and Personal.

The Charge for Insertion under this head is One Dollar a Line. If the Notices exceed Four Lines, One Dollar and a Half per Line will be charged.

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The best recipes on all subjects in the National Recipe Book. Post paid, \$2.00. Michigan Publishing Company, Battle Creek, Mich.

The official report of the Master Mechanics' Association will be published in full in the RAILROAD GAZETTE, 72 Broadway, New York, beginning July 6. Send \$1.00 for 3 months' subscription.

We will Remove and Prevent Scale in any Steam Boiler or make no Charge. Two Valuable Patents for Sale. Geo. W. Lord, Phila., Pa.

Wanted—To hear from parties who make a specialty of manufacturing small patent articles. Address H. D. Chance, Llewellyn, Pa.

Steam Boiler and Pipe Covering—Economy, Safety, and Durability. Saves from ten to twenty per cent. Chalmers Spence Company, foot East 9th Street, New York—1202 N. 2d Street, St. Louis.

"Anti Lamina" will clean and keep clean Steam Boilers. No injury to iron. Five years' use. J. J. Allen, Philadelphia, Pa.

For Sale—To R. R. Contractors: Two second hand direct-acting Locomotives, 12 tons and 20 tons weight—in good running order. Address Grice & Long Loco. Works, 131st Beach St., Philadelphia, Pa.

For Hydraulic Jacks and Presses, New or Second Hand, send for circular to E. Lyon, 470 Grand Street, New York.

For Marble Floor Tile, address G. Barney, Swanton, Vt.

Wanted—A 2d Hand Boiler of about 3 horse power. Whitney Arms Company, New Haven, Conn.

Wanted—A situation under instructions in draughting room by a young man who is a machinist. Address J. S. C., care of B. F. C., Princeton, New Jersey.

For the simplest, cheapest, and best Rotary Pump in use for thick or thin liquids, send for circulars to Hersev Brothers, So. Boston, Mass.

Wanted—Iron Planer, of 5 to 6 ft. square by 12 to 16 ft. long, capacity. Must be new, or as good. Will exchange for some choice selected lands situated within 5 to 10 miles of Rail Roads in Northern Iowa. John Cooper & Co., Mount Vernon, Ohio.

The best Bolt Forging Machines are those that work vertical, and forge Bolts any length horizontally. For such, address John R. Abbe, 39 Charles Street, Providence, R. I.

To Capitalists—Two valuable Patent Rights for Sale or exchange for other property. For particulars, address John J. Baringer, Germantown, Columbia Co., N. Y.

Upright Drills—The best in the world. Built by Hawes Machine Co., Fall River, Mass. Send for Circular.

For the most beautiful Site, Building, and Water Power for manufacturing purposes, address Harris Brothers, Newport, N. Y.

Three fourths saving of fuel, by the Ellis Vapor Engine (Bisulphide of Carbon) in running the Haskins Machine Co.'s Works, Fitchburg, Mass. To whom apply.

Old Furniture Factory for Sale. A. B., care Jones Scale Works, Binghamton, N. Y.

Steel Castings to pattern, strong and tough. Can be forged and tempered. Address Collins & Co., 212 Water Street, New York.

The Waters Perfect Steam Engine Governor is manufactured by the Haskins Machine Co., Fitchburg, Mass.

Presses, Dies, and Tinnings' Tools. Conor & Mays, late Mays & Bliss, 4 to 8 Water st., opposite Fulton Ferry, Brooklyn, N. Y.

Portable Baths. Address Portable Bath Co., Sag Harbor, N. Y.

Standard Twist Drills, every size, in lots from one drill to 10,000, at 1/2 manufacturer's price. Sample and circular mailed for 25c. Hamilton E. Towle, 30 Cortlandt st., New York.

If you want to know all about the Baxter Engine, address Wm. D. Russell, office of the Baxter Steam Engine Co., 18 Park Place, N. Y.

If you want a perfect motor, buy the Baxter Steam Engine.

Manufacturer's and Mill Supplies of all kinds. Greene, Tweed & Co., 18 Park Place, New York.

Blake's Belt Studs. The best fastening for Leather or Rubber Belts. 40,000 manufacturers use them. Greene, Tweed & Co., 18 Park Place, New York.

Brown's Coal Yard Quarry & Contractors' Apparatus for hoisting and conveying material by iron cable. W. D. Andrews & Bro., 414 Water st., N. Y.

Mining, Wrecking, Pumping, Drainage, or Irrigating Machinery, for sale or rent. See advertisement, Andrew's Patent, inside page.

For Tri-nitrolycerin, insulated wire, exploders, with pamphlet, as used in the Hoosac Tunnel, send to Geo. M. Mowbray, North Adams, Mass.

Machinery Paint, all shades. Will dry with a fine gloss as soon as put on. \$1 to \$1.50 per gal. New York City Oil Company, Sole Agents, 116 Maiden Lane.

All kinds of Presses and Dies. Bliss & Williams, successors to Mays & Bliss, 118 to 122 Plymouth St., Brooklyn. Send for Catalogue.

For Steam Fire Engines, address R. J. Gould, Newark, N. J.

In the Wakefield Earth Closet are combined Health, Cleanliness and Comfort. Send to 36 Dey St., New York, for descriptive pamphlet.

To Ascertain where there will be a demand for new Machinery, Mechanics, or manufacturers' supplies, see Manufacturing News of United States in Boston Commercial Bulletin. Terms \$4.00 a Year.

Dry Steam, dries green lumber in 2 days; tobacco, in 3 hours; and is the best House Furnace. H. G. Btikley, Patentee, Cleveland, Ohio.

The Patna Brand of Page's Patent Lacing is the best. Orders promptly filled by the Page Belting Co., No. 1 Federal St., Boston.

Absolutely the best protection against Fire—Babcock Extinction. F. W. Farwell, Secretary, 407 Broadway, New York.

Williamson's Road Steamer and Steam Plow, with Rubber Tires. Address D. D. Williamson, 32 Broadway, N. Y., or Box 1809.

Belting as is Belting—Best Philadelphia Oak Tanned. C. W. Army, 301 and 303 Cherry Street, Philadelphia, Pa.

Diamond Carbon, of all sizes and shapes, furnished for drilling rock, sawing stone, and turning emery wheels or other hard substances also Glazier's Diamonds, by John Dickinson, 64 Nassau st., New York.

Boydton's Lightning Saws. The genuine \$500 challenge. Will cut five times as fast as an ax. A 6 foot cross cut and buck saw, \$6. E. M. Boydton, 80 Beekman Street, New York, Sole Proprietor.

The Baxter Steam Engine is safe, and pays no extra Insurance.

Peck's Patent Drop Press. For circulars address the sole manufacturers, Milo, Peck & Co., New Haven, Ct.

Better than the Best—Davis' Patent Recording Steam Gauge. Simple and Cheap. New York Steam Gauge Co., 46 Cortlandt St., N. Y.

The most economical Engine, from 2 to 10 H.P., is the Baxter.

For Solid Wrought-iron Beams, etc., see advertisement. Address Union Iron Mills, Pittsburgh, Pa., for lithograph, etc.

For hand fire engines, address Rumsey & Co., Seneca Falls, N. Y.

Notes & Queries.

[We present herewith a series of inquiries embracing a variety of topics of greater or less general interest. The questions are simple, it is true, but we prefer to elicit practical answers from our readers.]

1.—COLORING LINSEED OIL.—How can I color linseed oil red or brown? Aniline in alcohol will not do.—J. P. W.

2.—TAXIDERMY.—How are birds and animals stuffed?—J. H. Y.

3.—CLEANING MARBLE.—What is the best way of cleaning polished marble slabs from grease, oil, or red wine stains?—C. R.

4.—POLISHING KNIVES.—Will some one inform an old subscriber how the English polish is put on knives, how the wheels are made and what kind of leather should be put on?—J. G.

5.—WALNUT STUMPS.—What is the value of walnut stumps and in what shape should they be sent to market? Are the white walnut, black walnut, or butternut the most valuable?—E. C.

6.—VINEGAR.—Will some practical man inform us of the best mode of making vinegar from the best materials, that the public may not continue to be poisoned by vitriolic and other mixtures?—G.

7.—SKIN DISEASES.—I notice in your paper of May 11th, 1872, a communication from a sufferer from skin disease, attributing the cause to the use of a certain kind of soap. I am one of many shop mates who have the same disease, and I think we contracted it from using sand paper, as it is altogether on the hands. I have had it two months, and have had two of our best doctors here at work on me, but without success. What they give me to use are washes for the hands, which apparently drives it away for a few days; but just as soon as I commence to work, out it comes again. I have been using carbolic acid and glycerin, bathing the hands in strong salt brine, nitrate of lead, and sulphuretted potassium; the latter apparently does the most good, but the cure is not permanent. We should be grateful to you if you could get, from some of your eminent physicians in New York, a radical cure. I think some medicine should be taken to purify the blood, but both the doctors I have seen do not give me any.—C. N.

Answers to Correspondents.

SPECIAL NOTE.—This column is designed for the general interest and instruction of our readers, not for gratuitous replies to questions of a purely business or personal nature. We will publish such inquiries, however, when paid for as advertisements at 100 a line, under the head of "Business and Personal."

ALL references to back numbers must be by volume and page.

J. D., and others.—Multiply together the area of the piston in inches, the mean boiler pressure in pounds per square inch, the length of the stroke in feet, and the number of strokes per minute; divide by 33,000 and you have the horse power of your engine.

To R. P. P.—There are positive and negative poles to the induced currents of the electrical machines that you speak of. As to method of manufacture, consult books on electricity. It is not new to place a wheel at the bow of the canal boat, nor to have side pieces extended forward to prevent lateral movement of swell or waves. This plan was illustrated in last volume of SCIENTIFIC AMERICAN.

W. S. M.—The clearest and most dense ice will keep the longest and produce the most refrigeration. Placed in water, the temperature produced by two cubes of ice, one of porous or snow ice, the other of dense clear ice, will be the same. But the clear ice will refrigerate a larger quantity of water than the porous ice.

MILK SOURED BY A THUNDER STORM.—Milk, beer, and other fluids turn sour by oxygenation. After a thunder storm there is always in the air a considerable excess of ozone, which is oxygen in its most active condition, ready to attack any matter that can be affected by it.—D. B., of N. Y.

PROPORTIONS OF STEAM ENGINE.—D., query 5, page 26, is informed that James Watt determined that the condenser and air pump should each have one eighth the capacity of the cylinder. In more modern practice, however, the air pumps are made larger, especially in marine engines. Some engineers also make their condensers larger, but the practice is not justified by any economical result.—D. B., of N. Y.

DIMENSIONS OF BELT.—Query 7, page 416, Vol. XXVI.—W. J. S. can ascertain the width of belt required for his purpose by calculation from the speed of his driving pulley. A belt one foot wide running at the speed of seventy feet per minute will develop one horse power; a belt three inches wide, to develop the same power, must run of course at 280 feet per minute.—T. L., of Mass.

GILDING ON GLASS.—In answer to J. F., query 5, page 416, Vol. XXVI., I would say that gilding on glass is done by the use of what is termed a water size, made by the use of some mucilaginous substance, such as the white of egg reduced with water. I conclude that English gelatin is best, but great care is necessary not to make it too strong; and it should be perfectly clean, therefore straining it through thin muslin is a good precaution. The gilding is done upon the back side of the glass. First clean the glass perfectly with alcohol; then apply the sizing with a flat camel hair brush, and immediately lay the gold leaf. Stand the glass on edge and allow the surplus size to settle from under the gold. The gold will flatten and have a burnished appearance. When dry, lay

out your designs on paper and transfer by the use of some sharp pointed instrument, pricking through the paper; then paint your design on top of the gold; asphaltum varnish is a good material for that purpose. When that is dry, wash off the surplus gold, and shade the letters or other design with paint of any color desired and let it dry. If you desire a colored ground, then paint the whole surface with the color desired. Experience is necessary for this class of work.—R. F., of Mass.

OCEAN CABLES.—H. F. H., query 1, page 416, Vol. XXVI.—The Atlantic cables mostly lie at the bottom of the ocean, but there are many stretches between the submarine mountain peaks. The specific gravity of the cable causes its sinking and remaining at the bottom of the sea.—E. H. H., of Mass.

CEMENT FOR LETTERS ON GLASS.—To J. F.—This is frequently made by diluting white of egg with water to a suitable degree of fluidity, and adding a little carbolic acid to prevent decomposition, and then filtering. Paint the glass by means of a badger hair brush, allow it to partially dry, and apply gold or silver leaf, and allow it to become thoroughly dry. Now put on the stencil plate, and with a needle point mark out, down to the glass, the letters or design. Then put the whole plate into a shallow dish of tepid water, and by means of a stick, finger, or finger nail, etc., rub off the extraneous metal, and you will have your perfect letters left, and if the cement has not been too thick, with a perfect brilliancy.—E. H. H., of Mass.

SLACK COAL AND SAWDUST.—To J. F. T.—Mix them together with enough gas tar to stick and make into bricks. A machine like the pug mill of a brick machine would do, or indeed a brick machine at once would probably answer, especially such a one as would press the mass into a mold, and not such as would drive out the stuff in a stream, then to be cut with wires. This last style of machine would inevitably make very poor work, but by the former you would get, I think, a solid fuel, and only take a very small quantity of the cheap tar.—E. H. H., of Mass.

SLACK COAL AND SAW DUST.—J. F. T. can burn all his sawdust for fuel if he has proper grates and has a good draft to his fire box. I am sawing green hemlock with a five feet circular saw, and burn every bit of sawdust made. I use no coal or extra fuel.—N. J., of N. Y.

CUTTING STEEL AUGERS, ETC.—To A. V., query 10, page 354, Vol. XXVI.—I would say, first, that the diameter should vary with the diameter and pitch of thread, and should be about two inches for threads from 24 to 32, three inches from 16 to 24. The number of revolutions should be from 12,000 to 16,000 per minute, and a pulley 2 x 2 (on a steel arbor running in Babbitt boxes) will be large enough to run it. A. V. will find he will have to harden his cutters and temper to a straw color in order to have them stand.—C. M. P., of Mass.

TEST FOR ZINC.—To J. B.—The simplest method for an amateur to employ is probably to evaporate a gallon of water to dryness, put the residue on to a platinum wire, and moisten with a solution of proutinate of cobalt. Apply the blowpipe flame, and the little mass will yield a green colored appearance if zinc be present. Other means of testing are adopted, but to any but a professional will be found complicated. The presence of five grains in a gallon would eventually prove injurious, but it would probably be only after a lengthened use of such water. The antidote for acute zinc poisoning is the exhibition of an emetic, and afterwards the drinking copiously of albuminous fluid and large doses of tannin or oak bark tea, etc.—E. H. H., of Mass.

UNITED STATES COINAGE.—To F. R. E., query 16, page 10.—Copper cents were issued first in the year 1793 and ceased in 1857. In 1815, there were none coined. The half cents made their first appearance in 1793, and were discontinued in 1857. In 1793, 1801, 1812 to 1824 inclusive, and 1852 there were none coined except a few pattern pieces in 1813, 1833, 1840, and the eight succeeding years, and 1852. The eagle head nickels were first issued in 1857, and in 1859 were supplanted by the Indian head.—E. T. P., of N. Y.

Recent American and Foreign Patents.

Under this heading we shall publish weekly notes of some of the more prominent home and foreign patents.

HORSE SHOE NAIL CLINCHER.—Wm. H. Lyman, Springfield, Mo.—Many efforts have hitherto been made to construct this tool so as to afford the greatest leverage to the hand of the smith, to avoid side strain upon the screws and pivots, and to prevent the liability of the jaws to slip from the nail. Some clinchers have one of these advantages and some another, but none have hitherto combined them all. This clincher has the following advantages: 1st: It is constructed so as to take off all side strain from the fastenings screws or pivots and thus to allow none of the parts ever to lose their true relative position to the others. 2nd: It is provided with double leverage jaws, so that the grip of one hand will easily and accurately clinch the nail. 3rd: It has a peculiar shape of underjaw which prevents that jaw from slipping and causes it to rock on the nail head. The effect of these several advantages is to give the smith complete control of the horse's foot, while he is being shod to enable him always to turn off perfect work, and with a furnish him with a most durable tool that is not liable to get out of order.

HARVESTER REEL.—George S. Grier, Milford, Del.—The invention consists in supporting an adjustable reel by means of a pivoted crank shaft, which passes through the hollow shaft of said reel and moves up or down with it.

FIRE KINDLER CASE.—David W. Thompson, St. Joseph, Mo.—The invention consists of a screw capped can for holding the oil and kindler, so that the former is prevented from spilling or waste in the event of the can being accidentally upset, and the latter is kept from rattling or moving about in the can while the can is being handled; at the same time the kindler is always saturated and ready for use.

ROSSING MACHINE.—Charles Gilpin and James T. Hill, Cumberland, Md.—The invention consists in causing the knife of a rossing machine to change its position automatically according to the thickness of bark passing between the rolls, and in the peculiar arrangement of devices by which this new idea is carried out.

PEANUT AND COFFEE POLISHER.—Benjamin F. Walters, Norfolk, Va.—The invention consists in combining a rotary and stationary brush with a feed hopper, so that coffee or peanuts may be readily, conveniently and effectually polished for market.

CIRCLE FOR CARRIAGE.—Edwin Wilson, Prattsburg, N. Y.—This invention relates to an improved method of connecting the reach, front axle, head block and circle of a carriage. The reach and head block are rigidly attached to a three armed plate or strap which rests upon the circle. The straight part of the circle is attached by clips and yokes to the axle. The ring bolt is attached to the upper side of this straight part, and passes through the strap and the head block. The whole is strengthened by braces.

COVERING TUBULAR FABRICS WITH RUBBER.—William H. Bates and Hugh Faulkner, of Leicester, England, assignors to Ezra Thomas Sawyer, of East Hampton, Mass.—This invention relates to a new machine for applying an outside coating of india rubber, gutta percha, or other analogous elastic gum to tubular fabrics that are to be made water tight. It is more particularly adapted to, and intended for, the manufacture of rubber hose, but may also be used for other tubular fabrics. The tube to be covered has a core placed within it and is joined at the ends. It is passed over two drums, and by their means carried repeatedly through the waterproofing solution, drying cylinders, and an annular scraper until the covering is thick enough.

WATER WHEEL.—James P. Lamoree, of Mexico, N. Y.—This invention relates to that class of water wheels in which the buckets are arranged in diametrical pairs, and are thrust in and out as they rotate. It consists in adjusting the throw of the buckets so that the maximum protrusion thereof takes place at different points, which is accomplished by means of a shaft, axle and axis which are arranged adjustably in a rectangular slot in the middle part of each pair of buckets.

PROJECTILE.—John Rigney, of West Point, N. Y.—In this invention a composition or soft metal cap is applied to the rear end of the projectile in such a manner that its sides are forced over a conical part of the shot and expanded into the grooves of the gun when the same is fixed. The cap is connected to the shot by means of interior projecting studs which are passed into corresponding zigzag grooves formed on the end of the projectile. These grooves are so formed as to prevent the backward escape of the studs, but they admit their forward movement when the cap is driven forward by the explosion.

CULTIVATOR.—William C. Percy, of Bayou Sara, La.—This invention furnishes an improved plow for cultivating cotton and corn, especially of use when it is desired to simply loosen and pulverise the soil and destroy the weeds without turning a furrow. The plow, which is made pointed, is curved forward so as to form the arc of a circle ten inches in diameter. The middle part is cut away, forming a hole or opening of about the same shape as the body of the plow. The curvature and the opening cause the plow to pass easily through the ground and destroy the weeds, stir up and loosen the soil, and leave it loose and level.

WOOD FILLING.—Frank Seabury, of Yarmouth, Me., assignor to himself, John S. Seabury, Ammi D. Seabury, Adolphus Grant, and Nicholas Grant, of same place.—In varnishing or otherwise finishing wood the varnish sinks into the grain and it is impossible to make a level surface by using varnish alone. If the wood is oiled the grain is left open, and in use fills with dirt. To remedy this various fillings are used; but all have to be colored to imitate the wood, and thus all the finer shades of color are destroyed, as the same color of filling is used for the whole piece. To obviate these difficulties the inventor employs the substance known as *terra alba*. It is finely ground or powdered, mixed with oil, and applied in the ordinary manner. This filling is transparent, does not injure the color of the wood, allows all the shades of color and the grain of the wood to show, and, at the same time, is hard and perfect.

LAMP CHIMNEY CLEANER.—Adelbert Austin Ford, of North Abington, Mass.—This invention relates to an improved lamp chimney cleaner, and consists in constructing the same of a stem or handle of wood to which are attached a swab and wiper. The swab is made of manilla and fastened to one end of the handle; the other end is slit or quartered a portion of its length by a saw, and the wiper is simply a square piece of paper or cloth, so folded or crimped that it enters the slit, and is then folded down by turning the stem with one hand and holding the wiper loosely with the other. A thumb slide loosely on the stem, and is crowded up on to the wiper to hold it in place. The thumb slide is made slightly tapering so that it does not tear the paper while gathering and confining it tightly to the stem.

STOVE PIPE DAMPER.—Charles Reed, of Beaver Dam, Wis.—This invention supplies a self cleaning damper for stove pipes. It consists of a metal disk which is slotted across its face, and an upper grating the bars of which fit into the slots of the disk and nearly close them. These are mounted on the same axis, so that the bars may be turned down through the slots and the passage opened. The turning is effected by thumb screws, which are so arranged that the grate may be turned alone, or the grate and disk together.

NUT LOCK.—Rasselas G. Peterson and Jonathan Coulter, of Perryville, Ohio.—This invention relates to a new nut lock for use on railroad rails and for other purposes, and consists in the use of a hook in connection with a grooved nut and recessed fish plate by means of which the nut is locked. The nut on its inner face has a number of grooves. The plate is also grooved or recessed close to the aperture which admits the bolt, the recess being L-shaped. When the nut has been screwed on to the bolt as far as necessary, and until one of its grooves is in line with the longer part of the recess, the hook is inserted in the recess and pushed under the nut into the groove. The nut is then slightly unscrewed, carrying a projecting ear of the hook into the L-shaped recess. The hook in this position properly locks the nut, as during a jar or motion of any kind the tendency of the nut to become unscrewed will only the more firmly apply the hook to its place and insure the lock.

BRIDGE.—Reuben L. Partridge, of Marysville, Ohio.—This invention furnishes an improved bridge which is simple in construction, light, and strong and consists in the construction following: The upper and lower chords are made in two sections. The ends of the ties or posts are securely bolted to and between the sections of the chords, and stand at an angle of sixty degrees with the horizontal plane. The main braces are arranged in pairs, and stand at an angle of forty-five degrees with the horizontal plane. The two braces of each pair are parallel with each other, pass upon opposite sides of the ties or posts, and are bolted at their middle parts to the middle part of the said ties or posts. The ends of the braces rest against iron foot pieces which are interposed between the ends of the braces and the ties and chords. The sides of the foot pieces are flanged so that the ends of the braces rest squarely against them, and their rear sides are notched to fit up on the ties or posts.

WIND WHEEL.—James J. Hosey, of Cape Girardeau, Mo.—This invention relates to a new self regulating windmill, the motion of which does not vary with the strength of the wind, but is always steady. It consists in surrounding the fan, or wheel, with an upright stationary cylinder which is provided with about eight large openings through which the wind is admitted to the fan. Each opening is furnished with a gate which is pivoted vertically near the middle in such a manner that the wind when striking it has a tendency to close it. It is also furnished with a weighted lever which tends, on the other hand, to keep it open. In this way, aided by other attachments, the wind is admitted to the fan in quantity proportionate to the work to be done.

STREET CARS.—John Stevenson, of New York city.—This well known street car and omnibus builder, whose passenger vehicles may be seen in nearly every country on the globe, has recently received patents for various improvements in their construction which consist as follows: The first invention relates to securing the metallic connection between the running gear and the body of the car, which is accomplished by interposing rubber or other elastic material between the parts so as to reduce the discomfort experienced by passengers from the noise of the wheels, the clattering of the parts, and the jar occasioned by applying the brakes. The next improvement consists in making the axle journal without a shoulder and placing a spring check at its end, by which arrangement, as the car is forced from side to side through inequalities in the track, the concussions are relieved by means of the spring check. The third invention provides means for securely holding and fastening the caps of car axle journal boxes, and the fourth improves the construction of car brakes so as to simplify the same and facilitate repairs.

MOWING MACHINE.—Benjamin Attwood, of Stanstead, Canada.—This invention furnishes an improved reaper and mower which is simple in construction, light, strong, and durable, not liable to get out of order, and which readily adapts itself to inequalities of the surface of the ground, has a very light side draft, and consists in a peculiar arrangement of a lever, suspension bar, and brace bar, in combination with the driving pitman and frame, by means of which these objects are attained.

CAR COUPLING.—Samuel G. Northrop, of Wilmington, N. C.—This invention furnishes an improved car coupling which is simple in construction, and is adapted to couple itself when the cars are run together. The cavities of the bumper heads of the car are divided into two compartments by horizontal partitions. The coupling pins pass down through the bumper heads and through the coupling link or bar which enters the lower compartments of the bumper heads. One end of this link or bar is made thick, so as to hold the link in a position to enter the bumper head of the adjacent car when the cars are run together. The thinner end of the link has a slot formed through it to receive the coupling pin. In each partition, at the rear side of the hole through which the coupling pin passes, is formed a recess to receive the lower end of the pin so as to hold it suspended while the cars are being run together. The recesses support the pins with their lower ends below the upper surface of the partitions, so that they may be sure to drop into their holes when pushed out. Levers are pivoted to the sides of the bumper heads at the rear edge of the horizontal partitions. Their upper ends are bent forward, so as to nearly touch the coupling pins when in position to couple the cars. As the cars are run together the forward end of the coupling link strikes the lower end of the lever and pushes the coupling pin out of the recess and allows it to drop through the slot in the link.

APPARATUS FOR MOVING BUILDINGS.—William N. Hemenway, of Peconic, N. Y.—This invention furnishes an improved truck for moving buildings, which is simple in construction and effective. Two short rollers are placed end to end upon a shaft which is attached to the centers of the lower sides of three longitudinal bars. The lower sides of the bars are beveled toward their ends, so as to prevent them catching upon the ground. They are connected at their ends and at their center by cross bars. The central cross bar is made thicker at its middle part, and to its center is attached a king bolt or pivot to receive a swinging bar or bolster upon which the building rests while being moved, and to which are attached two or more upwardly projecting spikes to prevent the bolster turning or getting out of place beneath the building. To the under side of the end parts of the bolsters are pivoted the ends of bars or straps by which the bolster is rigidly connected to the framework of the truck when adjusted. This construction enables the truck to be adjusted with respect to the direction in which the building is to be moved, or to change it without disturbing the connection between the bolster and the building.

BUTTER TUB AND COOLER.—Arthur J. Connelley and Theodore Benjamin, of Philadelphia, Pa.—This invention furnishes an improved cooler for preserving and transporting butter, milk, lard, and other articles. It consists of an oval cooler which is strengthened by hoops. At the ends are ice chambers, and along the sides, which are made double, is packed some suitable non-conducting material. The cover, which is in two parts, hinged, is also made double, and the cooler has a false bottom, both of which are filled with similar material. The waste water is conducted so as to run off freely through a stop cock.

PURIFYING SACCHARINE JUICES.—Theodore E. O. Allaire, of Paris, France.—This invention consists in purifying sugar, and all kinds of saccharine juices, and in extracting nearly all the crystallizable sugar therein contained, by means of the hydrofluosilicate of ammonia, or the double fluoride of silicon and ammonium, or other double fluoride containing silicon, whereby more or less insoluble precipitates are formed, whose presence in the saccharine juices would have prevented the crystallization of a certain quantity of sugar; and, also, in the after treatment of the precipitates.

SEWING MACHINE.—Theodore A. Weber, of New York city, assignor to Lebbeus W. Lathrop, of same place.—This invention consists of an improved arrangement of apparatus for working a spool carrier in a continuous rotary course; the combination, which includes several ingenious contrivances, and mode of operation would hardly be understandable from a verbal description.

WARDROBE BUREAU.—John H. F. Lehmann, of New York city.—This invention provides a useful and convenient piece of furniture which is so constructed as to serve a variety of purposes. It may be used as a bureau or expanded into a wardrobe, and admits of service as a writing desk also.

APPARATUS FOR DRAINING AND COOLING SUGAR.—Branch Tanner, of Cheneyville, Louisiana.—This invention consists of a simple apparatus by means of which sugar may be cooled and strained readily and inexpensively. An open case or cooler is mounted on trunnions so that it can be turned upside down, and in this the hot cooked sugar is placed and allowed to stand uncovered until it is cooled. Then perforated tubes with conical ends are forced through the sugar to the bottom of the case and equally distributed throughout; after which a straining cover is fastened on the top of the case, and the same turned over. The molasses is thus allowed to escape through the tubes and strainer and the sugar is retained.

STOP MOTION FOR KNITTING MACHINE.—Thomas F. Wynn, of Atlanta, Georgia.—This invention has for its object to provide an improved stop motion for looms and knitting machines of the class in which the motion of the machine is arrested, immediately on the breaking of a thread, by means of a drop weight or its equivalent, which operates by aid of suitable intermediate mechanism to disconnect the driving wheel or shaft. The invention consists in the arrangement of certain wires, rotary rings, and other connected parts, whereby a simple, inexpensive, but efficient piece of mechanism is produced.

MEDICAL COMPOUND AND DISINFECTANT.—Joseph Walton, of Newark, Ohio.—This invention furnishes an improved medical compound for driving away mosquitos, flies, etc. from the person or house. It is a disinfectant and preventive, especially in cases of cholera, small pox, etc., and is useful as a lotion and for other purposes. It is composed of camphor, one ounce; carbolic acid, twelve ounces; aqua ammonia, ten drams; and salt soft water, eight drams.

HORSE POWER.—William G. Halbert, of Columbus, Miss.—This invention is an improvement in horse powers. Some distance below the main wheel are fitted, through the shaft, two radial beams, each of which is somewhat longer than the diameter of the wheel and is slotted at both ends. The inner end of each draft beam is, by an inclined brace, connected with the under side of the wheel, while near its middle it is, by a pin or bolt, connected with the end of one of the radial beams. The pin plays in the slot of the radial beams. The four ends of the two beams may in this manner be connected with as many draft beams or levers. By this arrangement considerable leverage is obtained, the power increased and equalized, and the machine made more valuable.

MILL PICK.—Frank Kortick, of Mendota, Ill.—This invention relates to certain improvements in mill picks, which consist in holding the movable blade firmly in position between two jaws, one of which is rigid and the other a spring jaw, which latter is pivoted to the further end of the former so as to allow of its swinging laterally. The blade is firmly lodged against steps in the rigid jaw, from one to another of which it is shifted as it wears out. The handle is provided with pivoted clamps by which the set of the pick may be adjusted.

BROOM AND BRUSH HOLDER.—George B. Cunningham, of Northampton, Mass.—The object of this invention is to improve the machinery employed in the manufacture of brooms and brushes; it consists of a holder for the broom or brush handle which is used while putting on the corn and which does not injure the handle. It is constructed of a tube, from the interior circumference of which at one end project spring wires with jaws at their ends. A cap is screwed on to the end of the tube and compresses the jaws more and more as it is further screwed on. The broom or brush handle is inserted in the tube and held by the compressed jaws as described.

STEAM ENGINE.—John Donnelly, of Hudson, N. Y., assignor of one half his right to Horace R. Peck, of same place.—This invention relates to that class of steam engines in which rotary motion is established by the cross head or a projection thereon acting against spiral ribs on a cylinder; and it consists, first, of a jointed piece on each of the flanges or ribs, with a spring which rises and allows the cross head to pass from one rib to the other at each end of the stroke, the pieces being returned to their positions again by the spring. The invention also consists of a shifting idle wheel, two drums and gearing, for shifting the connection of the main shaft from one to the other of the cylinders to reverse the motion, the cylinders being arranged for driving in opposite directions. It also consists of a brake for arresting the motion, which is formed by a cam wheel on the driving shaft and a secondary steam piston arranged to be forced against the wheel, said secondary piston being in the end of the steam cylinder opposite to the main piston.

RAILWAY GATE.—George A. Kristie and Samuel Horn, Fort Seneca, Ohio.—This invention is an improvement in railroad gates which are designed to be operated automatically by means of a spirally grooved or flanged roller, arranged so as to be acted on by the wheels of the locomotive. The roller is placed outside the track, but is secured to the rail, and is connected to the pivoted gate by a link, or bar, which, when the gate is closed, assumed a vertical or inclined position over the roller. In this way great leverage is obtained on the gate, and it can be raised rapidly and without liability to injury.

ATMOSPHERIC WATER ELEVATOR.—Frederick Baldwin, Janesville, Wisconsin, assignor to Alexander Graham, of same place.—The object of this invention is to obtain a self acting water elevator or conveyer, which is operated entirely by air pressure derived from a reservoir of compressed air. The invention consists principally in a new combination of air and water chambers, floats, and automatic valves, all arranged to subserve the desired purpose, in the most economical and practical manner.

STONE TRUCK.—George A. Davidson, of Malden, assignor to himself and Horace T. Caswell, of Troy, N. Y.—This invention consists in detachably connecting the front end of the platform of the common two wheeled hand trucks used in stone yards to a front truck which is provided with gear for readily hitching to it and unhitching them, whereby all the advantages of a hand truck are combined with those of a horse truck, so that the loading of large flat stones, by tilting the rear end of the platform down to the foot of the stone, throwing the stone over on to it, and then tilting the stone and platform back on the wheels, may be performed in the same way with the horse truck that it is done by the hand machine, by simply detaching the platform from the front truck. After the stone is loaded, the front and rear trucks can be again connected.

WATER ELEVATOR.—Eli Deaver, of Rokeby, Ohio.—This invention relates to a novel arrangement of a sliding delivery trough with a well curb. With the exception of an opening through which the bucket passes into and out of the well, the curb is closed at the bottom. The sliding delivery trough is composed of a spout and an enlarged part which is designed to cover the opening. The spout is made of sufficient length to protrude through the side of the curb, and when the bucket is to be lowered it is drawn out so as to uncover the opening. So soon as the bucket is again elevated, the trough is pushed in and the bucket lowered to allow it to rest in the trough and occasion the delivery of its contents by means of a valve in its bottom. By this arrangement tilting or lateral movement of the bucket is obviated; the trough spout does not protrude when water is not being drawn, and no dirt can get access to the well.

MOLD FOR CASTING AND CHILLING SLEIGH SHOES.—Volney A. Butman, Ironton, assignor to himself and V. L. Benjamin, Fond du Lac, Wis.—In this invention the improvement consists in forming the lower part or navel of the flask with a cast iron bed mounted on wheels, whose surface is so shaped as to give the requisite curved form to the shoes cast upon it. The sides of the navel are cast separate and firmly fastened to the bed by means of bolts. The ends are made detachable, being held by means of hooks to the projecting side pieces. This is for the purpose of preserving the flask, as, if the ends are made in one with the bed, they are very apt to crack off in casting. The patterns used have at their lower edges projecting dowel pins that fit into corresponding apertures in the bed. The dowels serve the double purpose of keeping the patterns in place and of core prints. In the process of casting, the metal is chilled as it comes in contact with the bed, and the shoes are thereby made ready for service.

STILL.—Allan M. Ring, St. John, N. B.—This invention provides a simple, cheap, and durable portable condenser for obtaining fresh water from salt water, to be used in connection with a galley for generating the steam. The worm tub is constructed of an inner and outer cylinder, and the condensing coil, which is of lead pipe, extends from the top of the inner one downward about two thirds of the way, where it discharges into a narrow space between two inclined plates which traverse the remaining portion of the cylinder. This affords a large area for condensation. A stand for the condenser is also provided, and is furnished with shelves underneath to support a boiler and lamp if required.

LINIMENT.—William H. Wagoner, of Hurd Post Office, Pa.—This invention provides a liniment which is compounded of equal parts, or thereabout, of alcohol, spirits of turpentine, rye whiskey and sweet oil.

APPARATUS FOR THE MANUFACTURE OF WARP AND PAPER PULP FABRICS.—Lindley M. Crane, Ballston Spa, N. Y.—This invention consists in combining with the ordinary machinery for paper making (where the pulp is taken from the vat and delivered to the apron continuously) a spool stand, from which the warp threads are arranged on one of the pulp rollers in such a manner as to be drawn in between the two layers of pulp as they are delivered to the endless apron, thus forming an improved fabric of paper and warp threads. Weft threads are also added by means of a shuttle and the employment of another pulp roller.

CULTIVATOR.—Abel Merrill, Ingersoll, Canada.—This invention furnishes an improved cultivator which is light and easily drawn and runs steadily and smoothly. The frame is in the shape of a right-angle triangle, the beam forming the hypotenuse of which carries the plows. The lower edge of each plow is bent outward so as to form a share, and the inner edge is bent upward and attached directly to the side of the beam. The forward edge of this part serves as a coulter, and is notched or slit so as to form a guard by means of which rubbish is turned aside and not allowed to obstruct the plow. The gang of plows is adjustable and can be set to work at any required depth, or entirely raised from the ground.

IRONING TABLE.—James T. Plowman, Sr., Baltimore, Md.—The object of this invention is to furnish a cheap, convenient, and durable table for ironing, which may be used for other purposes; and it consists in providing the ordinary framework of a table with a top which is in three pieces. The two side pieces are fastened down to the frame and the middle piece is arranged to be drawn out from between them so as to form an extension leaf to be used in ironing. To prevent weights placed on the leaf overbalancing the table, the opposite end is fastened to the floor with a hook.

SHUTTLE BINDER ACTUATING MECHANISM.—Henry H. Law, Gloucester, N. J.—This invention consists in an ingenious arrangement of mechanism by which an arm attached to one of the rods that connect the lathe of a loom with the crankshaft is made to operate the shuttle binding levers in such a manner as to retain the shuttle when driven into the box until the time for throwing it arrives.

BEDSTEAD FASTENING.—T. W. Moore, New York city.—In this invention which relates to a new and useful improvement in the mode of attaching the cast fastening plate to the rails of bedsteads, the fastening plate is let into the inside of the rail by cutting away the rail at the end, so that the joint end of the rail will be even with the post. A recess cut in the rail receives the hub or center, which serves to hold the plate securely in place. Orifices are made through the plate, which, in fastening the plate to the rail, receive glue or pins, and serve to hold the plate.

CARRIAGE RUNNING GEAR.—William Hemme, of Michigan Valley, Kansas.—In this invention the axles are pivoted in the center to plates which are attached to the under side of the wagon body. The hounds connected with the axles are joined at their extremities by means of a sliding swivel and pivot. This uncture forms a knuckle joint for the two axles, by which they are caused to move simultaneously when the wagon is turning a corner into such a position that the front and hind wheels run in the same tracks. An extension rod is connected with each axle, and adjusted so as to prevent too much play in them.

CARRIAGE CURTAIN FASTENER.—Timothy D. Marsh, of Jersey, O.—This invention furnishes an improved cam or lock button hole for carriage curtains and other similar uses. The locking button hole is composed of two metallic plates, one of which is attached to the curtain, and the other is so arranged as to admit of being turned round over the face of the first one to which it is connected by a ring. They are each pierced with a hole, a little on one side of the center, which is large enough to freely pass over the curtain knob. The fastening is made by turning the movable plate until the shank of the knob is clamped between that and the one attached to the curtain.

BRAKE MECHANISM FOR SEWING AND OTHER LIGHT MACHINERY.—John M. Cayce, Franklin, Tenn.—The invention consists in providing the needle cam of a sewing machine with an adjustable sleeve and spring brake whereby the needle can be made to pause within or without the fabric; and also, in providing a speed regulator which is very delicate, easily graduated, governs the period of retardation, and determines the stoppage of machine.

CIGAR MOLD.—Isaac Guthman, Morrison, Ill.—The invention is a cigar mold in three pieces, hinged together, and consisting of a semi-circularly grooved bed plate and two quadrantly grooved covers.

PROCESS OF DESICCATING AND SEASONING LUMBER.—James F. Gyles, Chicago, Ill.—The invention consists in desiccating green lumber by applying pressure on a line at right angles to the grain thereof and gradually changing said transverse line of pressure by keeping the lumber in motion between two pressure surfaces.

MACHINERY FOR DESICCATING AND CUTTING LUMBER.—James F. Gyles, Chicago, Ill.—The invention consists in a peculiar mode of constructing and combining tools and machinery for tonguing, desiccating, and cutting lumber into lengths, whereby green lumber may be sawed, dried, tongued, grooved, and applied to immediate use.