

THILL COUPLING.—Silas Rogers, Stanfordville, N. Y.—This invention relates to a new and improved mode of connecting thills to axles, whereby the thills may be readily attached to and detached from the axle, and all rattling of the parts avoided.

DEVICE FOR CUTTING BOOT AND SHOE HEELS.—Benj. F. Goddard, Charlestown, Mass.—This invention relates to a new and improved machine for cutting boot and shoe heels, and is designed to save labor and stock in the production of that work. The invention consists of a combination of dies or cutters, of different sizes, arranged in such a manner that they may be manipulated or adjusted so that the several layers of leather composing a heel may be cut out to form a heel approximating to the desired shape, requiring but a trifling amount of trimming in order to finish it.

TOWELS.—John Cash, Coventry, England.—This invention relates to an improved method of manufacturing towels to be employed for friction of the surface of the skin of persons after bathing, or similar purposes.

HAND LOOM.—T. Henry Tibbles, Kansas City, Mo.—This invention relates to improvements in an ordinary hand loom, and consists in a new device for operating the drivers and throwing the shuttle by the motion of the lay, with one picker staff and a shifting weight, and working the treadles by direct action of the lay, without treadles, through the medium of cam rollers.

HAND LOOM.—A. Smith and P. P. Smith, Plymouth, Mo.—This invention relates to improvements in the construction and arrangement of a hand loom, and consists in a device connected with the shuttle drivers in such a manner that the motion of the lay shall operate on the drivers to throw the shuttle, and also a device connecting the treadle shaft with the lay to work the treadle.

SNOW PLOW.—James S. Zane, Pleasant Plains, Ill.—This invention relates to an improvement in the construction of snow plows for railroads, and consists in inclined planes which are mounted on a truck and rise from the bed of the road to an elevated double mold board, which is hinged and so arranged in combination with machinery that it may be raised and lowered as required.

WINDOW JACK.—S. P. Loomis, Philadelphia, Pa.—This invention relates to an improvement in the construction and arrangement of a window jack or platform support for house painters.

BURGLAR ALARM.—D. B. Skelly, Lockport, N. Y.—This invention consists in an arrangement of springs which, when set or strained, are held in position by a small wire or thread, but when the wire or thread is broken or loosened the springs are liberated, which liberation or recoil gives the alarm by ringing a bell and discharging a pistol, and at the same time it ignites a match and lights a lamp.

CENTER BOARD.—Felix Doming, Penataquit, N. Y.—This invention has for its object to improve the construction of center boards, and make them more effective in operation.

DRILLING MACHINE.—George Downing, Schuylerville, N. Y.—This invention has for its object to furnish an improved drilling machine, simple in construction, easy to be operated, which can be so adjusted that the full force of the blow may be effective, whether drilling a shallow or deep hole, and which will drill vertical or inclined holes with equal facility.

BROADCAST SEEDING MACHINE.—Augustus Weltman, West Union, Iowa.—This invention relates to a new and improved broadcast seeding machine, and it consists in means employed to prevent the choking of the harness and also in means to insure a proper distribution of the seed and the sowing of the same in a perfect manner.

PADDLE WHEEL.—E. F. Bostrom, Newnan, Ga.—This invention relates to a new and improved paddle wheel designed for both river and sea steamers and has for its object a more efficient action than hitherto of the buckets or float boards against the water and the perfect operation of the buckets or float boards at varying depths of immersion.

HAIR PICKING MACHINE.—Franklin Frey, Liberty, Ill.—This invention relates to a new and useful improvement in the construction of a machine for picking or breaking up the matted knots of hair used for mixing with mortar to plaster houses.

AIR CHAMBER.—Richard H. Hilton, Newbern, N. C.—This invention relates to a new and improved method of constructing air chambers for pumps and other purposes where it is desired that a steady and uniform current of liquid or fluid should be discharged and the invention consists in arranging a strainer and ball valve in the chamber and also a sand trap or sediment chamber therein.

COMBINED HORSE BLOCK AND HITCHING POST.—George W. Preston, Corning, N. Y.—This invention which relates to a combined horse block and hitching post consists essentially in combining in one device made of cast iron or other suitable material a horse block and hitching post.

COMBINED SHRINKING AND PUNCHING MACHINE.—C. V. Statler, Woodhull, Ill.—This invention relates to a new and improved method of shrinking and punching wagon tires and other articles.

FORMING AND CUTTING WIRE.—J. Wasson, Elyria, Ohio.—This invention consists in the arrangement of a hollow circular guide and in feeding rollers which are driven by gears and in a cutting knife which may be operated by the foot whereby wire for tinners' use and for other purposes may be formed, measured off, and cut with great celerity.

CHAIR BOTTOM.—C. W. Royse, Peterborough, N. H.—This invention relates to an improvement in chair bottoms and consists in securing the overlapping ends of the network to the frame by means of wire staples.

DEVICE FOR BENDING TIRES.—Dennis Wetzel, Springfield, Mo.—This invention relates to an improved device for bending tires for wheels. It consists of a double-rimmed wheel to suit tires of different sizes.

MANUFACTURE OF WHITE LEAD.—Isaac M. Gattman, New York city.—The nature of this invention consists in manufacturing white lead by a new and improved process whereby the metal is wholly converted without waste, into white lead of great purity of color and perfect opacity in a very short time compared with the ordinary and most approved process by corrosion of the metallic lead known as the Dutch method.

BULLET MACHINE.—W. Spillman, Marion Station, Miss.—This invention relates to improved devices for forming bullets or minie balls and consists in revolving disks or rollers having one or more eccentric grooves cut in the face of their peripheries in combination with cams and impinging rollers or stationary dies so constructed and arranged as to compress and shape cylindrical sections of lead fed into the machine as to form spherical or conical balls as described.

COAL SCREEN.—Edward W. Weston, Providence, Pa.—This invention relates to an improvement in the construction of screens for separating broken anthracite coal and assorting it in different sizes, and other similar purposes.

DISTILLING SPIRITS OF TURPENTINE.—David Cashwell, Fayetteville, N. C.—This invention relates to an improvement in distilling spirits of turpentine and consists in an apparatus for applying steam to extract and expel the spirits of turpentine and rosin from crude turpentine and pine wood.

HAND LOOM.—H. M. Cooper, Lindley, Mo.—This invention relates to improvements in the construction of hand looms and consists in an arrangement of mechanism in connection with the lay or batten by the motion of which back and forth all the operations of the loom are performed, the whole structure being simple, easily regulated and kept in order, while the working of the loom is positive and effective in every part for weaving fine or coarse cloth.

WINDOW FASTENING.—Benson Mayo, Chatham, Mass.—This invention relates to an improved fastening for window blinds and consists in a device which catches and holds the blinds either open or closed alike.

DOOR AND GATE SPRING.—Enos Stimson, Montpelier, Vt.—This invention relates to a door and gate spring for holding a door or gate either open or closed, as desired.

TOILET TABLE OR STAND.—F. Kopper, New York city.—The present invention relates to improvements in a toilet table or stand, which consists in so constructing the stand that it can be folded up into a compact shape when not in use, and when to be used brought to the proper form to receive and support a foot bath or a wash bowl, or any other toilet article, or to be used for any of the ordinary purposes of the toilet.

TRY SQUARE.—J. E. Cowdery, Wheatland, Iowa.—This invention relates to an improvement in try squares, and consists in a blade held to a cross piece by a pivot and furnished with a finger pointing to a graduated scale.

IRONING TABLE.—Albert A. Chittenden, Boston, Mass.—This invention relates to an improved ironing table, and consists of a table or skirt board supported at one end upon a rail secured to the wall and setting under a bracket.

WOOD TYPE CABINET OR CASE.—Charles Aldrich, Marshalltown, Iowa.—By the present invention a cabinet or case for wood type is provided, which in its construction is simple, and in its operation convenient and most practicable, and one in which the type can be kept entirely free of dust or dirt.

TRACE BUCKLE.—A. E. Bailey and H. Nichols, Middleville, N. Y.—The buckle embraced in the present invention is extremely simple in its construction and arrangement, and in use most efficient and practicable.

HOOK FOR HOLDBACK STRAPS.—Wm. A. Bagley, Ansonia, Conn.—The hold-back hook embraced in the present invention is constructed in two parts or sections, one of which is fixed to the shaft and the other arranged to swing therein, so as to open or close the same, it being made with a spring so as to fasten itself to the fixed part when brought over the same.

SNOW HORSESHOE.—Ervin Carman, Schoolcraft, Mich.—This invention relates to an improvement in snow horseshoes, and consists of a spring placed beneath the hoof with a rubber between it and the hoof.

SHOW STAND.—John G. Oonk, Owensville, Ohio.—The present invention relates to an improved stand for the storing and showing of goods, etc., in stores, which consists in providing the stand or closet with a series of rollers on which the goods are wound and from which they can be unwound for being shown, etc.

HOSE GUARD.—David P. Lewis, Huntsville, Ala.—The present invention relates to a guard for the hose of fire engines when laid across a street having railroad tracks, in cases of fires, the object of which is to allow the running of the cars and at the same time afford no obstruction to the free passage of the water through the hose.

CHIMNEY.—Jos. F. Stafford, North Granville, N. Y.—The object of this invention is to prevent buildings being set on fire from burning out of the chimney. The invention consists in the employment of a damper located in the chimney near the top, and operated by means of a lever attached thereto, which is readily operated by a mere child.

STEP LADDER.—M. E. Abbott, Bethlehem, Pa.—This invention relates to a new and improved method of constructing step ladders, whereby they are rendered adjustable and so formed that the braces may be folded up in a small space.

BOW INSTRUMENTS.—George Gemünder, New York city.—This invention relates to a new manner of arranging the sound posts in violins, violincellos, base violins, tenor violins, or other bow instruments, so that a greater equality of sounds may be produced, and so that the tones may be propagated with more clearness, power, and distinctness than they could on instruments in which the ordinary sound posts are used.

ROTARY SWING.—J. N. Ferrester, Bridgeport, Conn.—This invention relates to a new rotary swing, which is so arranged that the seats revolve both around a horizontal and a vertical axle; whereby a very agreeable motion is obtained, and whereby all sense of giddiness, generally created by the simple revolution around a horizontal axis is completely overcome or avoided.

HEAD BLOCK FOR SAW MILLS.—Charles H. Brookbank, Connersville, Ind.—This invention consists in the construction and arrangement of the parts by which the screw-shafts on which the head blocks slide, are operated, so that they are only revolved in one direction while the log is to be fed, the same being headed by a vertical lever, the lower end of which is pivoted to the carriage while its upper portion is connected with a horizontal sliding bar.

PUMP FOR COMPRESSING AIR.—Onofrio Abruzzo, Harlem, N. Y.—This invention relates to a new arrangement for compressing air, in such a manner that the air can be compressed to an indefinite degree by hand or by any small power.

WASHING MACHINE.—W. W. Cox, Carbondale, Ill.—This invention consists in the manner of hanging one of the rollers around which the apron passes, said roller being arranged nearly under the corrugated roller, and is hung in dovetail blocks, which slide in corresponding grooves that are provided in the sideboards of the suds box.

CAR STARTER AND BRAKE.—John Wiley, 2d, South Reading Mass.—This invention has for its object to improve the construction of the improved car starter and brake patented by the same inventor, March 12, 1867, and numbered 62,911.

STEAM BRAKE.—Eugene Bourson, Brussels, Belgium.—This invention relates to a new apparatus for using the steam from the boilers without loss, in order to regulate the motion of the piston, and the speed of trains on deep grades, and to slacken or stop the progress of a train without resorting to the ordinary brakes. The invention consists in conducting steam directly from the boiler to both ends of the cylinders, so as to form a steam cushion on each side of the piston.

CORSET.—A. W. Webster, Ansonia, Conn.—The present invention relates more particularly to the clasps for corsets, and it consists in making the hook portion or part of such clasps of wire, bent into the proper shape therefor, whereby rivets are dispensed with, and a stronger and more reliable, as well as cheaper clasp, produced.

BRANDING IRON.—Charles Rundquist, Mankato, Minn.—The present invention consists, among other features, in a novel construction of the holder for the types, also in the form of the shanks of the types, and in the means employed for securing them in the holder.

MEAT SPIT.—Paul Fisher, Williamsburgh, N. Y.—This invention has for its object to furnish an improved spit so constructed and arranged as to be more convenient and satisfactory in use than when constructed in the ordinary manner.

CHIMNEY.—Bennett J. Goodsell, Pent Water, Mich.—This invention has for its object to furnish an improved chimney so constructed and arranged as to ventilate the room or rooms of the house, act as a spark arrester, and at the same time prevent the wind from blowing or driving the smoke down the chimney.

RUBBER SHOE.—J. Weldenman, Hartford, Conn.—This invention has for its object to furnish an improved device for attachment to rubber overshoes, to keep them from slipping down upon or working under the heel of the inner shoe.

PLOW.—Jonathan R. Davis, McKay, Ohio.—This invention has for its object to furnish an improved plow so constructed and arranged as to adapt itself to uneven ground, and so as to enable it to work close up to the upper row of plants, upon side hills, and which may be readily adjusted for use as a rigid plow or as a single plow.

MILL GEARING.—Joshua C. Cunningham, Oglethorpe, Ga.—This invention relates to the combination and arrangement of the stationary base wheel, the gear or pinion wheels, and the arms upon which they revolve, and the crown wheel, with each other, and with the main or driving shaft.

COTTON AND HAY PRESS.—Barnabas B. Alfred, La Grange, Ga.—In this invention a double-acting screw operates in combination with two slotted levers, working the follow-block with great power and velocity.

CONSTRUCTION OF STOVES OR OTHER HEATING APPARATUS FOR WARMING AND VENTILATING BUILDINGS.—Thomas Whitaker, and Joseph Constantine, Manchester, England.—The object of this invention is to obtain an heating apparatus for air or liquids, which, though comparatively occupying but a small space, presents not only a very large surface to the medium which is to be heated, but exposes also a large surface to the fire and the hot gases, which are compelled to come into contact with all the available heating surface in such a manner that nearly all the heat obtained from the combustion of the fuel is given off to the apparatus, and produces useful effect, instead of escaping for the most part through the chimney, as is usually the case.

MANUFACTURE OF TRUNKS, VALISES, ETC.—Samuel S. Ritter, Philadelphia, Pa.—The object of this invention is to manufacture a substantial leather trunk, which shall have no seams at the edges, and which may be made entirely without stitching, for the purpose of economy, strength, and durability.

SEWING MACHINE.—Caleb Cadwell, Waukegan, Ill.—This invention is designed to effect improvements in the mechanism for threading and guiding the cloth, regulating the tension, taking up the slack thread, and winding the thread upon the spools; and in the method of retaining the spools upon their axes, and operating the shuttle.

COOLING GLASS MOLDS.—J. H. Reighard, Wheeling, West Va.—In this invention the plunger is made hollow, and connected with a hollow piston rod, and is cooled by water injected through the piston rod. The mold is formed of two parts, between which is a narrow space. Into this space water is injected from a reservoir, when the instrument is in use, for the purpose of cooling it.

Answers to Correspondents.

CORRESPONDENTS who expect to receive answers to their letters must, in all cases, sign their names. We have a right to know those who seek information from us; besides, as sometimes happens, we may prefer to address the correspondent by mail.

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 50 cents a line, under the head of "Business and Personal."

All reference to back numbers should be by volume and page.

G. H. S., of Mich.—A good way to learn to draw sketches of machinery is to copy the engravings published in the SCIENTIFIC AMERICAN. Begin with the simplest ones.

S. W. P., asks, "Can you supply me with a recipe for making a paste that will be water-proof?" No, We wish we could. Here is a chance for inventors.

E. H., of Ohio, asks if it is necessary to extend his exhaust pipe far up the smoke stack to aid his draft. We think it only necessary to introduce the exhaust pipe into the up-take and turn the end upward to produce the desired result.

J. H. G., of Ky., inquires as to the proportions of sand and hydraulic lime to make a cement to harden under water for a foundation on gravel. We can only refer him to Gillmore's "Treatise on Hydraulic Cements" published by D. Van Nostrand, 192 Broadway, New York city, as the qualities of the cements sold in the market, and the sands found in different localities vary greatly.

J. B. P., of Vt., says he has used one of "Douglas' pitcher spout pumps No. 1, the barrel being two-and-a-half inches and length of stroke four-and-a-half inches. The leading pipe is fifty-six feet in length, the height of the pump from the water in the well twenty-five feet perpendicular. It will not work; neither will a larger size, which I tried. What is the difficulty. Will a smaller pump or larger pipe do the business?" Knowing that the Douglas pump is a good one, we can only surmise that there must have been some trouble in the connections, or that the pump, itself, needed some doctoring. Certainly any properly constructed pump the connections of which are perfect ought to lift water twenty-five feet.

B. G. K., of Md., asks for the components of the well-known Babbitt metal. Although there are superior compositions in the market, yet many of our readers may desire information on this subject. To four pounds of pure copper melted, twelve pounds of best tin (Banca considered as pure as any) are gradually added; then eight pounds of antimony (regulus). After melting, twelve pounds more of tin are added. Powdered charcoal sprinkled over the surface of the metal in the crucible will prevent oxidation. When to be used for lining boxes one pound is sometimes melted with two pounds of tin.

A. A. W., of N. Y.—"Which is the strongest, a solid cast-iron shaft, or one with a small hole or of a larger size through the center from end to end, and would the same answer to this question be applicable to a shaft of wrought iron or steel?" In casting iron, or even steel, the outside cools and contracts more rapidly than the interior; consequently a hollow shaft of equal or the same weight is stronger than a solid shaft. Forged shafts of wrought iron and steel are not subject to the same law in the same degree.

Business and Personal.

The charge for insertion under this head is 50 cents a line.

Pattern Letters and Figures for inventors, etc., to put on patterns for castings, are made by Knight Brothers, Seneca Falls, N. Y.

Wanted—A second-hand low-pressure engine of about sixty horse-power. Address A. Catchpole, Geneva, N. Y.

The attention of those engaged in the manufacture of Burglar-Proof Safe Locks is called to an advertisement on our last page.

A Great Bargain.—The Patent Right of Forman's Combined Steam Baker and Reflecting Roaster, illustrated on page 312, present volume Scientific American, will be sold low, either entire or by States and Counties. Address Israel Forman, Fairmont, West Va.

Parties wishing to purchase good second-hand Portable and Stationary Engines, from four to fifteen horse-power, apply to Abram Logan, Tideout, Pa.

Patent Office Reports.—Persons desiring Patent Office Reports can be supplied at low prices. Address Samuel C. Jones, Box 773, New York Postoffice.

Hand Machines or Planes for cutting out Match Splints, wanted. Send cuts and prices to Packard's Machinery Agency, Milwaukee, Wis.

S. G. Tufts, Maineville, Ohio, wishes the address of all parties engaged in making Hames and Plowhandles.

M. Nial, Troy, N. Y., wants address of Toy makers.

Manufacturers of improved machinery for manufacture of Cotton Batting, address; with description, T. L. Kinsey, Savannah, Ga.

Wanted—a second hand set of Tinners' tools. Address, with full description and price list, H. D. Heath, Candor, Tioga county, N. Y.

I wish to know where I can obtain Peat put up for shipment. Peat charcoal would suit me better. C. Browning, Rush Run, Jefferson county, Ohio.

E. Ware, Bayonne, N. J., wishes the address of Threshing Machine Manufacturers, especially at the West.

Fish Nets.—Manufacturers of machinery for making these articles will please address J. F. Brown, Lock Box 20, Binghamton, N. Y.

Parties desiring any kind of new apparatus invented, or drawings, etc., made, address with confidence, A. E. W., Inventor and Draughtsman, 114 Fulton st., New York.

Geo. S. Hurford & Co., Canton, Ohio, wish to obtain a machine that will make small bolts with a head on both ends, in size from 1 inch long by 3-16 inch thick, up to 8 inches long by 1/2 inch thick.