

DECISIONS OF THE COURTS.

United States Circuit Court--District of Massachusetts.

UNION PAPER COLLAR COMPANY vs. EMERSON LELAND.—PATENT EMBOSSED COLLARS.

[In equity.—Before CLIFFORD and LOWELL, Judges.—October, 1874.]
 LOWELL, J.:
 This suit is brought to restrain the infringement of the second reissue of W. E. Lockwood's patent of 1859, the reissue being granted in 1873. The specification declares the invention to consist of a collar or cuff having a paper surface imitative of the textile surface of a collar or cuff of textile fabric; that in carrying out his invention Lockwood uses a fabric composed of paper and muslin, or equivalent fabric, having a smooth, white, polished, or enameled paper surface to represent that of starched linen. It then describes one mode of making the imitation of a linen or muslin surface, by dies, but does not claim nor limit the invention to any particular appliances or machinery for embossing the fabric. The claim is for a collar having a paper surface imitative of the textile face and fiber of a dressed linen collar, as set forth.
 The case turns on the question of novelty. * There is the English patent of De La Rue, taken out in 1834, for embossing paper in parallel lines; and one granted to John Evans, in 1854, for ornamenting paper with an imitation of the patterns of textile fabrics. * Samples are produced from papers actually made before 1859, which are of this character.
 Collars and similar articles made of paper were patented to Walter Hunt in 1854 as a new manufacture; and Lockwood was the owner of this patent when he made the improvement now in controversy.
 In this state of the art, collars and cuffs made of paper being known, and paper embossed in various modes, some of which were imitations of the surface of textile fabrics, being known, we are of opinion that there was in 1859 no patentable novelty in the application of paper embossed in imitation of linen to the making of collars and cuffs.
 The evidence in the record goes even beyond what we have already mentioned, and renders it probable that paper embossed in imitation of a linen surface was used for collars and cuffs long before the date of the alleged invention, and that such articles were offered for sale in New York and known to several persons. It is true that they were not found to be acceptable to the trade, and they had very probably been forgotten; but they were imitations of linen, and the reasons which operated to prevent their general use were of a commercial and economical character.
 Bill dismissed with costs.
 [W. G. Russell, for complainant.
 A. J. Robinson, for defendant.]

United States Circuit Court--District of Connecticut.

SAMUEL G. MONCE and ROLLIN J. IVES vs. BENJAMIN F. ADAMS.—PATENT GLASS CUTTER.

[In equity.—Before SHIPMAN, Judge.—April, 1874.]
 The invention covered by letters patent to Samuel G. Monce, June 8, 1869, for an "Improved tool for cutting glass," consists, so far as the revolving steel cutter is concerned, in the fact that the sides, which are parallel to the axis, are beveled toward each other, at the periphery, at an angle of about forty-five degrees to the axis, thus meeting about midway and forming a cutting edge, which is approximately a right angle.
 Such an instrument embodies the conditions that give efficiency to the glazier's diamond, viz.: the cutting edge is *curvilinear*; it is formed by two surfaces meeting at *right angles*; these surfaces are *equally inclined* to the axis of the cutter; and when the cutter is properly mounted in its frame, the inclination of the cut will naturally be at *right angles to the surface of the glass*.
 It is a fact worthy of mention that this small and inexpensive tool has proved to be of great utility and has achieved success, having confessedly superseded all other inventions as a substitute for the glazier's diamond.
 Monce's invention is not anticipated by revolving cutters designed and used for other purposes (as for dressing the surface of grindstones, the cutting of gas pipes, or the cutting of paper or of pasteboard, or of leather), in which the distinctive feature of the invention—the double bevel forming the right-angled edge—is present, at all, by accident, and which, although capable in exceptional cases of being used to cut glass, will not practically perform the office of a successful glass cutter for glaziers' purposes.
 The cutter of the patent, which makes a cut at right angles to the surface of the glass, is not anticipated by the Pike cutter, which is run upon the glass in a slanting direction.
 The patentee having disclaimed a revolving cutter, his claim to "The cutter, A," constructed substantially as shown and described, and for the purposes set forth, is a claim to the particular form, shape, and angles of the cutter, which adapted it to the purposes of a glass cutter, and is as exact and accurate as the nature of the subject will permit.
 The patent is not void for ambiguity, because the specification merely says that the cutter is to be "hardened," without specifying what degree of hardness is to be given to it.
 [Charles E. Mitchell, for complainants.
 W. Edgar Simonds, for defendant.]

Recent American and Foreign Patents.

Improved Corn Planter.

Jens Elverud, Red Wing, Minn.—By suitable construction, as each hole of a wheel comes beneath a hole in the reservoir and receives the seed, a corresponding arm comes above said hole and serves as a cut-off to prevent any more seed passing out than the amount contained in said hole. The wheels are revolved by tubes, which strike the ground and serve as fulcrum points around which the wheels move, the axle moving up and down in loops. The sleeve of each tube is pushed up to discharge the seed into the soil as the weight of the wheels and axle are thrown upon said tube.

Improved Invalid Bedstead.

Oscar G. Cosby and George W. McGovern, Richmond, Va.—The object is to enhance the ease and quiet of the patient when changing his position. The device consists in the combination of an endless cord, with mechanism for raising the hinged head section, consisting of a lever bracket, a slide, and a band and pulley, for the purpose of giving a positive and easy downward adjustment of the head section.

Improved Double Reversible Hinge.

Edward Halsey, San Jose, Cal.—The invention is an improvement in the class of reversible hinges which are formed of two plates, one having eyes or sockets, and the other pintles, on each side, and the eyes being slotted to receive the pintles, so that the door may swing in either direction without becoming detached. The improvement relates to a construction and arrangement whereby the hinge is strengthened and its operation made as nearly noiseless as practicable.

Improved Tank for Preserving.

John Peter Schmitz, San Francisco, Cal.—This invention relates to certain improvements in preserving apparatus, and it consists in an airtight tank in which the substance to be treated is placed, the said tank having a fire protector and a burner inside, which latter connects through a flexible tube with a lamp upon the outside. The flame of the lamp abstracts oxygen from the air in the tank, and substitutes therefor the preservative products of combustion, the flexible tube being tied, severed, and its tied end enclosed by a screw cap when the process of preserving is complete, and the tank and its contents are to be stored away.

Improved Stair Builder's Rule.

John J. Robinson, Orange C. H., Va.—The object of this invention is to provide an improved rule for stair-building, and it consists in a square rule, inside of which is contained a graduated extensible portion, and at the opposite end an adjustable prick, the said rule being provided with two spirit levels, one for plumbing and the other for ordinary leveling purposes. The inventor claims to be enabled, by means of this improved rule, to rapidly construct and fit the balusters to the hand rails, uniformly and in proper position.

Improved Sewing Machine.

Daniel Williamson, Sunbury, Pa.—This invention consists of an arrangement of cams on the driving shaft and a spring for working an upper feed; also a cam on the shaft and a spring for working the presser, whereby the same shaft shall operate the needle bar, presser bar, and feed bar.

Improved Gymnastic Apparatus.

Horace S. Carley, New York city.—This consists of a grooved wheel with a handle pivoted to each side, mounted on a rope stretched horizontally. The handles hang down each side for the performer to suspend himself by to perform his feats, and at the same time propel himself along the rope. The performer may mount above the wheel, either on the rope or on the ground, turning the handles upward and the stirrups downward, and thus ride on the wheel.

Improved Runner Attachment for Vehicles.

John A. Hyde, Englewood, N. J.—This invention consists of runners which are secured to the lower portions of the wheels by hinged jaws and clamps, the object being to convert the wagon temporarily into a sleigh.

Improved Miter Box.

Peter Suydam and William G. Suydam, New Brunswick, N. J.—For the saw guiding and regulating posts there are two rigid rods side by side, with tubes to rise and fall on them. Said tubes carry guides, for the sides of the saw, which are adjustable for saws of any thickness, and for taking up the slack caused by wear. One of said tubes carries a spring presser to hold the guides above the working position when required for adjusting the saw on the work. One of the posts has an adjustable stop collar to regulate the descent of the saw. The adjustable holders for spring miters consist of horizontal bars with a vertical piece at one end arranged to slide forward and backward, across the bottom of the box, and toward and from the back of the box, to hold one edge of the work while the other rests on the top of the back, said bars being provided with set screws for holding them.

Improved Scaffold Bracket.

Samuel Nelson Fisher, Milford, Mass.—This apparatus for supporting scaffolds in the erection of buildings consists of a folding bracket having an adjustable hook for fastening it to the building.

Improved Thill Coupling.

Axel Olsson, Williamsburgh, N. Y., assignor to himself, J. W. Cox, and D. Merritt, of same place.—This thill coupling locks itself when forced into place upon the coupling bolt, and at the same time may be easily unlocked when removed.

Improved Rolling Shutter.

Hector J. Defrenne, Green Bay, Wis.—This is a blind made of slats hooked together, to be raised and lowered by rollers suspended by cords. The latter pass over an upper roller in a chamber above the window, and down to another roller at the bottom of the chamber, on which they wind. The rollers are worked by an endless cord, which is so arranged on pulleys that one part of its course is alongside of one of the sides of the window frame, where it can be worked inside of the house for raising or lowering the blind whether the window is open or not. The invention also consists of a novel mode of connecting the slats together by wire links.

Improved Stays for the Bottoms of Pantaloon.

Stephen D. Mills, Kingston, N. Y.—This is an india rubber stay designed to take the place of the canvas stay now used in the manufacture of pantaloon to keep the bottoms of the legs in shape.

Improved Bridge.

Peter M. Fulton, Rhinebeck, N. Y.—Towers are erected at suitable required distance from each other, and bear arch-supporting cables. The height of the towers may be reduced to a considerable extent, and thereby the great cost of the same, as compared to suspension bridges, lessened. The towers serve also as abutments for the arch-sections, which are stretched and supported across the span between the towers, their symmetrical semi-sections being firmly joined by central key pieces. The arch sections are constructed from both towers toward the center without a supporting scaffolding, by the use of a derrick above and a traveling truck underneath, which forms the platform for the workmen. One arch section after the other is joined to the other and hung to the cables, until the grooved and pointed approaching ends of the arch sections may be connected by the correspondingly perforated key pieces. The roadway is then hung by vertical suspension rods to the lowermost arc.

Improved Plow.

Thomas S. Macomber, Hamilton, N. Y.—The invention consists in devices whereby the mold boards and their attached shares are connected to the beam of the plow, so that, by turning the right hand mold board down against the landside, the other mold board will be raised into a horizontal position, forming a right hand plow, and by turning the left hand mold board down against the landside the right hand mold board will be raised into a horizontal position, forming a left hand plow.

Improved Oscillating Engine.

George W. Heald, Baldwinsville, N. Y., assignor to himself and William F. Morris, of same place.—This improvement in oscillating engines consists of a novel contrivance of tightening bearings and adjusting screws therefor with the crosshead of the piston rod, which is arranged in guides projecting from the cylinder head, to take the strain of oscillating the cylinder from the rod.

Improved Steam Engine Governor.

Frederick M. Brown, Warren, R. I.—This governor is contrived similarly to some governors now in use, the peculiar feature of it being the upward movement of the balls on the arms when the speed diminishes, and the downward movement when the speed increases, and in the levers and rods by means of which these movements are produced.

Improved Map Exhibitor.

John Lichtenberger, Fort Wayne, Ind.—A hanging bracket supports the map rollers, which may be mounted directly in the bracket, one in front of another; or they may be arranged in a hollow cylinder mounted on pivots, so as to revolve upon its axis to bring the maps into position for pulling them down. A slot is formed for each map to drop through, and an endless cord with an idle pulley may be employed for turning the cylinder.

Improved Plow.

Albert Hampe, Staunton, Ill.—The greater or lesser depth of the share is regulated by swinging the standard backward or forward on its pivot bolt, and setting a fastening bolt to the position of the same. The lateral position of the plowshare sideways from the beam is adjusted by means of an end clevis and screw bolt, so that the plow can be set as required, increasing thereby the strength of the parts and the efficacy and usefulness of the plow.

Improved Harvester Rules.

David S. Fulton, Paris, Pa.—This invention is a machine for harvesting grain, and consists of a reel, the arms of which act independently of each other. Cam devices throw the arms into the proper position for sweeping the apron.

Improved Wrought Iron Column.

John B. Cornell, New York city.—The invention relates to the employment of a T-shaped bar for forming the joint between the vertical ribbed plates composing the chord, the edges of said plates being riveted to the lateral wings or flanges of the bar. The joint is therefore an element of strength, and a strut cord of minimum size and weight and maximum strength is provided.

Improved Machine for Coiling Metal Rods.

Philander H. Standish, Jefferson City, Mo.—The mandrel consists of a flat bar of steel, wide and thick as the largest coil to be bent, with an oval tapered point, graduated from the size of the largest to that of the smallest coil. The bar is fitted in the hollow shaft of the driving wheel, so as to be shifted along it, to cause the tapered point to project under the bending wheel more or less, and is provided with a collar. There is a set screw at each end of the hollow shaft, for holding it wherever it may be set, to utilize the same machine for coils of all sizes, the bending wheel only being changed. The said wheel for that purpose is fitted detachably in a slotted lever, and the guide is fitted adjustably in the slot of the lever, to adjust to the wheels of different sizes.

Improved Bale Tie.

John B. Arrants, Society Hill, S. C.—This tie consists of a block to which one end of the hoop is riveted at the middle of the side which is outward when applied to the bale, and across the outside of the upper end. The inside of the lower end is a transverse groove, in which a loop is secured of wire, around one bar of which the other end of the hoop is bent. The loop is so adjusted on the aforesaid block that the strain of the hoop keeps it in place, and the loop so binds the part of the hoop bent around it in one of the said grooves in the block as to hold it securely.

Improved Water Closet.

Edwin O. Brinkerhoff, New York city.—By suitable construction, when water is admitted into a ring pipe, it will be discharged on all sides of the basin, so that the entire inner surface of said basin will be thoroughly washed, cleaning it much better and with less water than when the water is admitted at one side of the basin in the usual way.

Improved Rein Holder.

Benjamin R. Hamilton, South Deerfield, Mass.—This invention relates to the construction of rein holders, and consists in a wedge-shaped tube and a cross-grooved wedge confined therein, the reins being passed through the tube and the wedge made to act between them.

Improved Machine for Tapering Leather.

John Settle and George W. Settle, Lebanon, Oregon.—In using the machine, a semicylindrical block is adjusted as required, a knife-carrying frame is turned back, the strap or other leather to be operated upon is inserted between the block and the knife and roller of the frame, and the frame is swung forward, paring off the leather to exactly the desired taper.

Improved Station Indicator.

John W. Bryan, Watertown, Tenn.—This consists of a casing with an upper and lower chamber, provided with sliding frames and spring followers for holding the station-indicating plates, in connection with a sliding key or frame having shoulders for carrying the station plates to the upper front opening and retaining them, by springs at the sides of the opening, exposed to view. A false spring bottom carries the lower spring follower upward for receiving the station plates in regular order after each trip.

Improved Waterproof Liquid Blacking.

Edward Clark, New York city.—This waterproof blacking is made of gum shellac, methyl alcohol, gum camphor, lampblack, sweet oil, mutton tallow, turpentine, and oil of mirbane. It is applied with a soft camel hair brush, and requires no rubbing beyond what is necessary to spread it evenly over the surface to be blacked.

Improved Paper Bag Machine.

Charles H. Kellogg, Leverett, Mass.—The paper is moved along over a table, cut off, and then folded over a former; then the horizontal bottom folders move forward and fold in the sides of a portion of the tube which projects beyond the table, to form the upper part of the bottom; then the upper vertical bottom folder comes down, and the lower vertical folder moves up to fold the remaining portions and stick them to the other portions, paste having been suitably applied for the purpose beforehand.

Improved Water and Steam Indicator for Boilers.

William L. Carman, Belvidere, Neb.—To the upper end of a cylinder is bolted a cover, upon the inner side of which are two projections. Through one projection is formed a steam port, which passes out through the top in such a direction that the steam may strike a whistle. The inner end of the port is covered with a valve attached to a float, which floats upon water in the cylinder, and is kept in place by two guide pins. The cylinder is connected with the boiler by a water pipe and by a steam pipe, so that the pressure of steam may be the same in both boiler and cylinder. By this construction, as the water in the boiler becomes either too high or too low, the port will be uncovered, and the escaping steam will sound the whistle. By other construction, if the steam pressure reaches a point above that which a lever is weighted to resist, another valve will be raised, allowing the steam to escape and sound the whistle. There are also arrangements whereby the escaping steam from the ports may give a different sound, and thus show by the sound whether the alarm has reference to the water or the steam.

Improved Brush.

Charles A. Hussey, New York city.—This invention consists in a brush having a flexible handle for containing the muckage, with a discharging tube through the neck of the handle, and a metallic shield or cover over the brush, which screws tightly to the neck.

Improved Washing Machine.

John F. Bassett, Limestone, N. Y.—In this machine the rollers between which the clothes are passed, are reciprocated longitudinally, so that the clothes are subjected to both a rubbing and rolling pressure. The improvement relates particularly to the means for adjusting the spring pressure on the lower roller.

Improved Pump.

George W. Hooper, Greene, Me.—This invention consists of packing for the piston rod, composed of a metal thimble fitted snugly to the rod, and held so as to accommodate it to the piston by a leather diaphragm, in which the thimble is fixed so as to be movable. The invention further consists in the construction of the end pieces of the cylinder which forms the cylinder heads, ways, or conduits for the water, and seats for the valves, and in the means for fastening the valves to the said seats, by passing the flexible end of the elastic face of the valve through a slot in the top of the said end pieces. The pump handle is arranged in a pivot block to shift forward and backward, to regulate the stroke to the depth of the well.

Improved Boot Leg Turning Machine.

David Bissell, Detroit, Mich.—In this machine a pulling bar is operated inside of a tube on which the leg is drawn, and a pushing bar is operated on the outside, to turn the leg over the end of the tube. The said bars move simultaneously in opposite directions. The invention consists in devices whereby the mechanism may be worked in the way most natural to the operator, also to avoid the shock and strain on the machine caused by the sudden stopping of the crank. The machine may be worked by hand or power, and be readily changed from one condition to the other, and smaller legs can be turned on the machine than it has been possible to turn as it has been heretofore made.

Improved Sheep Shears.

James L. Smith, Tuscola, Ill.—This invention consists in a guard placed on the inside near the point of one of the blades of shears, to shield the skin and guide the shears in the operation of shearing sheep or other animals.

Improved Watch Key.

John S. Birch, New York city.—This is a watch key adjustable to square pivots of different sizes, to enable the key to wind any watch. The key is made in two pieces, the upper ends of them being fastened in a solid handle; the lower ends are bored out to receive the square pivot; and the distance apart of the lower ends is adjusted to any size of pivot by a screw which passes through them and enters a nut on the other side. The head of the screw is concave underneath, and rests on one side in a slot in the jaw of the key. This appears to be an excellent invention in its line, being made of the finest hardened steel to ensure durability, and is the result of eight years' experiments on adjustable watch keys, of which Mr Birch is the original inventor.

Chief Engineer's Office, U. S. Navy Yard,

WASHINGTON, November 18, 1874.

Commodore Thos. H. Patterson, U. S. N., Commandant:
SIR:—In obedience to your order of October 5th, 1874, to carefully test the EMPIRE PORTABLE FORGE, manufactured at Troy, N. Y., I have the honor to submit the following report:

This is a very excellent and convenient forge. It works easy and with but little noise, and the power being applied with a lever, it can be worked without interfering with the manipulation of the fire.

I can recommend it as a very useful tool for work on shipboard or shop use.

Very respectfully, your obedient servant,
(Signed) EDWIN FITHIAN,
Chief Engineer, U. S. N.

Business and Personal.

The Charge for Insertion under this head is \$1 a Line.

Dry steam dries green lumber in 2 days, and is the only Cheap House Furnace. H. G. Bulkley, Cleveland, O.
Agricultural Implements, Farm Machinery, Seeds, Trillizers. R. H. Allen & Co., 189 & 191 Water St., N. Y.

Magic Lanterns, Stereopticons of all sizes and prices, for Parlor Entertainment and Public Exhibitions. Pays well on small investment. Catalogues free. McAllister, Man'g. Optician, 49 Nassau St., N. Y.

Fleetswood Scroll Saw, with Boring Attachment, for all descriptions of light Scroll Sawing. See adv't., page 138. Trump Bro's, Manufacturers, Wilmington, Del.

For Sale—No. 6 McKenzie Blower; cost \$500; used two years. Price \$200. Enterprise M'fg Co., Phila., Pa.

Heavy Planer and Mather (second hand) wanted. State lowest cash price, maker, and condition. P. P. Toale, Charleston, S. C.

Housekeepers, House Furnishers in Tin, Tinmen, send Postal Card to J. R. Abbe, Providence, R. I.

We have had continuous business relations with Geo. P. Rowell & Co. for between three and four years, and have found them honest and prompt in every instance. Persons contemplating a wide-spread venture in advertising would do well to communicate with G. P. R. & Co., 41 Park Row, New York. They have unusual facilities for the transaction of such business.—[Observer, Fayetteville, Tenn.]

Thomas's Fluid Tannate of Soda never fails to remove Scale from any Steam boiler; it removes the scale-producing material from all kinds of water; cannot injure Boiler, as it has no effect on iron; saves 20 times its cost both in Fuel and repairs of Boiler; increases steaming capacity of Boiler; has been tested in hundreds of Boilers; has removed Bushels of Scales in single cases. It is in Barrels 500 lb., ½ Bbls. 250 lb., ¼ Bbls. 125 lb.. Price 10 cents per lb., less than ¼ price of other preparations, and superior to all others. Address orders to N. Spencer Thomas, Elmira, N. Y.

Tin Manufacturers, who have waste strips, pieces, or round blanks to sell, address—giving sizes—Norton Bros., 44 & 46 River St., Chicago, Ill.

\$3,000 in Premiums; Stamp for Circular. Thomas Schoch, Grass Valley, Cal.

For Sale—The entire Patent or State Rights for the best Music Leaf Turner out. Will turn back, forward, All Sig., or Da Capo, without using the hands. Address J. T., Birmingham, Conn. (P. O. Box 120.)

See N. F. Burnham's Turbine Water Wheel advertisement, next week, on page 139.

Wanted—Traveling Agents, to appoint Sub-Agents, or Canvassers, everywhere. Address E. F. Lantis & Co., Lancaster, Pa.

Zero-Refrigerator with Water Cooler. Best in the World. Send for Catalogue. A. M. Lesley, 221 W. 33d street, New York.

For Sale—Engine 2x4½—½ H.P. Will send photo. A. R. C., Dentist, Lincoln, Ill. Very cheap!

The Lester Oil Co., 183 Water St., N. Y., Exclusive Manufacturers of the renowned Synovial Lubricating Oil. The most perfect and economical lubricant in existence. Send for Circular.

Steam and Water Gauge and Gauge Cocks Combined, requiring only two holes in the Boiler, used by all boiler makers who have seen it, \$15. T. Holland, 57 Gold St., New York.

Millstone Dressing Diamond Machines—Simple, effective, economical and durable, giving universal satisfaction. J. Dickinson, 61 Nassau St., New York.

Position Wanted in a Machine or other Mechanical Works—preferably Steam Engines—as Foreman or Assistant, by a practical Machinist and experienced Mechanical Engineer and Draughtsman. Address Frank H. Pond, M. E., Woonsocket, R. I.

2nd Hand Engines and Boilers for Sale at Low prices. Address Junius Harris, Titusville, Pa.

An old established responsible House wishes, in connection with their different European Offices, to take the exclusive European Agency for first class special Machinery. Only established firms, who can guarantee their ware, need address D. & W., Box 2620, New York.

For small size Screw Cutting Engine Lathes and Drill Lathes, address Star Tool Co., Providence, R. I.

W. Campbell's Self-Acting Shade Rollers. The Trade supplied, 87 Center Street, New York.

Send for Illustrated Circular—New principles of propelling vessels—speed increased, and power saved. C. H. Jenner, Brockport, N. Y.

For Sale, or Partner Wanted for Patent on Canal Boat Propeller. Address G. Heydrich, New Ulm, Minn.

Miller's Brick Presses for fire and red brick. Factory, 303 South Fifth Street, Philadelphia, Pa.

To Machinists.—For Sale, Cheap—A partially finished Engine Lathe, 11 feet bed, 28 inch swing. For further particulars, call on or address Clark, Smith & Co., Fort Plain, N. Y.

Price only \$3.50.—The Tom Thumb Electric Telegraph. A compact working Telegraph Apparatus, for sending messages, making magnets, the electric light, giving alarms, and various other purposes. Can be put in operation by any lad. Includes battery, key, and wires. Neatly packed and sent to all parts of the world on receipt of price. F. C. Beach & Co., 263 Broadway, New York.

Piano and Organ Wire Work of all kinds, Valve and Key Pins, Iron and Brass Finishing Nails, &c. &c. The Hendey Machine Co., Wolcottville, Conn.

Send to Atlas Works, Indianapolis, Ind., for a Photograph of their 20 inch Engine Lathe.

Wash Stands, New Styles, Marble Tops, can be used in any situation. Prices very low. Send for a catalogue. Bailey, Farrell & Co., Pittsburgh, Pa.

Grindstones—4,000 tuns. Berea Stone Co., Berea, O.
Send for Circular of a very Superior Boiler Feed Pump. D. Frisbie & Co., New Haven, Conn.

The "Scientific American" Office, New York, is fitted with the Miniature Electric Telegraph. By touching little buttons on the desks of the managers signals are sent to persons in the various departments of the establishment. Cheap and effective. Splendid for shops, offices, dwellings. Works for any distance. Price \$6, with good Battery. F. C. Beach & Co., 263 Broadway, New York, Makers. Send for free illustrated Catalogue

For best Presses, Dies, and Fruit Can Tools, Bliss & Williams, cor. of Plymouth and Jay, Brooklyn, N. Y.

Buy Boulton's Paneling, Moulding, and Dove-tailing Machine. Send for circular and sample of work. B. C. Mach'y Co., Battle Creek, Mich., Box 227.

Small Tools and Gear Wheels for Models. List free. Goodnow & Wightman, 23 Cornhill, Boston, Mass.

For Sale—One "Cottrell & Babcock" Water Wheel Regulator, in good order—by D. Arthur Brown & Co., Fishersville, N. H.

For Surface Planers, small size, and for Box Corner Grooving Machines, send to A. Davis, Lowell, Mass.

Hotchkiss Air Spring Forge Hammer, best in the market. Prices low. D. Frisbie & Co., New Haven, Ct.

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

"Book-Keeping Simplified." The whole system in a few pages. Cloth, \$1. Boards, 75 cents. Sent, post-paid. D. B. Waggener & Co., 424 Walnut St., Philadelphia, Pa., Publishers "Waggener's Trial-Balance Book."

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Temples and Oilcans. Draper, Hopedale, Mass.

For Solid Emery Wheels and Machinery, send to the Union Stone Co., Boston, Mass., for circular.

Mechanical Expert in Patent Cases. T. D. Stetson, 23 Murray St., New York.

All Fruit-can Tools, Ferracuts, Bridgeton, N. J.

Peck's Patent Drop Press. Still the best in use. Address Milo Peck, New Haven, Conn.

Genuine Concord Axles—Brown, Fishersville, N. H.

Spinning Rings of a Superior Quality—Whitinsville Spinning Ring Co., Whitinsville, Mass. Send for sample and price list.

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J. P. S. can utilize old rubber as described on p. 349, vol. 26. Galvanizing castings is described on p. 346, vol. 31.—A. L. and others will find a recipe for a blackboard composition on p. 91, vol. 30.—S. A. H. will find a formula for proportioning cone pulleys on p. 100, vol. 25.—F. P. can keep moths out of clothing by the process given on p. 225, vol. 27. Inkstains can be removed by the method given on p. 139, vol. 29.—T. & L. will find directions for purifying rancid butter on p. 119, vol. 30.—J. D. V. Jr. will find a recipe for bronzing brass and copper on p. 331, vol. 29.—S. M. can bleach cane juice for sugar by the method given on p. 378, vol. 30.—O. K. will find directions for making rubber stamps on p. 156, vol. 31.—S. A. T. can fasten paper to brass by painting the brass with oil paint, letting it dry, and using common glue. (This answers H. H. R.) Lead is readily run into plaster molds. A recipe for a soldering liquid is given on p. 43, vol. 31.—W. S. will find directions for galvanizing iron on p. 12, vol. 346. Rubber can be fastened to wood with glue.—T. R. B. will find a recipe for transparent varnish on p. 11, vol. 31, which will do for making cloth airtight.—S. M. E. will find a formula for the dimensions of a safety valve on p. 107, vol. 31.—A. E. A. can bleach skeletonized leaves by the process given on p. 153, vol. 31.—P. B. will find directions for bending wood by steaming on p. 26, vol. 31.—A. M. J. and others are informed that no preventive for boiler scale can be recommended unless the nature of the mineral deposit is known.—W. M. ought not to try and remove canceling ink from postage stamps, as it may lead to fraud.—J. F. H. will find a recipe for Babbitt metal on p. 364, vol. 29.—E. T. D. will find a description of artificial pearls on p. 250, vol. 39.—J. H. R. should consult a dictionary as to the meaning of words in common use.—A. A. will find a rule for calculating gears on p. 187, vol. 29.—L. K. Y. will find full descriptions of solder of all kinds in our last three issues.—P. S. can join his water spouts with waterproof glue; see p. 91, vol. 31.

(1) S. A. T. asks: How can I cement a porcelain mortar? A. Use a mixture of black japan varnish and white lead.

(2) W. B. B. asks: Having a good violin, to improve it I removed all polish and paint with alcohol, which spoils the tone. How can I restore it? A. Take coarsely powdered copal and glass, each 4 ozs., alcohol (64 over proof) 1 pint, camphor ½ oz.; heat in a water bath, stirring frequently until the solution is complete. When cold, decant the clear portion. This is an excellent varnish for any musical instrument of the violin species.

(3) J. J. D. asks: What is meant by slack coal? A. Coal dust. The term is commonly applied to the dust formed in cutting out coal in the mine, which is frequently piled in heaps at the pit's mouth.

(4) F. O. asks: What metal is best for making candy molds? I want to find one that cools quickly. A. Tin molds are commonly used. Dust them with powdered sugar to prevent the adherence of the candy.

(5) C. F. F. asks: Which is the front side of a mill dam? A. The side which the water runs to.

(6) D. K. asks: How can I prepare coach varnish? A. Fuse 8 lbs. fine African gum copal, add 2 gallons clarified oil, boil for 5 hours until quite stringy. Mix with 3½ gallons turpentine, and strain.

(7) P. H. K. asks: Can you give me a rule to measure corn in a crib? A. Multiply the depth of the corn in inches by the length and width of the crib in inches, and divide by 215042. The quotient will be the number of bushels.

(8) M. A. B. says: The best thing for taking dirt and grease off the hands without injury is bicarbonate of soda, used in place of soap.

(9) I. R. M. asks: How can I calculate the speed of a train of pulleys? A. Proceed as in vulgar fractions, placing the number of the revolutions of the prime mover as the numerator of a compound fraction, and the diameter of each of the driving wheels in inches also as numerators, and the diameters of each of the pulleys in inches as denominators, and proceed by cancellation.

(10) A. E. S. asks: How can I paste newspaper clippings into a scrap book without the leaves curling up and warping? A. Use a gum arabic mucilage with some refined sugar dissolved in it.

(11) A. B. L. asks: How can I make a washing crystal? A. The soda ash and soda crystals of commerce are used for this purpose, and you could not make them on a small scale to advantage.

(12) C. asks: Is there an animal generally known as the sea otter? A. Yes. It is found in the Northern Pacific.

(13) S. says: I read an article on the beneficial effects of glycerin in boilers. I tried the experiment, and the result was the reverse of beneficial. We got rid of most of the earthy matter by using a surface blower, but the glycerin had the effect of depositing the earthy matter in a hard crust, and the surface blower showed clear water in the boiler. A. The use of glycerin, as a solvent for the salts in impure matters, has been recommended for cleaning woolen fabrics, but your experiment of its use in steam boilers is the first of which we have heard. It is possible that, by blowing off from the bottom, you might get rid of the deposit. We shall be glad to hear further on this matter from any of our readers who can communicate any information.

(14) J. K. asks: What constitutes a yard of plastering? A. Nine square feet of surface.

(15) J. B. S. asks: What is the best way of polishing holly wood? A. Use a white shellac varnish.

(16) J. H. asks: Is the Pacific Ocean higher than the Atlantic at the point where it is proposed to connect them by a canal? A. No.

(17) W. R. B. says: In Dick's "Practical Astronomer" is a description of Rogers' achromatic telescope on a new plan. It consists of placing a small compound lens of flint and crown glass in a small part of the cone of rays of a large crown glass objective, and thus correcting the rays, enabling a person to use a large crown glass objective and making it achromatic by the small compound one. I have a good crown glass double convex lens, of 5 inches diameter and about 100 inches focus. What should be the size, shape, and focus of each of the lenses forming the compound one, to produce the proper correction for the above mentioned lens? A. Plano concave of double dense flint, of 2¼ inches diameter, 3½ inches radius, and plano-convex of plate glass same dimensions. 2. At what distance should the given compound lens be placed from the object glass? A. About 60 inches. 3. With the compound lens adjusted, what would be the entire focus of the instrument? A. Twelve feet six inches. 4. Are you acquainted with any telescope on the above plan, and is it satisfactory? A. An inch dialyte, by Plossl, of Vienna, divided γ *Coronae*, distance 6".

(18) S. S. asks: If the daily motion of the earth were to cease, would all the loose bodies on the surface fall into space? A. No.

(19) J. C. C. asks: Where is the best place to hang a thermometer to ascertain the heat of the atmosphere? A. If it is desired to know the temperature of the surrounding atmosphere, the instrument should be placed in some shady spot, protected alike from the direct rays of the sun and cooling drafts of air. If exposed to the direct radiation of the sun, the instrument itself will become overheated (the materials of which it is composed being better absorbers than the surrounding air), and the consequence will be that the thermometer will indicate the temperature of the materials composing it and not that of the air. The indications of cheap thermometers are never absolutely correct.

(20) P. E. R. asks: How can I cement glass together, to withstand the action of electro-plating solutions? A. Try a solution of shellac in alcohol, evaporated to the consistence of a thick paste.

(21) G. A. N. says: I want a small engine, to run a sewing machine or small lathe. Would a ¾x1½ inches cylinder, 20 or 30 lbs. pressure, and 300 or 400 revolutions per minute, be large enough for the purpose? A. Yes.

(22) H. S. P. asks: 1. What would be the horse power of an engine, with a cylinder of 5 inches bore by 6 inches stroke, running at 300 strokes per minute, with 70 lbs. of steam? A. It would develop from 4 or 5 horsepower. 2. Would it do to run a circular saw 15 inches in diameter through two inch oak plank? A. Yes. 3. How large a boiler would this engine require? A. Make a boiler with 60 or 70 square feet of heating surface. 4. Will an upright boiler last as long as a horizontal one? A. Upright boilers, when well made, are quite serviceable.

(23) P. B. asks: 1. What is the average weight of freight locomotives? A. There is a very great variety, an average example being somewhat as follows: Weight, 60,000 lbs. 2. What is the diameter of the drive wheels? A. Five feet. 3. What is the length of the stroke? A. Two feet. 4. What is the diameter of the cylinder? A. Sixteen inches. 5. What is the weight of an average freight car? A. Eight tuns.

(24) W. P. asks: 1. What size of engine would it take to run a boat 15 feet long at the rate of 8 miles per hour? A. Make the cylinder 2½ x 4. 2. I have a boiler 36 inches high x 15 inches diameter, carrying from 40 lbs. to 50 lbs. pressure per square inch. Would it be large enough? A. The boiler is too small for the speed.

(25) H. J. asks: 1. Will an engine having a cylinder 3½ inches, steam pressure of 60 lbs., running at 300 revolutions per minute, with a cut-off at ¾ stroke, do to run a circular saw 6 inches in diameter with? The fly wheel of the engine is 24 inches, and the mandrel pulley 6 inches, in diameter. A. The engine is quite large enough. 2. My boiler is 13 inches in diameter by 5 feet in length, a plain cylinder in form. Is it big enough? A. No. What will take the stains of varnish or paint off marble? A. Try a paste composed of soda, pumice-stone, and chalk.

Where is the best place to put exhaust steam in a smoke stack, at top or bottom? A. The top.

(26) S. E. P. asks: How can I remove rust from joiner's tools? A. Use emery and oil, with a piece of wood. This also answers S. A. T.

(27) W. W. says: I have a small upright engine, cylinder 4 inches diameter by 6 inches stroke. Would it do to run an ordinary row boat? How fast would she go, and what would be the best kind of propeller wheel to use? What kind of boiler would be best? Would it be necessary to have a counterbalance on the crank? A. Your engine is large enough for a boat 25 feet long, with a propeller 30 inches in diameter and a boiler from 30 to 35 inches in diameter. Some slight counterbalance may be put on, but it is not a matter of any great importance.

(28) G. asks: What amount of sulphuric acid will it require to entirely dissolve 1 lb. zinc? A. For its complete conversion into sulphate of zinc, 1 lb. of pure zinc requires 1½ lbs. of sulphuric acid of specific gravity 1.34=66° Baumé at 60° Fah. 2. What volume of hydrogen gas will the mixture give off? A. One pound of pure zinc, by its reaction with hydrated sulphuric acid, will liberate about 40 gallons of hydrogen.

(29) C. S. R. asks: What is the cause of the bursting of water backs? Two such accidents occurred lately. A. There was probably ice in the circulating pipes, so that the steam which was formed could not escape. Under such circumstances, fire should never be permitted in a range.

(30) K. K. asks: What would be the difference between the pressure necessary to explode a steam boiler from the inside, and that necessary to crush or flatten it from the outside? A. In the case of a wrought iron boiler, perfectly cylindrical, the internal pressure that would rupture it is thickness in inches x tensile strength in lbs. per square inch + the diameter in inches. The external crushing force is: 111,000 x (thickness in inches)² ÷ diameter in inches x length in feet.

(31) B. R. asks: Can ice be torn off a dam by powder? The ice is 18 inches thick and the water 12 or 13 feet deep. A. We advise you not to attempt this kind of blasting, unless you have had some previous experience.

(32) J. H. asks: 1. How are red mortar and black mortar made, for laying face bricks in? A. Mortar is made red by mixing therewith a certain proportion of Spanish brown, and black by lamp black, but neither is sufficiently permanent to be satisfactory. 2. Is fresh water better than salt for making mortar in winter? A. Pure water is better than salt water in any weather.

(33) H. says: The atmosphere in a certain building is raised from 0° to 75° by water at 212°, passing through coils of iron pipe. Suppose this operation should be reversed, and an attempt made to cool the atmosphere at 90° by cold water at a temperature of 35°, provided the circulation were kept up, to what degree of temperature could the atmosphere be reduced? A. This question cannot be answered except by experiment.

(34) J. S. asks: How much water can be boiled away in 10 hours in a vat, 5 by 12 feet, with 1½ inch pipes laid close together over the bottom of the vat, with steam at 60 or 70 lbs. per inch? A. It will depend upon the arrangement whether you boil away 25 or 75 per cent as much water as you have steam. With a good apparatus, you may calculate to evaporate ¾ of a gallon of water in the vat for every gallon of water evaporated in the boiler.

(35) S. G. says: Suppose a water tank, 8x10 x 5 feet deep, is placed on top of a house, 1,000 feet from an engine house, what kind of an indicator would be best to show how much water there is in the tank? A. Put up a stand pipe, say one inch in diameter, in the engine house, and connect it at bottom with the pipe running from the pump to the tank. Enlarge the upper part, which must be on a level with the tank, so as to introduce a float; connect this float by a cord over a pulley, with an indicator in the engine room below. As the water in this pipe will stand higher, when pumping, than in the tank, it will be necessary to stop the pump to find the true height.

(36) F. S. says: 1. Please give me a rule for finding the strength of a boiler when diameter of shell and thickness of iron are given. A. For a single riveted iron boiler, the safe working strain, in pounds per square inch, may be found by multiplying the thickness in inches by 7,600, and dividing the product by the diameter of the boiler in inches. 2. Would it make any difference in the working of an engine which end of the boiler I took the steam from, or at which end I let in the feed water? A. Ordinarily, no.

Are large mill saws tempered after they are made? A. Yes.

(37) S. D. K. says: We have a large hall, built of brick, 50 feet square and 20 feet high. The reverberation is so great as to make it very disagreeable to speak in, causing confusion of sound. What is the best remedy? Will wires do, and how