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. Pamphlets giving full particulars of the mode of applying for patents, size of model required, and much other information usefut to inventors, may be had gratis by addressing MUNN & CO., Publishers of the Schenfric American New York.

28,723 - Harry Abbott, of North Huron, N. Y., for an Improved Churn:

Amproved Chuffi:

I claim the combination and arrangement of the dashers, E.E. guided in their motions by the vertical grooves, b b, and inclined grooves, i i. or their equivalents, with the auxilliary counter acting dashers, G.G. constructed and operating substantially as and for the purposes specified.

28,724.-Wm H. Allen, of Brooklyn, N. Y., for an

28,724.—WM H. Allen, of Brooklyn, N. Y., for an Improved Steam Pressure Gage:
I claim the combination or the two cylinders, B, pistons, C C, and adjustable crosshead, D, with the central indicating rod, G, spring, Et, and spring box, E E, in the manner and for the purpose shown and described.
I also claim the arrangement and combination of the caps, H H, in combination with the plate, G, and cylinders, B B, as shown and described, so that said caps will serve to cover the cylinders, B B, to guide the piston rods, b b, and also to confine the plate, G, all as set forth.

[This invention nsists in a certain arrange box in which it is isolated in combination with two pistons working in parallel cylinders, and having their rods connected with a cro head to which is attached an index working against a fixed grad ated scale, the whole constituting a simple, durable and effective pressure gage for indicating the pressure of steam in boilers, or of water in pipes or vessels, or of fluids in various conditions.]

28,725.-Edward Andrews and John H. Carr, of Palo Alto, Pa., for an Improvement in Lubricating Journals:

We claim, first, The pad, E, and spring, D, when used for the purpose as fully specified and described.

Second, The combination and arrangement of the plus, F, valve, H, cross-piece, J, air escape, O, and guard piece, M, constructed and operated substantially as and forthe purpose specified.

28, 726.—David Baker, of Harwich, Mass., for an Improved Spout and Lid of Pitchers:
I claim the combination and arrangement of the channel, a a a, the lid, B, the outer lid, A, and the lever, C, substantially as and for the purpose specified.

28,727.-Samuel Barley and J. H. Barley, of Long-

28,727.—Samuel Barley and J. H. Barley, of Long-wood, Mo., for an Improvement in Harvesters:

We claim, first. The arrangement of the rake barand head, e' e'', to operate in combination with the guard plate, S, crank, d', shafts, C C, and platform, I, as shown and described.

Second, We do not claim, broadly, the invention of the divider, but we do claim the arrangement of the horn-shaped divider, T, to revolve, so that it can be adjusted to any desired position, in the manner shown and described.

sists in a novel arrangement of parts, whereby many advantages are obtained by very simple means.]

28,728.—Henry Barringer, of Wataga, Ill., for an Im-

provement in Upsetting Tires:
I claim the combination of the movable segment clamping lever, D, rocking piece, F, block, G, and clamping portion, H, when arranged in a manner to produce the result set forth.

[This invention consists in pivoting the lower clamping lever that is to be operated by treadles to a sector plate that moves in suitable guides in the frame-work of the machine, and in attaching one end of the bearing or clamping block to this plate in such a manner as to move with it, and in arranging in a sliding block in such a relation to the clamping movable block, plate and lever that the ma be adapted to tires of any width or diameter with great facility. Th clamping devices are constructed in such a way that they r fixed in any desirable position to which they may be justed.1

28,729.—Lafavette Bartoo, of East Aurora, N. Y., for

an Improved Sash-fastener:
I claim the spring stops, C and C, having the catches, f and h, for the combined purposes as specified.

28,730.-C. F. Baxter, of Boston, Mass., for an Im-

provement in Furnaces:

provement in Furnaces:
I claim, first, The combination of a double cylinder steam generating fire-pot, with pipes, E E, substantially as described and for the pu poss set forth.
I also claim the arrangement of the steam-generating fire-pot, F, to stand apart from, but within the inner wall, J, of the hot-air chamber, H, so that the exterior surface of the fire-pot will be constantly surrounded by the hot products of combustion, as shown.
I also claim the arrangement of the oven, G, directly above the fire-pot, F, but within the inner wall, J, of the hot-air chamber, H, as shown.

I also cla fire-pot, F shown.

28, 731.—S. A. Beers, of Brooklyn, N. Y., for an Improvement in Iron Rails for Street Railroads:

I claim the construction and use of a box or coping rail for street railroads of such width as to accommodate a car and carriage track, in combination and of such depth as to give strength to the rail, whether the same is laid with or without a continuous string piece, constructed substantially as described.

In combination with the rail constructed substantially as described I also claim the wedgeand cleats, for the purpose set forth in the accompanying specification.

28,732.—Albert Bigelow, of Hamilton, C. W., for an

20, 102.—Aldert Bigelow, of Hamilton, C. W., for an Improvement in Steam Plows:
I claim first, The arrangement with the main supporting frame, N', and with the sudies chain, D, and plows, C. C. of the auxiliary radius, frame, Q.R., wheels, F, transverse shaft, O, and longitudinal shaft, A, substantially in the manner and for the purposes described. Second, The arrangement of the chains, E, radius frame, Q.R., and adjusting mechanism, G.G., G3, substantially as and for the purposes set forth.

28,733.—S. F. Brooks, of Weston, Mass., for a Game

I claim the box. A. with its frame and slass plate, in combinati

with the drawer, B, and its furniture, as set forth, for the purposes specified.

[This invention consists in constructing a flat-box with a neat frame round its edge, and a glass top; and in furnishing such a box with a drawer, divided into a number of apartments forreceiving the pieces to be used in playing at cards, dominoes, checkers, &c. The box is provided with game boards covered on on e side with picture which, on being placed within the frame and the frame hung up, will give the box the appearance of a picture frame.]

28,734.—J. M. Carlisle, of Greenwood, S. C., for an Improved Machine for Sawing Shingles from the Bolt:

BOIL:

I claim the employment oruse of the two saws H I, having respectively oblique and parallel cutting planes relatively with the end of the bolt, O, in connection with a rectilinear feed movement of the bolt, all being arranged and operated substantially as and for the purpose set forth.

27,735.—C. B. Carpenter, of North Attleboro', Mass., for an Improvement in Watch Chains:
Iclaim my improved mannfacture of jeweler's chain, as constructed with each link naving two arms, as, two scales, b, b, and a consection, c, arranged and applied to a succeeding link, as described.

28,736. - James Chesley, of Concord, N. H., for an Im

proved Boot and Shoe-cleaning Apparatus:
I claim the arrangement of the frame, A, the brushes, B and and E, the scraper, D, the spaces, a, and the draw, H, substantis and for the purpose specified.

28,737.—C. W. Clewley, of Providence, R. I., for a Method of Constructing Rims for Watches:

I claim the use of a combined die and cutter, D, and a plunger, A, in combination with the same, or their equivalents, the two so combined, operating in the manner substantially as described for the purposes specified.

28,738.—Cornelius Collins, of Brooklyn, N. Y., for an Improvement in Machinery for Making Wire Rope: I claim the combination of the standard, B. fixed crank, C, disks, D and E., cranks, F, and reels, R, the whole being arranged and operating in the manner and for the purposes set forth.

28,739 .- E. M. Corbett, of New York City, for an Im-

provement in Photographic Cameras:
I claim, first, The combination with the plate-holder, G, of the double combination slide, D, constructed and operating substantially as and for the purpose set forth.

Second, Arranging the main slides, d d', of the slide, D, with centralls, f', substantially in the manner and for the purpose de-

scribed.

Third, The arrangement und combination of the double adjustable lenses, E, slides, e e° e' e'*, and adjustable plate holder, G, constructed and operating substantially in the manner and for the purpose set forth.

28,740.-C. W. Crosley, of New York City, for an Im-

28,740.—C. W. Urosiey, or New 1012 017, 1012 proved Fire-escape:

I claim the application to large canvas tubes of metallic and indiarubber bands, which will gradually stretch at a given pressure, and allow the person entering the tube to escape from the burning building without the slightest injury, as described, using for that purpose the metallic and india-rubber ring or band, or any other substantially the same, and which will produce the intended effect.

28,741.-C. A. Desobry, of Plaquemine, La., for an

Improvement in Bagasse Furnaces:
laim the arrangement of the outlet, B, and the openings, f f', in
lination with each other and with the equare or polygonal fireaber, substantially as and for the purpose set forts.

28,742.—William Dougherty, of Philadelphia, Pa., for an Improvement in Machines for Grinding Saws:

I claim the block, G, with its inclined sides, in combination with, and arranged in respect to, the two revolving grindstones, E and E', when a vertical as well as horizontal reciprocating motion is imparted to the said block, G, by the devices set forth, or their equivalents.

43.—J. B. Duff and T. W. Keating, of New York City, for an Improvement in Machines for Measur-

City, for an Improvement in Machines for Mering the Strain on Pulley Belts:
We claim the uniting the ends of the belt by an elastic maplaced on a clasp or fixture constructed with arms attached thely and indicator and scale, in the manner and for the purpose seribed.

28.744 .- A. K. Eaton, of New York City, for an Im-

provement in the Treatment of India-rubber:
I claim the combination of oxyd of aluminum with sulphur and
caouthouc or allied gums, and the treatment of the compound in the
manner substantially as specified.

28,745.-William Fuzzard, of Charlestown, Mass

20, 420.—w HIMM FUZZATG, OI CHARLESTOWN, MASS., an Improvement in Surfacing Fibrous Materials I claim the employment or use, in connection with a heated a face, of an apron formed of any textile or other similar or suits fabricas a vehicle teconvey and discharge on the fibrous web the a facing compound or material.

[This invention relates to an improvement in "sizing," or applying a glue or adhesive compound or substance to the surface fibrous materials-such as cotton wadding-which operation is technically termed "surfacing."]

28,746.-Joseph Geiermann, of Albany, N. Y., for an Improvement in Sewing Machines:

I claim the combination of two shuttles and one needle, operating together so as to form with three threads a stitch, substantially as described and in the manner specified.

28,747.-E. P. Gleason, of Providence, R. I., for an Improved Die-plate for Cutting Screws:

I claim combining with such die-plates the guiding jaws, 1111, or their equivalent, in the manner and for the purpose specified.

28,748 -Wm. D. Grimshaw, of Newark, N. J., for an

Improved Hot air Engine:

Improved Hot air Engine:

I claim the employment of the solid metallic packing, I, in the manner substantially as shown and described, so that when a sufficient degree of heat is applied to the engine, the packing will melt and remain in a fused tate until the heat is withdrawn, as set forth. I also claim the heating of the air or steam by b inging it in contact with the fused metallic packing, I, substantially as and for the purpose shown and described.

I also claim the covering of the fire chamber, C, with the metallic packing, I, which fuses on being heated.

I also claim the combination of the pipe, E, cylinder, C', piston, F, and packing, I, in the manner and for the purpose shown and described.

I also claim the introduction of air or steam between the surface of the fusible packing, I, and the interior of the piston, F, substantially as and for the purpose shown and described.

28,749.-E. J. Hale, of Foxcroft, Maine, for an Improvement in Lamps:

I claim my improved wick-retainer, as made, not only with a spring clasp by which if may be, readily attached to, or detached from, the can is described, but soas to extend up through the lower end of, and into, the wiok tube and against the work essentially as specified.

28,750.-J. P. Hayes, of Philadelphia, Pa., for an Im-

28, 750.—J. P. Hayes, of Philadelphia, Pa., for an improvement in Making Plumbers' Joints:

I claim a mold or case provided with a secondary chamber, f, to operate substantially in the manner and for the purpose set forth and described.

I also claim, in combination with a mold or case adapted for making plumbers' joints in hipse by the process of melting the ends of the said pipe, as described, the employment of a tubular protector, C, as and for the purpose specified.

28,751.-Wm. A. Herrick, of Leeds, Maine, for an Im-

provement in Coupling and Uncoupling Cars:
I claim the combination and arrangement of the levera, c c and, constructed and operating substantially as described in the sp

28.752. -C. W. Higgins, of Somerville, Mass., and A. S. Willard, of Charlestown, Mass., for an Improved Clothes-wringer:

We claim the arrangement and combination of the sliding shaft of pinion, D, with pinion, E, for operating the bag, B, substantially in the manner and for the purpose set forth.

28,753.-C. J. Hobe, of New York City, for a Machine for Bundling Fire-wood:

for Bundling Fire-wood:

I claim, first, The employment of a reciprocating knife, C, more or less curved, in combination with the relatively-shaped hollow bottom of the hopper, B, both operating together, for the purpose of gathering, cutting-off, and thus forming conjointly between them a bundle of wood of the size and shape required; the whole substantially as described.

Second, The employment of the conical or tapering hole, f, substantially as described, as a simple means for effectually compressing within it the aforesaid loosely-gathered bundle, and to firmly hold it while receiving the cord.

Third, The combination of said hole, f, and the plunger, E, for forcing the bundles into and through said hole, arranged and operating substantially as described.

Fourth, The method of arranging the cords, h, on an adjustable sleeve, G, and fixed drum, H, or their equivalents, substantially as described, enabling the operator to quickly adjust a large number of cords at a time, and to have them at hand in such convenient position, so that said cerds can be readily passed, one after another, on to the cord-carrier, H, when required.

Fifth, The arrangement of the reciprocating tubular cord-carrier, H, and the combination of the same and the fingers, I, constructed and operating substantially as and for the purpose est forth.

Sixth, The arrangement of the doubly-finged bundle-remover, K, attached to a vibrating arm, K, or its equivalent, when operating as and for the purpose specified.

Seventh, The arrangement and combinasion of the knife, C, noner, B, hole, f, plunger, E, drum, H', and sleeve, G, cord-carrier, H, fingers, I, and bundle-remover, K', constructed and operating substantially as and for the purpose specified.

[This invention consists in a certain arrangement of parts for

[This invention consists in a certain arrangement of parts for forming the bundles, for retaining them ready to receive the cords, and for carrying the cords and bringing the same over the bundles in such a manner that the pieces of wood which are fed into the machine are thrown out in bundles of the required size.

28,754.-H. S. Holmes, of Lynn, Mass., for an Improvement in Congress Boots:

I claim securing the edges of the gores to the gaiter tops and lining by a seam common to all, in the manner and for the purpose substan-tially as set forth.

28,755.-J. N. Jacobs, of Worcester, Mass., for a Port-

folio Newspaper File:
I claim the combination with the two boards when attagether by a back, B, as set forth, of the cords, D D, attache edge of one board, eyes, G G, attached to the edge of the board, and the elastic straps, E E, forming a self-holding, justing, book-rhaped portfelio, substantially as set forth.

28,756.-Jabez Jenkins, of Philadelphia, Pa., for a Composition for Lining Safes:

I claim the employment of copperas or sulphate of iron, ith plaster-of-paris or some other suitable material, in the rescribed, fortbe purpose set forth.

[This invention consists in the employment of pow or sulphate of iron, either alone or mixed with plaster-of-paris or some other suitable material, for the purpose of lining fireproof

28,757.-S. A. Kerr, of Arbor Hill, Va., for an Im-

proved Churn:
I claim the manner described and shown of arranging the blades or slats, a a, on a vibrating or turning dasher-staff, for the purpose set forth.

28,758.-Rufus Lapham, of New York City, for an Improvement in Blowers:

I claim the application of an india-rubber or flexible tube, closed at both ends elliptically and held and operated upon by plates and a lever, substantially as and for the purposes set forth.

28,759.-T. R. Markillie, of Winchester, Ill., for an Improvement in Plows:

I claim the arrangement of the plow or plows as connected to the ruck, in combination with the lexers, G and L; the whole being onstructed and operated in the manner and for the purposes decribed

28,760.—J. P. McLean and P. A. Morley, of New York City, assignors to P. A. Morley aforesaid, for an Improved Egg-beater:

I claim the arrangement and use of corrugated or twisted beaters, bb'b'b'', in combination with the cylinder, e, and operated in the manner and for the purpose set forth, and shown in the drawings at Figs. 1 and 2.

28,761.—James McGlensey, of Philadelphia, Pa., for an Improvement in Gas-burners:

I claim the arrangement of the cover, D. provided with holes in the top to spread the flame, with the tube, B, the jet, A, and the holes, U G, when used in the manner and for the purpose set forth. 28,762.—R. S. Merrill, of Lynn, Mass., for an Improved

28,763.-F. I. Miller, of Brooklyn, N. Y., for a Cigar Rack for Hats:

I claim, first, The cigar hat-rack, constructed and applied in substantially the manner described and shown.

Second, I claim the clasps, b, constructed and operating as set forth, when applied to a hat-rack for cigas, for the purposes and as specified.

28,764.—Henry Mitchell, of Cincinnati, Ohio, for an Improvement in Sprinkling Attachment for Rail-

road Cars:

I claim the combination of the tanks, H H', sprinkling tubes, I J
valve, K, and brake genrips, E E, arranged and operating substantially as and for the purposes set forth.

28,765.—Jacob Moomey, of Clinton, Iowa, for an Improvement in Fenders for Docks, Wharves, &c.

provement in reflects for DOCKS, W harves, &c.

I claim, first, The employment or use of a frame or fender, B, provided with rollers, D, and suspended from a windlass orother fature at the top of a dock, pier or other structure, when said frame or fender is provided with india-rubber rollers, E, at its inner side, to operate substantially as and for the purpose set forth.

Second, The peculiar manner of attacking the india-rubber rollers, E, to the inner side of the frame or fender, B, usurely, by means of the springs or elastic staples, F, to operate as and for the purpose set forth.

of the springs or elastic staples, E, to open set forth.

Third, The connecting of the frame or fender, B, to the dock, A by means of the chains, k, and slides, j, substantially as described.

28,766.-Wm. A. Morse and D. S. Beans, of Boston, Mass., for an Improved Spring Bed Bottom:

I claim the arrangement of the hooks, C, elastics, D, and metal frames, F, as shown, for the purpose of attaching the slats, E, to the rails, B, of the bedstead.

This invention relates to an improvement in that class of spring Links invention relates to an improvement in that class or spring bed bottoms in which wooden slats are used in combination with clastic attachments. The object of the invention is to obtain a simple connection of the electics to the rails of the hedstead, so that elastics may be easily attached to, and detached from, the without injury; the invention also having for its object the perma nent attachment of the elastics to the slats, and in such a way as to insure a perfect attachment along the whole width of the elastic, and thereby subject it to an equal strain or tension throughout its entire width. I

28,767.—Benjamin Morrison, of Philadelphia, Pa., for

an Envelope:

I claim an envelope provided with an opening or openings through which the usual postmark or marks may be imprinted or stamped, as heretofore, directly or exclusively upon the letter or document enclosed therein, substantially as set forth and described.

28.768.—Jehiel Munson, of Burlington, Vt., for a Com-

23, 103.—Jentel Munson, of Burlington, Vt., for a Composition for Paste for Attaching the Coverings to Pianoforte Hammers:

I claim, first, The composition from the materials, and in the manner described, of an adhesive composition or paste.

Second, The application of such paste for the purpose of attaching to the whole face of the felt with which pianoforte hammers are usually covered, the leather by which they are protected from the action of the strings.

28,769.-H. G C. Paulson, of New York City, for an Improvement in Clarifying Sugar:

I claim the application of a temperature above the boiling point under atmospheric pressure of said combined liquors, as stated, to raw sugars or the concentrated juices of sugar-bearing plants, for the purpose of clarifying and defecating said raw sugars.

28,770.-Walter Peck, of Rockford, Ill., for an Im-

28,770.—Watter Feck, of Rockford, Ill., for an Improvement in Windmills:
Iclaim, first, The combination of shoe, N, pitman, L, arm, F, spidery, E, and spring, e, or its equivalent; the whole arranged and operating as described, for the purpose set forth.
Second, I claim, in connection with the above-claimed combination of devices, the employment of an atmospheric governor, S, substantially as and for the purpose described.

28,771.—O. Z. Pelton, of Middletown, Conn., for an Improved Beer Pitcher:

I claim a beer pitcher having a movable froth partition, with a curved top and a lid provided with a packing ring; all as shown and described

described.
[This invention consists in arranging a beer pitcher with a movable partition which extends from top to bottom and near to the spout, having a strainer near to its bottom to operate in combination with the usual strainer before the spout, so that the beer is drawn from the bottom of the pitcher; said partition being movable, so that it can be taken out and cleaned to prevent souring. The invention also consists in the arrangement of a groove on the edge of the cover to receive some suitable packing, so that the cover closes down per fectly tight.]

28,772.—Frederic Plant, of New York City, for an Improved Machine for Making Needles:

I claim the combination of the feeding and groove-stamping aparatus with the needle-holding tubes, substantially as and for the

ses specified.

o claim the revolving needle tubes for holding the wire and ng the same, as described.

relieving the same, as described.

I also claim the combination of a series of grinding apparatuses, with their adjustable blocks for pointing the needles, and polishing the same with a series of needle tubes or holders, as specified.

I also claim the apparatus for bending the barbs of the needles, as set forth.

set forth.

I also claim the combination of a series of needle-holders, feed apparatuses, grinding and bending apparatuses, by which a perfect needle can be formed without manipulation in a single machine.

28,773.—H. Poissonniér, of New York City, for a Composition for Silvering Mirrors:

I claim the employment of tartrate of potassa, mixed with nitrate of silver and liquid ammonia about in the proportion specified, for the purpose set forth.

[The object of this invention is to produces composition which will not only obviste the danger attended with the use of the usual mer-curial composition, but which, at the same time, enables the manufacturer to produce cheaper and more durable mirrors than by the ordinary method of silvering.]

28,774.—William Price, of New York City, for an Improvement in Binding Guides for Sewing Machines:

claim the arrannement of the guide hook, a and bar, b, on the D as described, in combination with the hook guide, a, wide th, C, and supplementary guide, f; the whole being constructed operating substantially as and for the purposes set forth and de-

-Isaac Randall, 2nd, of Claremont, N. H., for

an Improvement in Apparatuses for Drying Fruit:
I claim the fire box, H, and the hot-air chamber, G, in combination with the drying box, as shown in Fig. 1 and above described, and
shelves, K K, &c., constructed and arranged substantially as set
forth.

28,776.—William Rankin, of Richmond, Va., for an Improvement in Cording Guides for Sewing Ma-

chines:

I claim a cording guide composed of a single bent piece of metal, and having upon it a guide, e, a groove, i, and an eye, n, and in close proximity to said eye, a recess, r, and also furnished with oblique mcks or indentations, o, inclining in the direction of the feed of the cloth, and so arranged as to come directly under the presser foot, and between it and the lower feed, substantially as and for the purpose set forth.

28,777.—A. J. Rogers, of Stephentown, N. Y., for an Improvement in Seed Planters:
I claim the arrangement of the axle, H. wheels, D. D. roller, G. plow, F. cylinder, A. and hopper, B. arranged and operated as described and for the purposes set forth;

28,778.—M. B. Rupp, of McVeytown, Pa., for an Improvement in Seeding Machines:
I claim the arrangement of the plows, Q', upper guides, a, lower guides, R, adjustable, P, caster wheel, o, and the seeding apparatus; the whole being constructed as described.

28.779.—André Sabatier, of New York City, for an Im-

proved Polish for Furniture:
I claim the polish composed of gum benzoin, alcohol and linseed oil in a bout the proportions specified.
[This; polish is intended for all kinds of household furniture, cab.

inet work, picture frames, and all articles of wood, and may be also used for metal ware.)

28,780.—C. H. Sayre, of Utica, N. Y., for an Improve-

ment in Cultivator Teeth: claim the shank, A, as constructed, in combination with the plate, D, for the purposes set forth.

28,781.—W. F. Shaw, of Boston, Mass., for an Improved Apparatus for Broiling or Roasting by Gas: I claim the arrangement of the steak-holder, the broiling chamber and the burner or burners.

Also, the arrangement of the two deflectors with the heating chamber and with respect to the burner or burners and the steak-holder, when arranged as specified.

Also, the combination of the closed air-chamber or space in the cover with the steak-holder and the heating chamber, arranged as precified.

pecified. Also, The combination of the vertical side or cover with the steak-nolder and drip pan, said side er cover having a closed air-chamber or space as specified and shown in the drawings.

28,782.—Daniel Sheets, S. H. Dubois and J. B. Pressey

20, 102.—Daniel Sheets, S. H. Dubois and J. B. Pressey, of Suisun City, Cal., for an Improvement in Machines for Reaping and Mowing:

We claim the combination of the forward and backward reciprocating cutter with the stationary spear-shaped fingers of cutters constructed, arranged and operating together in the manner and for the purpose set forth.

28.783.-A. B. Smith, of Clinton, Pa., for an Improvement in Raking and Binding Apparatuses for Harvesters:

Harvesters:

I claim the mechanism described, or its equivalent, arranged to operate one or more compressing arms, independent of the binding arm, and work said compressing arm down on top and overithe gavel, substantially as described.

And in combination with ne or more compressing arms arranged to work down over the grain or gavel as described, I claim the mechanism described, or its equivalent, for operating one or more compressing arms working up under the gavel, independent of the binding arm, substantially as described, so as to compress the gavel without the aid of the band or arm/carrying the band.

I also claim the mechanism, or its equivalent, for making the compressing arms to work before or in advance of the arm that carries a band, to open a space between the grain or straw on the platform and the gavel for the end of the binding arm to come through, substantially as described.

I claim the application and arrangement of the devices substantially such as are described, which operate the binding arm, N, with a positive motion in each direction, for the purpose specified.

I claim the hook, P, hollowed on its under side, operating in combination with the binding arm, N, carrying the knotted end of the band, as described.

28,784.—J. P. Smith, of Hummelstown, Pa., for an Improvement in Corn-shellers:

Amplovement in Corn-Shellers:
I claim the combination of the ogee-shaped shelling wheel, B, with
the ear-holder, C, provided with the adjustable teeth, p p—the several parts constructed, arranged and operating substantially in the
manner and for the purpose set forth.

28,785.—W. H. Smith, of Birmingham, Conn., for an Improvement in Sewing Machines:
I claim obtaining the lateral portion of such movement by means of a link, W, connecting the needle-carrier, S, with the feed rockshaft, and acting in combination with a spring, W, as described.

[This invention consists in a novel arrangement of the parts for producing the double looped stitch.]

28,786.-W. H. Smith, of Newport, R. I., for an Im-

28,786.—W. H. Smith, of Newport, R. I., for an Improvement in Stoves:

I claim, first, The arrangement of the opening, h, partitions, c c, and compartment, F, in combination with the base, A', compartment, G, trunks, H H', and annular passages, I, as and for the purposes shown and described.

Second, Placing the oxygen supplytubes, Q P P, between the inner and external cylinders, A E, and consequently in contact with the heated products of combustion, for the purpose of admitting warm oxygen to the infiammable gases within the cylinder, A, and thereby insure their perfectcombustion.

28,787.—Jacob Stam and John Shubert, of Sardinia, Ohio, for an Improvement in Spoke Machines:
We claim the combination with the pendulum frame, P. of the swivel frame, Q. in which the shaft of the cutter bead is mounted—the whole being constructed and made to operate substantially as and for the purposes set forth,

28,788-J. S. Steiner, of St. Louis, Mo., for an Improve-

28, 788—J. S. Steiner, of St. Louis, Mo., for an Improvement in Sewing Machines:
I claim imparting to the shuttle, K, a receding motion from the needle, the moment after said needle has entered the cloth and before it has arrived at the lowest position, for the purpose of taking up the slack of the shuttle-thread after the latter has been turned over the edge of the cloth, to work a button-hole substantially in the maner and for the purpose described.
I also claim so combining the hook, Q, with a needle and shuttle as that it may be readily coupled or uncoupled from the driving part of a sewing machine, by means substantially such as described, for the purpose of changing the machine from a button-hole to plain work sewing machine, and vice versa, substantially in the manner described.

28,789.—A. S. Sterling, of Buffalo, N. Y., for an Improved Boiler for Cooking Stoves:

I claim the combination and arrangement of the concave bottom, B, extension rim, E, and saucer concave, F, for the purposes and substantially as set forth.

28,790.—Robert Stokes and D. J. Jones, of New York
City, for an Improvement in Skirt Hoops:
I claim the employment, in combination with the hoops, A. B., and
slides, D. D. in the manner substantially as shown and described, of
spreaders, c, for the purpose set forth.

28,791.—Cornelius Teachout, of Waterford, N. Y., for

25, 791.—Cornelius leachout, or waterford, N. 1., for an Improved Drill Rest:

I claim, as an improved article of manufacture, a drill rest privided with a shank, F. movable guide blocks, C. C, and adjustive screws, D. D.—all constructed and arranged together substantially described, for use in tool-holders of machinists' lathes.

28,792.—I. L. Vansant, of Red Lyon, Del., for an Im-

provement in Adjustable Carriage Seats:
I claim the combination of the hinged, knuckled and slotted legs with the levers, shoes and ways described and shown by my drawings as (and for the purposes) of self-adjusting carriage seat composed wholly or in part of iron or other suitable metal or wood as before set forth.

28,793.—H. C. Vion, of Paris, France, for an Improved Method of Utilizing Atmospheric Electricity:

1 claim, first, 'The peculiar awangement of means specified,

whereby I am enabled to use the positive electricity contained in the atmosphere and the negative electricity cooks ined in the earth, and thus form an electric pile of considerable power and make the elec-tricity therein contained available for industrial purposes, as set

forth. Second. The combination of an aerostat and vertical wire-work, with a tube, I, for admitting gas into the aerostat in the manner and for the purposes set fibrth

28,794.—H. N. Wadsworth, of Washington, D. C., for

an Improved Tooth Brush:
I claim the construction of a brush with a wedge-shaped end, in combination with the obliquely-set bristles—the whole arranged and operating as specified and for the purposes setforth.

28,795.—C. C. Walworth, of Boston, Mass., for an Improved Steam Trap:

Improved Steam Trap:

I claim the combination of the high pressure steam chamber, f, reduced steam chamber, c, valve, g, and disphragm, a, or its equivalent, so arranged that the communication between these chambers is controlled by the direct action of high pressure steam upon one side of the valve, to open it, and of reduced steam upon the diaphragm and the other side of the valve, to close it.

Also, in combination with a reduced steam chamber, a siphon, m'm, substantially as and for the purpose specified.

28,796.—H. M. Walker, of Watertown, Conn., for an Improvement in Connecting Shafts to Two-wheeled Vehicles:

I claim the manner essentially described of attaching the shafts to two-wheeled vehicles, whereby said shafts may be operated in the manner and for the purposes set forth.

28,797.—A. F. Warren, of Brooklyn, N. Y., for a Pen-

Inducer:

I claim having the noses, a, which form the socket for the pen, turned up or otherwise arranged, substantially as described, so that if the pen is inserted, the stick or pencil is allowed to pass clear through the tube.

28,798.—E. T. Wheeler, of Cannelton, Ind., for an Improved Shingle Machine:

I claim the combination with a reciprocating carriage, B, and saw-(, of the adjustable head blocks, E E E, their clamps, h h, ar-anged and operating automatically, substantially asset forth, and he adjustable tables, J J—all arranged in the manner and for the

28,799.—Louis Wilhelm, of Buffalo, N. Y., for an Improvement in the Ventilation of Casks containing Liquids:
1 claim the combination of the plug, b b. valve, f. rod, d. spring.

LIQUIUS:

I claim the combination of the plug, b b, valve, f, rod, d, spring, cord, I, and faucet, II L.—the said parts being constructed and ranged and operating in the manner and for the purposes set forth

28,800.-W. P. Wood, of Washington, D. C., for an Improved Scroll-sawing Machine:

Improved Scroll-sawing Machine:

I claim, first, The horizontal pitman, K, and sectional wheel, H, or their or either of their equivalents, as arranged in combination with the hinged connecting strips, I and I, connecting arms, J, and straining block, c, or their or either of their equivalents; the whole being constructed, arranged and operated in the manner and for the purposes substantially as set forth.

Second, Combining the guide-way, R, and buffer in one piece, so that they can be simultaneously a justed to suit saw blades of different lengths, substantially as described.

Third, The adjustable slotted plates, p, in combination with buffer foot, n, having in its fork a plain friction roller, in the manner and for the purposes substantially as set forth.

28,801.-L. B Woolfolk, of Nashville, Tenn., for an Improvement in Steam Plows:

Improvement in Steam Plows:

I claim, first, The arrangement of the shaft, C, the loose pinions, G. G, and the clutches, H II, with the driving wheels, E E—the whole being constructed and arranged substantially as herein described.

Second, The arrangement of the wheel, T, having its axis out of the line of attachment to the frame, S, in the journal at U, so as to answer and adjust itself to the movements of the driving wheels, substantially as set forth.

Third, The employment of the wheel, T, having its shank, z, turning loosely in the journal box at W, and provided with an oblong, d, confined between the springs, a a, in combination with the lever, the rack bar, w, and the segments, y y, substantially as set forth.

Fourth, The arrangement of the friction wheels, m m, the shafts, s t, with the driving wheels, E E, and shaft, C, substantially as represented.

28,802.—Clark Wright and William Phelps, of Syca-

more, Ill., for an Improved Churn:
We claim the combination of the rotary tub, F, stationary spout, K, and basket, H, operating substantially as and for the purposes set forth.

28,803.—Thomas Yates, of Dubuque, Iowa, for an Im-

provement in Coffee Pots:
I claim the arrangement and combination of the inverted bell-shaped chamber, H, perforated cylinder, F, strainer, G, and vessel, A, constructed and operating substantially in the manner and for the purpose set forth.

[This invention consists in the arrangement of an inverted belishaped chamber and a perforated chamber, both covered by a strainer, in combination with a water vessel of ordinary construction, in such a manner that the essence of the coffee or other substance to be boiled is retained under the bell-shaped chamber, and, on cooling, said essence is absorbed by the water rushing in and filling the chamber.]

28,804.—E. S. Yentzer, of Middletown, Pa., for an Improvement in Sewing Machines:

Improvement in Sewing Machines:

I claim the combination and arrangement of the horizontally-reciprocating shuttle, X, vertically-reciprocating needle, N, feed pad, I, diek, R (having cam grooves, S U, of the peculiar configuration described in its opposite faces), eccentric, O, lever, E, lever, T 'r, and lever, L; the whole constructed and operating in the manner described, for the purpose of making the peculiar sittle represented in Figs. 7 and 8 of the drawings.

Second, A shuttle(for sewing machines) constructed with a sliding block, a h, spiral spring, c, and set screws, z; the said parts being so arranged that a positive friction on the bobbin, Y, is produced by the screw, and the action of the spring, when the screw is slackened, is to throw out of contact with the bobbin, substantially as and for the purposes set forth.

28,805.—Lyman Bridges (assignor to himself and N. M. Simonds), of Chicago, Ill., for an Improved Heating Apparatus:

I claim the combination of the oil reservoir, J, with the oil chamer, H, and cylinders, AD, as and for the purpose shown and de-

seribed.

I also claim the combination of the inclined or conical plate, F G, arranged as shown, with the cylinders, A D, in the manner and for the purpose shown and described.

I also claim the arrangement and combination, in the manner shown and described, of the cylinder, M, and plates, B N, with the cylinder fa, A D, so that both surfaces of the combustion chamber with be protected by ascending columns of air, which will also become leasted, all as specified:

28,806.—Albert Broughton (assignor to himself and Alcxander Lindsay), of Malone, N. Y., for an Improvement in Stump Extractors:

I claim, first, The mode of conve ing the hoisting gin into a cart or vehicle for the transportation of the machine and its apparatus, as shown in Fig. 6.

Second, The arrangement, connecting together, and combination of the hoisting gin and main lever, in the manner shown in Figs. 1 and 2, for the purposes stated.

Third, The method of statching the main lever to the roots of the tree or stump, as shown in Figs. 1 and 2, and above described, together with the use of the main lever, as arranged, for the purpose

ited,
Fourth, The arrangement, connecting together, and the combins
on of all the several parts of the machine, substantially in th
anner shown in the annexed drawings and above described, for th
rposes and uses in this specification above stated and set forth.

28,807.—P. W. Gates and D. B. Frazer (assignors to themselves and Thomas Chalmers), of Chicago, Ill., for an Improvement in Machines for Stamping Metal Quartz:

Menal Quartz:

'c claim, first, The combination of a toothed and collared rising
falling power bur. D D, or its equivalent, with a combined plain
toothed lifting device, H I, substantially as and forthe purposes
forth

set forth. The manner, substantially as specified, of arranging the lifting device on its shaft, for the purposes set forth. Third, The combination of two eccentric gears, M, toothed and colared power bar, D G, and the combined lifting device, H I, substantially as and for the purposes set forth.

Fourth, The combination with the inclined screens, P P, of the mortars of the overhanging shields or guards, N'N', substantially as and for the purposes set forth.

28,808.—John Green (assignor to Nathan Thompson, Jr.), of Brooklyn, N. Y., for an Improved Machine for Planing Warped Surfaces:

1 claim the combination of concave and convex rotating cutters, or either of them, mounted on a frame free to turn on an axis, with a stationary table or support for the plankto be reduced; the turning frame being provided with propercontrivances for rotating and holding it, and the combination constructed so as to produce warped surfaces, substantially in the manner described.

28,809.—Stephen Jackson, of Ossippee, N. H., assignor to D. L. Hodsdon, of Somersworth, N. H., for an Improved Blind Slat Machine:

Improved Blind Slat Machine:

I claim, in combination with the awls and cutters, or mechanism for piercing the edges of a blind slat, and forming it with tenons on its ends, as specified, the slat hopper or rests, X X, and platform, V, and the impeller, Q or mechanism for successively removing the slats therefrom and feeding them forwards between and away from the journal cutters.

I claim the self-acting or spring cam stops, Z Z, in combination with the impeller, Q, the platform, V, and the inclined rails, U U, the said cam stops being arranged and applied substantially in manner and to operate as specified.

I also claim the combination of inclined rails, U U, with the platform, V, and the awls or awl carrier; the object of such inclined rails while being expelled from the machine.

I also claim the combination of the end guides and slat-holders, T T, with the tenon-cutting mechanism, the platform and spring pressers or slat-supporting devices, as specified.

I also claim the combination of the reats, p p, with the impeller, O, in manner and for the purpose substantially as specified.

28.810.-E. A. Kimball (assignor to himself and A. Le Miller), of Boston, Mass., for an Improved Alarm

Gage for Steam Boilers: Gage for Steam Boilers:

I claim the arrangement and application of a slide valve, alarm whistle, valve seat, float lever and index pointer, in such manner that, by the movements of the slide valve, occasioned by the float lever, the indicator or index pointer shall be moved along its index or arc of divisions; and whenever the water of the boiler may have reached its low est safety level, the valve port of the steam whistle or the alarm apparatus shall be opened so as to enable the steam to pass into the whistle and sound an alarm.

I also claim providing the float stem with a steam passage extending longitudinally through it and opening into the boiler and dry steam chamber, as and for the purpose specified.

I also claim so applying to the index chamber the device for moving the indicator that any steam which may escape from the valve opening of such device may not enter the index chamber, so as to foul or condense on its glass.

28,811.—John Low, of Clinton, Mass., assignor to Nathan Bruce, of Southboro, Mass., for an Improve-

Matina Druce, or Southoro, Mass., for an improve-ment in Dulcimers:

I claim the arrangement, as described, of the central bridge, 6, in relation to and in combination with the bridges, 4 and 5, in the man-ner described, by which one part of each string is made to give a single chromatic interval of pitch higher than the other part, sub-stantially as and for the purposes set forth.

28,812.-G. W. Oliver (assignor to Henry Parker and Yale), of New York City, for an Improve-

ment in Preserving Meats:

I claim the application or employment of heat to the specific purpose of curing and preserving meats, as corned provisions, in such a way and to such an extent as will effectually or sufficiently coagulate the albumen of the tissues and fluids, in combination with the subsequent application of heated brine or preservative fluid.

28,813.—A. D. Rollins, of Green Point, N. Y., as-signor to himself and H. J. Howland, of New York City, for an Improved Steering Apparatus:

City, for an improved Steering Apparatus:

I claim, first, The shaft and wheels, G M N, reverse segments, m n, guard, R, rider, T, and open jaws, E E', arranged to operate together substantially as and for the purpose set forth.

Second, In steering gear substantially as above described, the geared shafts, G and H, and socket, f, adapted to receive either G or H at pleasure, substantially as and for the purpose set forth.

Third, In steering gear substantially as above described, the stop, K, arranged to operate in the gear wheel, g, substantially as described.

28,814.—I. M. Rose, of New York City, assignor to J. R. Morrell, of Brooklyn, N. Y., for an Improvement in Sewing Machines:
I claim the revolving hook, I. carrying the bobbin, 3, and lower needle, o, in combination with the perforating eye-pointed needle, i, substantially as specified, whereby the threads are concatenated, as set forth.

315.—Rhoda Sowle, of Fall River, Mass., administratrix of the estate of David Sowle, deceased, late of Fall River, for an Improvement in Lozenge Ma-

chines:

I claim, first, The arrangement of a plain smooth roller, F, to operate in combination with the plunger, E, and cutters, c, substantially in the manner and for the pnrpose described.

Second, I claim combining with each row of cutters, C, on the rotary cylinder, B; a separate clearer, K, constructed and operating subs antially in the manner and for the purpose described.

Third, The arrangement of the two endless aprons, H and M, one at right angles to the other, to operate in combination with the cylinder of cutters, B, and with the drum, D, and with the clearers, K, or their equivalents, substantially as and for the purpose set forth.

(With this machine a very large quantity of lozenges can be cut

on an endless apron, from which they are removed to the drying oven; at the same time, the paste which may adhere to the outside of the cutters is cleaned off, and the scraps are deposited on an endless apron and carried off over the side of the machine. 1

28,816.—J. H. Steiner, of Philadelphia, Pa., assignor to himself and J. E. Thomson, of Buffalo, N. Y., for an Improvement in Railroad Car Wheels:

I claim constructing the east iron part of the wheel with chaor tapering pockets, in combination with wedge-like blocks of B, having shoulders, b', and the wroughtiron band. c, shrunk th for the purposes and substantially as described.

28,817.-J. H. Steiner, of Philadelphia, Pa., assignor 28,817.—J. H. Steiner, of Philadelphia, Pa., assignor to himself and J. E. Thomson, of Buffalo, N. Y., for an Improvement in Railroad Brakes:
I claim, first, The spring, C. in combination with the shoe, A, and cam, D, substantially as set forth.

Second, The combination and arrangement of the hook, N N, and flange, N2, with the cam, D2, cam shaft, E, spring, C, and shoe, A, for the purposes and substantially as described.

28,818.—George Stover (assignor to himself and the Stanley Rule and Level Company), of New Britain, Conn., for an Improved Machine for Finishing Works in Wood and Metal:

I claim the combination of the sliding plates, i, the milled or cutting plates, n, guide ways, m, with a proper holding jack, r, upon the bed, p, constructed and operating substantially in the manner as and for the purpose described.

28,819.—D. H. Thorp, of Chelsea, Mass., assignor to the Boston Faucet Company, of Boston, Mass., for an Improvement in Faucets:

I claim, in the basin faucet having a conical tubular elastic packing, C, made and applied to its valve, the stem and case thereof, as described, the arrangement of the stop, x, and its shoulder, y, or chamber by which such shoulder is formed in the part, D, with operating screws, it k fm, and tubular elastic packing, C, applied to the valve stem, e, and its valve, B, substantially as specified.

28,820.—William Wright (assignor to himself and John Brady), of Philadelphia, Pa., for an Improved Animal Trap:

Annual 1 rap:

I claim, first, The general arrangement of base, A, the upright, B, spiked board, C, spring, G, lever, D, and trigger plate, F.
Second, I claim the projection, m, on the spiked board, C, when the notches of the said projection are arranged in respect to the spring, as and for the purpose set forth.

RE-ISSUES.

W. N. Whitely, Jr., of Springfield, Ohio, assignee of T. S. Steadman, of Murray, N. Y., for an Improvement in Clover and Grass Seed Harvesters. Pat-

ment in Clover and Grass Seed Harvesters. Patented May 23, 1854:
I claim the main frame or box, A, which carries the pinion which drives the cutters, in combination with the arm or supplementary frame, J, provided with exle, t, and the main wheel and gearing, substantially as described, for the purposes specified.
I also claim the arm or supplementary frame, in combination with the master wheel and gearing, when said arm or supplementary frame is so connected with the main frame as to vibrate from and sround the pinion shaft, substantially as shown and described for the purpose set forth.

W. N. Whitely, Jr., of Springfield, Ohio, assignee of T. S. Steadman, of Murray, N. Y., for an Improvement in Clover and Grass Seed Harvesters. Pat-

ment in Clover and Grass Seed Harvesters. Patented May 23, 1854:

I claim, in combination with the main frame or box, A, and arm or supplementary frame, F, on which is formedor secured the master wheel axle, the employment of a retaining arc, H, or its equivalent, the whole constructed and arranged in such a manner that the min frame or box, and arm or supplementary frame, with its master wheelaxle, will be held in parallel planes relatively to each other while they are moving up and down, substantially as and for the purposes set forth.

W. N. Whitely, Jr., of Springfield, Ohio, assignee of T. S. Steadman, of Murray, N. Y., for an Improvement in Clover and Grass Seed Harvesters. Pat-

ented May 23, 1854:

I claim constructing the machine in such a manner that the attendant can, while riding on the machine, raise and lower in the arc of a circle, and holdat different hights, either end of the cutting apparatus, as described, for the purpose specified.

J. T. Trotter, of New York City, for an Improvement in Vulcanizing India-rubber. Patented Dec. 3, 1850:

IOOU:

I claim the process or method of curing india-rubber, guttapercha, or other vulcanizable gums or compounds thereof, by means
of a hyposulphite of zinc, or other artificial preparation of zinc and
sulphur having like chemical constitution, properties and qualities,
as described, for vulcanizing india-rubber and other vulcanizable
gums or compounds thereof, without the use of raw or free sulphur
for the purposes of curing the rubber.

ADDITIONAL IMPROVEMENT.

T. S. Whitman, of New York City, for an Improvement in Attaching Skates to Boots. Patented Dec. 20, 1859:

laim the male and female vertical dovetail portions, substan-or a described and represented, whereby the heel portion of the iron will be secured against lateral or longitudinal movement pendent of the front attachment.

Birdsill Holly, of Lockport, N. Y., for a Design for a Pump.

Louis Meyer, of St. Louis, Mo., for a Design for a Parlor Stove.

William Pountney, of New York City, for a Design for Decanter Stoppers.

R. H. N. Bates, of Providence, R. I., assignor to J. Morrison, Jr., of Troy, N. Yr, for a Design for the Plates of a Cooking Stove.

Lemuel Morgan, of South Norwalk, Conn., assignor to himself and C. Adams, of New York City, for a Design for a Fire Shovel (4 cases).

H. G. Thompson, of New York City, assignor to the Hartford Carpet Company, for a Design for a Carpet Pattern (11 cases).

NOTE.—In the above list of claims, issued for the week ending June 19, we recognize THETY-SEVEN of the number which were solicited through this office.—Eds.

Correspondents sending communications for publication in our columns are requested to avoid writing on both sides of a sheet of paper. This fault, though common to persons unaccustomed to writing for the press, gives great trouble to the printer (especially in long articles), and, when combined with illegibility of handwriting, often causes interesting contributions to be regretfully consigned to our waste-paper basket,

H. M., of N. J.—Your improvement in reapers is new to us, and we should think a patent might be obtained for it. If you desire your claims to be prosecuted vigorously, send us a model and the patent fee, \$30

F. G. D., of C. W.—Your idea of using lime in a slacking state as a fuel for cooking in summer is not new. In 1856, W. W. Albro, of Binghampton, N. Y., secured a patent through this office for a portable cooking stove in which the caloric is generated by the employment of water in small jets upon lime. On page 280 Vol. XI. (old series) of the SCHENTIFIC AMERICAN, an engraving of this ingenious apparatus may be found. Last summer, Mons. Blondin, the fool-hardy acrobat, used, if we recollect aright, a lime stove to cook a beefsteak while on his rope midway between the banks over the Niagara river, several hundred feet above the

J. W. P., of Mass.—Boiled linseed oil containing about an ounce of the oxyd of manganese, or litharge, to the quart, will make an excellent waterproof coating for cotton or linen cloth. several coats with a brush, and allow each to dry perfectly.

L. & C., of Texas. - The account of the operations of the water-wheels at Philadelphia, as published in our columns, al-though correct, may be different in some particulars from that of the Chief Engineer, whose report is not yet published. We will therefore retain your letter until we obtain a copy of the report. We thank you for the statistics contained in your communication.

R. W. E., of Miss.-Your system of aerial navigation is novel at least, but you will find it difficult to get alens to suit your for heating the air.

A. W. H., of Conn.—A good alloy for small patterns is a composition of 77 parts copper and 23 parts of tin.

C. H., of Va.—Boil the cotton cloth for your awnings for one hour in a liquoriuto which has been dissolved one oun of alumand the same amount of blue vitriol to every four gallons Allow the cloth to dry thoroughly before it is put up. If the awning is up, brush its surface overwith a hot liquor of alum and blue vitriol. This will tend to prevent mildew, and renderit more durable.

S. I. B., of Ga.—Tin is the best substance to use with as an amalgam for silvering glass, so far as we know.

J. W. R., of Mass.—Boil white tallow in a very strong ustice odalye until it becomes saponaceous, then cool it, and you will have hard soap. Caustic lye is made by boiling equal quantities of slacked lime and soda ash for about fifteen minutes in water, and allowing the sediment to fall down. The clear liquor only is employed in soap-making.

C. C. D., of Mass.—Every coil in a water pipe increases the friction, and should, if possible, be avoided. A shortpipe for a water ram is certainly better than a long one, because the resistce increases with the length.

C. H. R., of N. Y .- A dry needle will float on water, if laid carefully upon it, owing to the repulsion or what scientists call "the sphere of repulsion" between the surface of the steel and the

A. B. C., of Ill.—Please to send us your proper address, and we will forward you our circular of advice about foreign

C. R. of N. J.—Cows' horns may be softened by boiling them in water, and they may be pressed into almost any shape when hot, by placing them in suitable dies.

J. B., of N. B.—There is no uniform system of pitch used for the propellers of steamers. The best propellers, su Griffin's (English) is adjusted for a varied pitch. a windmill 10 feet in diameter, and with fans five feet wide, and pitch of two feet would drive your threshing machine with ifficulty in a moderate breeze.

G.S. P., of Wis.—Strong glue cannot be used cold, because it congeals at a moderate temperature. If you wish to use strong sticky glue, you must put it on hot.

W. B., of Md.—We gave the substance of Mr. Murray's lecture as we found it in foreign periodicals. We shall have something more to say about superheated steam in a week or two.

A. B., of N. B.—The same difference in pressure, as indicated by valve and gage, has often puzzled engineers, and will be found even if the gage used is the common mercurial siphon which cannot be incorrect. The apparent difference arises from the mode for measuring the valve in common practice; that is to say, taking the area of the bottom or smaller end of the seat, which seems theoretically to be the correct way. Repeated and carefully conducted exporiments show that the valve measured in this way will neveragree with the gage; but if you take the area of the valve at the middle of the seat, you will find them always agree. We suppose that in grinding the valve the bearing is brought to or above the middle of the seat, and that the lower half of the valve base is never perfectly tight, though it may appear to be so.

A. M., of Mass.—You state that friction increases with the increase of surface independent of the weight of the rubbing surface, because of the pressure of the atmosphere. We cannot see how atmospheric pressure has anything to do with the question. Upon your principle of reasoning, a man of 150 pounds weight with a foot of 46 square inches area will exert greater pressure upon the id when he walks than a man of 200 pounds weight with a foot of 38 square inches area. The pressure of the former will be 840 pounds, that of the heavy man 770 pounds. We tak spheric pressure to be equal on all sides of the journals. We take the atme-