THE RECOIL OF GUNS-...ACTION AND REACTION NOT EQUAL.

BY PROFESSOR CHARLES A. SEELY.

In my days of gunning, long time ago, one of the mysteries among the boys was the recoil of our guns. We had theories and superstitions about it which are not worth repeating. But out of my experience I have brought a very distinct remembrance that the "kicking" was something that we were afraid of and that there was a great difference in the vicious propensities of our guns. It must be borne in mind that the shoulder of a boy is tender, and cannot easily bear a blow which a stout man might not notice. The kicking power seemed to us one of the most noteworthy properties of guns. There was a gun which was famous all over the county as a great kicker : it was said it could kick us into the "middle of next week," a distance we thought to be very considerable.

During the progress of the rebellion, when every one was a strategist and a critic on the art of war, I assisted in many discussions on the philosophy of the recoil of guns. I found that no one lacked experience or an opinion. But the opinions were generally incorrect, and those which were right were not fortified by good reasons. So I think a renewal of the discussion may be interesting and profitable.

The expansive force of burning gunpowder is the source and the only source of the movement of the shot and the gun. The force of the powder is expended upon and divided between the shot and the gun, and for my present purpose it may be considered that the force of the powder equals the force of the shot plus the force of the recoil. So far all are agreed: there is no difference of opinion. The debatable question is this: What is the relation of the force of the shot to the force of the recoil; are they equal, and if nay, why not? 'To put the case in its simplest terms: the shot and the gun are two unequal weights acted on at the same time and for the same length of time by an elastic substance pushing them apart.

People generally think that the powder force is equally divided between the shot and the gun, and that the relative weights of the shot and the gun are not to be taken into account. They found their opinion upon a supposed law of motion, that action and reaction are equal, and upon a supposition that the pressure upon the gun is the same as upon the shot. Now as to the law of motion, it is either misunderstood or it is absolutely unfounded. If action implies motion and force, a simultaneous and equal reaction to my mind is incon ceivable. If there be a motion, any obstruction or reaction to it, as long as the motion continues, surely cannot be equal to the impelling force. If my neighbor push me down, his action is greater than my simultaneous reaction: I may get up and get even with him, but then there comes into the case a new action and reaction. It may be that all motions will finally cease by reason of reactions, but when the rest takes place, it is hardly proper to say that there is still action and reaction. Is not the alleged law of motion a very imperfect way of expressing a self-evident fact about rest or equilibrium? It certainly is not easy to see how the little truth it embodies has any application to the question of the recoil of guns. The fact is that people who quote this law generally misapply it.

The pressure on the shot and the gun may be considered as equal (if there is any difference it is greater on the gun), and the expansive force acts an equal time on each. But those who infer an equal division of the force, overlook a very essential element in their calculation. The shot moves faster than the gun and the force acts on the ball through a much greater space. Is not the space through which a force acts something to be as carefully considered as the time?

Take two balls of equal weight and place a spring between them which will impel them apart. In this case the force of the spring is conveyed to the balls and is equally divided between them : one moves as far and with as much force as the other. Now place one end of the spring against an immovable abutment, and allow it to expand against a single ball. Here the pressure on the ball and the abutment are equal, but the spring expands to its full length and gives its whole force to the ball : there is nothing lost on the abutment. The force imparted to the ball is precisely twice that which it received in the first experiment. Repeat the first experiment with balls of different weights. For example, let one have double the weight of the other. The force will now be divided so that the light ball will receive twice as much as the heavy. From such experiments the conclusion will soon be reached. that the force of the spring will be divided between the balls in a ratio inversely as their weights: if the weights of the balls be as 1 to 10, they will receive the force in the ratio 10 to 1. If a well-made spiral spring be employed, it may be observed in each experiment that there is a neutral point which does not move at all and that it is the center of gravity of the two combined balls. Thus when two balls of equal weights and sizes are used, it will be in the middle of the spring: in the second experiment it will be in contact with the abutment; in the case of the balls of weights 1 to 2, it will be two thirds the distance between the balls from the ball, 1. Thus this point indicates the division line between the amounts of force going to the balls respectively. Such experiments may be varied by using a contracting instead of an expanding force. Take two toy wagons, connected by a rubber cord, and use weights of any convenient material. Or the weights may be suspended by cords, to be drawn together by the contraction of a rubber spring. The result will always be arrived at that the forces will be divided inversely as the weights. Moreover it should be observed that the velocities communicated to the balls are inversely as their weights. In the case of the balls 1:2, the corresponding velocities will be 2:1,

In these experiments we have a fair representation of the case of the gun : the spring is the expansive force of the powder, the large ball is the gun, and the small ball is the shot Can the conclusion be doubted that the force of recoil is to the force of the shot as the weight of the shot is to the weight of the gun. If the weight of the gun be 100 lbs. and the shot 1 lb., then the force of the shot will be 100 times that of the gun.

Those who are well skilled in mechanics will reach the same conclusion by a shorter road. The formula MV² expresses the value of the force of a body. The weight (M) of the shot and of the gun of course are known, and as soon as it is determined that the velocities of shot and gun are inversely as their weights, the problem is solved. Thus, let the weights be as 1 to 100, then the velocities will be as 100 to 1, and the expression for the force of the shot will be $1 \times (100)^2 = 10,000$, and the force of recoil $100 \times (1)^2 = 100$. But 10.000 : 100 : :100 : 1.

It is a plain result of the theory above given that the force of the recoil is directly proportioned to the amount of powder used. And in a given gun is proportioned to the weight of the shot, or if the shot be the same, to the weight of the gun. By doubling the weight of the shot the recoil is doubled.

If the prevailing notion about recoil were true, we should have a very different system of warfare, for the danger in battle would be to those who fired the guns. It involves, also, other absurd consequences, such as that in the steam engine half of the force of the steam is lost on the end of the cylinder. and that we can never utilize the whole of any force.

In conclusion, I am obliged to say that the guns and shot I have spoken of are model and theoretical guns, and that there are difficulties in the way of directly applying the theory to actual practice. The force of the powder does not show the whole of itself in the shot and in the recoil. A notable amount is lost in the concussion of the gun, windage, and in overcoming the friction of the shot. This last is a very important circumstance, as it holds back the shot, giving the gun a longer time than due it to absorb the powder force. The ratio of recoil to shot will always be greater than by the simple formula I have given. The guns need more lubricators. And it will be seen that there is plenty of room for practical experiments; nothing to-day would more please me than to read reports of intelligent practical tests.

PROVING A GREAT GUN.-The second big gun (20 inch) cast at the Fort Pitt Foundery has been tested with charges of 60, 80, and 100 pounds of powder, and shot weighing 1,020 pounds. The trial was under the inspection of Commodore Taylor, of the United States Navy, now on inspection duty at the works, who was well satisfied with the trial and pronounced the gun thoroughly fitted for duty.



ISSUED FROM THE U.S. PATENT OFFICE FOR THE WEEK ENDING JAN. 22. 1867.

Reported Officially for the Scientific American.

PATENTS ARE GRANTED FOR SEVENTEEN YEARS, the following being a schedule of fces:-

In filing each Caveat	J
In filing each application for a Patent, except for a design	5
In issuing each original Patent	U
n appeal to Commissioner of Patents\$2	0
n application for Reissue	0
on application for Extension of Patent	0
on granting the Extension	U
In filing a Disclaimer	0
n filing a Disclaimer	D
In filing application for Design (seven years)	5
On filing application for Design (fourteen years)	D
In addition to which there are some small revenue-stamp taxes. Resident f Canada and Nova Scotia pay \$500 on application.	

127 Pamphlets containing the Patent Laws and full particulars of the mode of applying for Letters Patent, specifying size of model required, and much other information useful to inventors, may be had gratis by addre sing MUNN & Co., Publishers of the SCIENTIFIC AMERICAN, New York.

61,304.—CABBAGE CUTTER.—Henry Aeuer, Muscatine, Iowa. First, I claim the manner substantially as herein described and shown of arranging a series of scroll knives on a rotary bcd, and beneath a stationary hopper, so that two or more knives are made to cut at the same time, under the same hoppers, as shown. Second, The arranging with a cabbage cutter bed, such as described, of the frame, A B, with box, E, hinged legs, G G, guard board, F, and bracket ex-tension, substantially as described, and for the purposes set forth.

61,305.-MELODEON.-Charles Austin, Concord, N. H.

61,309.—Apparatus for Carbureting Gas and Air.—John

F. Boynton, Syracuse, N. Y. First, I claim in a carburcting box or vessel a tube or tubes, whether flat, yindrical, or of other form, filled with fibrous or capillary material, and so rranged with openings at the bottom that the carbonizing fluid will be orestant! cy.inu. arranged constantl

described. Second, In a carburcting box or vessel constructed and operating as herein described, I claim so arranging the capillary tubes that the gas in its passage through the vessel will move slowly in a thin stratum over the ends of the wicks containing the carbonizing fluid substantially as described. Third, I also claim dividing the carbureting vessel into two or more com-partments, by soldering one of the plates forming each of the double parti-tions or wick tubes to the bottom and sides of the vessel, so that two or more different carbonizing fluids may be used in the same vessel, without mixing previous to evaporation.

61,310.-THILL COUPLING.-John F. Bridget, Washington, D. C.

I claim the combination of the set screw, G, and socket plate, H, and pring, K, operating to raise the end of the thill in its bearings, substantially s and for the purpose described.

61,311.—BASKET ATTACHMENT FOR PIS'TONS OF DEEP WELL PUMPS.—Erasmus D. Brown, Buffalo, N. Y. I claim the slotted flaring basket, A, for the purposes and substantially as described.

61,312. - BOAT DETACHING TACKLE. - Samuel Brown (assignor to the Brown and Level Life Saving Tackle

Company), New York City. I claim a boat-connecting a paratus, composed of the ring, a, hook, c, and chains, b g, and which is disconnected from the block by slacking the chain, g, in the boat to be launched, substantially in the manner and for the purpose described.

61,313.—MANUFACTURE OF BRANDY.—D. Jay Browne, Cambridge, Mass., and Steuben T. Bacon, Boston, Mass. Antedated Jan. 14, 1867.

Anteclated Jan. 14, 1867. First, We claim the blending of brandy or spirits distilled from sorghum sirup, with brandy distilled from fermented grape juice, water and sorghum sirup, or glucose, substantially as herein set forth. Second, Inthe production of brandy from the combination of the above-named materials, we also claim the mode of fermenting in close casks, or vats, furnished with tubes or coils within, for regulating the temperature of the liquids while fermenting, substantially as herein specified. Third. In the production of brandy from the above-named ingredients, as necessary to secure success, we also claim the process of distilling in vacuo, substantially as and for the purposeshere in described.

61,314.—PROCESS OF MAKING SUGAR.—Duncan Bruce, Ross-

01,012.—FROUGES OF MAKING SUGAR.—DUIDCAN BRUCE, ROSS-ville, N. Y. Antedated Jan. 17, 1867. First, I claim the combination of the vacuum chamber and condensing chamber, with one or more evaporatory chambers, having steam or hot water heaters applied to them, substantially as described. Second, The combination of one or more air-tight vessels with one or more air-tight evaporators and a condensing chamber, b, which communicates with a vacuum chamber, F, substantially as described.

61,315.—Apparatus for Decomposing Animal and Veg-etable Substances, for Curing Meat, Tanning, ETC.-Duncan Bruce, Rossville, N. Y. Antedated Jan. 17. 1867.

11,1801.First, l-claim an apparatus consisting of a series of air-tight vessels com-municating with a condensing vessel, and also with a vacuum reservoir, hav-ing a forcing and exhausting engine applied to it, the whole to be used sub-stantially as Second, Cu

become, on herein described. Third, The process, substantially as described. of obtaining grease from fatty substances, by subjecting these substances to the action of moist heat in

61,316.—PRESERVING GREEN CORN.—S. John Carroll, Baltimore, Md.

I claim preserving green corn in the manner substantially as herein set orth and described. I also claim the new article of manufacture and commerce, green corn pre-I also claim the new article of manufacture and commerce, green corn pre-served substantially as herein set forth and described.

61,317.-BUTTON.-Henry T. Carter, Portland, Me.

f claim a button provided with a slitted and pointed shank, c, in combina-tion with the disk, d, and washer, b, substantially as described and for the the purpose specified.

61,318. — MACHINE FOR PRESSING FUEL INTO BLOCKS OR BRICKS.—John B. Collen, Philadelphia, Pa. I claim a machine constructed, arranged, and operated substantially as herein described and represented, for the purpose of pressing artificial or nat-ural fuel in a fine or granular state into blocks or bricks for transportation and for burning, as set forth.

61,319.-PUMP.-H. Comstock, Seneca Falls, N. Y.

1 claim, First. The combination of the rubber cup or flange, f, with the metallic leather packing, c, operating substantially in the manuer and for the purpose specified. Second, The groove, g, in the bottom of the cylinder, in combination with the valve voke, C, operating substantially as and for the purpose set forth. 61,320.—DENTIFRICE.—John G. Cook, Lewiston, Me.

I claim as a dentifrice a chlorate compound, made up of ingredients, sub-stantially as described.

61,321.-SAFETY PAPER.-L. M. Crane, Ballston, N. Y.

OLJOZI.—CAFETY FAFER.—D. M. Craffe, Dalisoufi, N. 1. Iclaim, First, The inserting or incorporating of one or more threads or stdps of guita perch orfiber of paper du that said threads or strips will be softened and firmly united to the fiber un-der the heat of the drying cylinders, substantially as set forth. Second, I also claim, as an improved article of manuf.tetre, a safety record paper, made substantially as herein shown and described.

paper, made substantially as herein shown and described.
61,322.—MACHINE FOR PREPARING COTTON, ETC.—W. Crighton and F. W. Crighton, Manchester, Eng. Patented in England April 3d, 1861.
We claim, First, The arrangement hereinbefore described consisting of placing the beaters or openers on a vertical axis, and forming the place or opening for the delivery of the cotton is fed into the machine, said machine being also constructed and its parts so arranged that a considerable point of the delivered either at the bottom of the beater case or cone, or through open rings at a lower point than that at which the cotton is fed into the machine, said machine or the delivered, substantially as hereinbefore set forth.
Second, The combination with a beater case, and beaters, or other similar apparatus for cleaning cotton of the carrier or series of dirt boxes, d, substantially as hereinabove set forth.

61,323.-BLAST FOR IRON AND OTHER FURNACES.-Felix A.

T. de Beauregard, Paris, France. I claim surrounding the furnace by a tank the water within which is con-verted into steam by the heat of said furnace and then discharged through suitable pipes or conduits arranged substantially as herein described, so the discharge of the said steam shall induce a blast witin and through the fur-nace, as set forth.

61,324.-STEAM GENERATOR.-Jules Delery, St. Bernard

Parish, La. I claim the isolating check valve, b, connecting rods, E and L, and lever, J, in combination with the generator and water communication pipe, substantially in the manner shown and described. 61,325.-TELEGRAPHIC CABLE.-A. J. B. De Morat, Phila-

delphia, Pa. I claim the constru nstruction of telegraphic cable by means of insulated tubes cylinders, formed of helically would at he insulated tubes or examinations or matters, for met of methoding would strips in such mainer as to preserve uninterrupted linear conduction in case of stretching, as herein set forth, or any other substantially the same, and which will produce these intended effects.

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I claim as my invention the arrangement as well as the combination sub-stantially as above specified, of a lever, E, and one or more additional reeds, ii, and the operative apparatus thereof, as explained, with the exhaust cham-ber, D, and a main reed key, A or B, thereof, the same being so that on pressing down the said key for the pury ose of opening the main reed valve thereof, the lever, E, shall be moved so as to put in operation each additionar reed operative apparatus, whereby its reed or reeds may be sounded simul-taneously with the main reed.

61,306. - FAN TOOL FOR CUTTING MOLDINGS. - Edwin C.

61,300. — FAN TOOL FOR CUTTING MOLDINGS. — Edwin C. Austin, Monroe Village, Wisconsin. First, I claim the knives, C, constructed with the projections or bearings, c, pressing upon the surface of the wood in advance of the cutting edge, sub-stantially as and for the purposes pecified. Second, The tool herein described for cutting rope or screw molding, con-structed and operating substantially as described.

61,307.-DOUGH MIXER AND ROLLER.-J. Bailie and J. Gerv-

ers, Cincinnati, Obio. First, We claim the combination of the rolls, D D, with the worm or screw dough mixer, A, in the manner and for the purpose set forth. Second, Vfe claim the combination of the carrying band or belt, I, and slabbing rolls, D D, with a worm or screw dough mixer, in the manner and for the purpose substantially as specified. Third, We further claim the combination and arrangement of the spur and more mean as shown for regulating the speed and giving a positive motion to

and, "or the light of the speed and giving a positive n the screw, A, slabbing rolls, D D, and carrying band, 1", for the pur in the manner substantially as described. otion to

61,308.—BILLIARD CUSHION.—A. Bassford, New York City. First, I claim in a billiard cushion the use of metall c ribbon or other hard and clastic strip interposed between two pieces of vulcanized india rubber of different degrees of elasticity, or within a rubber cushion substantially as herein set forta.

herein set forth. Second, In billard cushions constructed substantially as set forth. I claim the arrangement herein described and represented, whereby one block of india rubber is backed and supported by the other. Third, I claim the two blocks or stiss of vulcanized rubber, of unequal degrees of elasticity as described, in combination with the spring steel ribbon and rubber packing, arranged substantially as and for the purposes herein set

61,326.-WHEAT DRILL.-Geo. W. Doolittle, Lincoln, Ill.

First, I claim the jointed frame, A C, to which the compressing wheels, D E, are attached, in combination with the funnels, L L, depositing tubes, K, angular bars, I I, cutter blates, H H, substantially as arranged for the purpo

E, are attached, in combination with the runnels, L i, depositing tubes, K, angular bars, I i, cutter blades, H H, substantially as arranged for the purpo-ses set forth. Second, I claim the arrangement of the standard, P, lever, m, $cs^{p+e}r$, n, for controlling the depth of the drills, K, or lifting them out of the earth in com-bination with the drills or edivery tubes, and the mechanism for regulating the quantity of seech, substantially as herein described for the purposes specified.

61,327.—WASHING MACHINE.—George H. Dow, Freeport, Ill. I claim the arms, E E', roller upper board, C', and pressure board, F, in combination with the concave washboard, H, lower roller board, C, and springs, D, arranged as and for the purpose set forth.

61,328.-BARREL BUNGS.-M. S. Drake, Newark, N. Y.

I claim, as a new article of manufacture, a bung for barrels, casks, or cases, constructed substantially as specified.

61,329. - TAIL BOARD FOR WAGONS. - Joseph O. Farrell,

Chicago, III. Doktor For Wagors. — Suspin C. Fairler, Chicago, III. I claim providing the tail boards with a double latch, constructed substan-tially as described, that is to say, consisting of a rod and two rack bars rigid-ly connected and vibrating in journals in or on the tail board under the im-pulse of the hand, or of the spring, so that they shall in the braces, I, as the tail board ismored, and when ence of the spring shall afford support to the tail board by the engagement of the notches, substantially as described.

61,330 .- SAFETY VALVE .- John H. Fitz Simmons, Susque-

hanna Depot, Penn. I claim the combined values, F and E, with value seats, A and C, the steam plpes, G G, together with the releasing screw, X, as herein described and for the purpose set forth,

61,331.-CHERRY STONER.-F. G. and E. A. Floyd, Ma- 61,353.-CLOTHES WRINGER.-George Palmer, Littlestown,

comb, Ill. First, We claim the knife or stone retainer, o, when constructed in the man-ner shown, and supported on the single arm to permit it to operate in connec-tion with the reciprocating bar, c, substantially as herein set forth. Second, The reciprocating bar, c, having the plates, n, attached and pro-vided with the holes, e, when used in combination with the knives, o, sub-stantially as shown and described. Third, The hopper, B, reciprocating bar, c, knives, o, and bed piece, e, all arranged and operating as described.

61,332.-CLAMP FOR RAISING TIMBER FRAMES.-E. G. Ford and H. Weible, Delphos, Ohio, assignors to E. G. and J. G. Ford.

We daim the hinged bars, C D, constructed and arranged to operate substantially as and for the purpose set forth.

61,333.—SHAKER ATTACHMENT FOR THRASHING MACHINES.

David Frost, Dupage, Ill. I claim the application of the slotted lapping plates, confined together by a thumb screw, to the pitman and vibrating knockers or slakers of a straw-carrier belt all in the manner and for the purpose described.

61.334.—MACINNE FOR RIVETING BUTTONS TO FABRICS.—W

61,334.—MACHINE FOR RIVETING BUTTONS TO FABRICS.—W. J. GORDON, Philadelphia, Pa. I claim, First, The lever, H in combination with the spindle, D, having a pointed projection, i, when the lever is provided with a beveled eccentric projection, w, or its equivalent, and when the spindle is so constructed and arranged, in respect to the lever, that on operating the latter, the spindle will turn around as it descends, for the purpose specified. Second, The combination of the above with the sileeve, E, having a projec-tion adapted to the cavity in the button, and with the spinges, h and n, the whole being arranged for joint action, as and for the purpose described. Third, The concavity, the edges of the said head will be turned up, as and for the purpose described.

61,335.-SUPPORT FOR WINDOW SASH.-Ellen M. Griswold,

Hagerstown, Md. I claim the application to window frames of a sash support composed of the adjustable pieces, C C', connected by hinges, substantially as and for the purposes set forth.

61,336.—Apparatus for Detaching Boats.--Increase S Hill, Boston, Miss, and Andrew Burnham, Chelsea, Mass. We claim, First, The arrangement of curved disengaging rods in guides along by the gunwale of a boat, substantially as herein described, when the same are connected with a pivoted lever through the operation of which the disengaring rods are simultaneously retracted liberating the links by which the boat is suspended. Second, A graduating coupling in the disengaging rods by means of which the lengths thereof may be so adjusted as to scoure simultaneous disengare.

the lengths thereof may be so adjusted as to secure simultaneous disengagement of the suspending links, as and for the purpose described.

61,337.-CAN FOR PAINT, ETC.-William A. Hopkins, New

York City. I claim the combination of the can, cover, ears and clamps when the same re combined, constructed, and operate substantially as shown for the purpose provided

61,338.—WRITING PAPER.—J. E. Hover, Philadelphia, Pa. I claim as a new manufacture, writing paper, the surface of which is coated with chalk or other material which will neutrlaize the acids in writing inks or fluids. or fluids.

61,339.—Apparatus for Obtaining and Applying Motive POWER .- William Huston (assignor to himself and H. N. Wickersham), Wilmington, Del. Antedated Jan. 19, 1867.

First, I claim the combination of the disk, F, and its chamber, X, and the disk, F', and its chamber, X', with the piston, G, the whole being arranged for joint action, substantially as and for the purpose herein set forth. Second, In combination with the above, I claim the heads, B and B', with the recesses and openings arranged substantially as described. Third, The combination of said disks, piston and heads with a casing, A.

61,340.-WRENCH.-Joel C. Jackson, Rochester, N. Y. An

tedated Jan. 17, 1867. I claim the peripheral recesses or groove, o, in the wrench barrel, c formed with ratchet teeth in its bottom surface, in combinution with the stop lever pawl, d, within the stock, b, as and for the purposes set forth.

61,341.—FILE CUTTING MACHINE.—A. F. Johnson, Boston,

01,341.—FILE CUTTING MACHINE.—A. F. Johnson, Boston, Mass., and M. P. Griffin, Mcdford, Mass.
First, We claim the combination of a swiveling head with a rotary stock, substantially as described.
Second, The combination of a clistet and adjuster with a rotary stock, in the manner substantially as described.
Third, Placing the chisel and adjuster together in the same stock, when constructed and airanged as described.
Fourd, The even, D, is combination with the tool stock.
Fifth, The adjustable screw jaws, T U, in combination with the ratchet, f, thescrew, S, and bed. B.
Sixth, Inserting rubber blocks at the ends and between the bows of the elliptic springs, I 'I, in a file-cutting machine, constructed substantially as de-scribed.

61.342.-CAST-IRON CHIMNEY.-David June, Fremont, Ohio. I claim the section, B, intwo parts, C C', with cattles, E E, in combination with section, B', in two parts, constructed and arranged together as and fo the purpose herein described.

61,343.-WASHING MACHINE.-C. H. Knox, Mt. Pleasant Iowa.

I claim the bolt, R, in combination with the clamp. T, friction roller, L plates, K and F, as set forth.

61,344.—SELF TRACK-LAYING CAR.—Jesse S. Lake, Smith's

61,344.—SELF TRACK-LAYING CAR.—Score C. LERCY LANGING, N. J. Landing, N. J. First, I claim the combination with a track car cr vehicle of the within-described revolving track consisting of an endless series of trucks of floats, I P QL, connected together by lexible chains, cords or straps, K, and operating in the manner and for the purpose specified. Second, I claim the combination with the runners or ways, H H, cylinder, G, and crutch, M, of the flanges, B B B' B', the latter B', being hinged or pivoted to admit of lateral adjustment in order to vary the course of the car or vehicle, substantially as described.

61,345. - CARTRIDGE BOX. - M. C. Leonard, Washington

D. C. I claim a cartridge limed with sheep skin, or other equivalent material, and for the purpose set forth.

61,346.-WINDOW-SHADE SUPPORTER.-T. J. Marinus, In-

dependence, Iowa. I claim, in a window shade, the combination of the clamp composed of lever, H, the hollow frame, F, and spring, I, with the cord for raising shade, all constructed in the manner and for the purpose herein set for in.

61,347.—QUARTZ CRUSHER.—Carlile Mason, Chicago, Ill. First, I claim the conical crushing disks, m, having their faces corrugated, substantially as shown, and arianged to operate in connection with each other, as set forth. Second, The tension frame consisting of the rods, y, and the keys or wedges, a, arranged to operate in connection with the crushing disks, m, as shown and described.

and descripter. Third, in combination with the tension frame as above described, I claim the spring beams, w, and the set screws, e, arranged and operating as and for the purpose set forth.

 $^{\prime}$ Pa. First, I claim placing ribsof metal longitudinally in hard wood rollers for lothes wringer, when covered with elastic substances, subtantially as herein Second, I claim, in combination with clothes wringer rollers as described, the pressure lever, Q, balls, v, or other equivalent, spring and rack bar, Y, operating as and for the purposes herein specified.

61,354.—DEVICE FOR PREVENTING COLLISION OF LOCOMO-

TIVES.—Henry Payne, Sr., Mount Vernon, Olio. I claim the affixing to locomotive boilersone or more tubes in such manner as herein described, as that by letting steam into them irom the boiler, a shaft will be driven or forced forward from each tube to meet any opposing object, and thus prevent collision of the locomotive with the object opposing, or much diminish its force.

61,355.-WRENCH.-John L. Peake (assignor to himself and Louis Guillander), New York City. Antedated January 6. 1867.

I claim therecessedface, a a, on the jaw, A, in combination with the tooth, b, on the jaw, B, adapted to traverse backward and forward by meaus of the rack, N, segment, M, and lever, C, all arranged for joint eperation, so as to act on cylindrical bodies or pipes of different diameters, all in lines a uniform distances from their centres, substantially as herein set forth.

61,356.—COAL SCUTTLE.—John Pfeifer, Philadelphia, Pa. Productng a close joint between the body, A, and the bottom, B, of the said coal hod, by means of the concavo-convex bead, a' b', substantially as and for the purpose described.

61,357.-SHUTTLE BINDER FOR LOOMS.-J. C. Poland. Jr.

Auburn, Maine, and B. R. Cotton, Lewiston, Maine. We claim a shuttle binder made as a lever, pivoted at or near its centre, when arranged with adjusting screws, d'd by whech the angle of the binder can be changed and the binder can be fixed in position, substantially as de-

scribed. Also, in the arrangement claimed above, mounting the pivot of the binder on a screw, by which the distance of the whole binder is adjusted with refer-ence to the opposite side of the shuttle box.

61,358.-FLY TRAP.-M. M. Preble, Kokomo, Ind. I claim the combination of the boxes, A and E, and slides, G and F, the said parts being constructed and arranged substantially in the manner and for the purpose set forth.

61,359.—STEREOSCOPE.—De Witt S. Rawson, Peru, Ill. I claim the picturebox, II, the swinging front, D, and shelves or brackets, E E, substantially as herein described.

61,360.-ICE CREAM FREEZER.-John E. Robinson, Boston,

01,500.—10E OREAM FREEZER.—50111 E. ROUTING, 2000. Mass. Iclaim, in combination with a freezing vessel, a, the arrangement of a series of cream cylinder; b, to be simultaneously rotated within the same, when each cylinder is so mounted as to be capable of disconnection from the driving mechanism and removed from the freezing vessel, without disturbing the other cream cylinders, substantially as set forth. I also claim, in combination with such an arrangement and method of operation of the cylinders, the stationary scrapers, held in place during the rotation of the cylinders substantially as described. Also, mounting each cylinder on a screw shaft, and so as to be removable there is an array of the purpose described.

61,361.-TRUNK LOCKS.-E. A. G. Roulstone, Roxbury, Mass. I claim the combination of the spring bolt, 1, and tumblers, e, or locking mechanism, when constructed and arranged to lock and unlock substantially as set ford. Also, combining with the projection, o, of the bolt, the flange, r, with the pin, p, ior receiving the strain of the bolt, substantially as **e**scribed.

61,362.--PORTABLE WATER POWER.-Abram Rowe, Ma-

comb, Ill., assignor to himself, Lorenzo F. Whitman and Reson A. Bowie.

Keson A. BOWIE. First, I claim a portable hydraulic motor for operating machinery, consist-ing of the propeller or screw wheel, B. enclosed in a case, F. and located in the central bottom portion of a boat, A, as herein shown and described. In combination with the wheel, B, arranged as shown, I claim the sluice, O, in the front end of the boat having its sides converging as represented.

61.363.—ABRASIVE POWDER.—Jesse Russell, Bath, Maine. 1 claim abrasive powders, made by reducing and grading the m described

61.364.-METHOD OF UTILIZING WASTE EXTRACTS OF FL

61,364.—METHOD OF UTILIZING WASTE EXTRACTS OF FT-BROUS PLANTS.—George E. Sellers, Sellers' Landing, Ill. First, 1 claim the vegetable extract of fibrous plants, when obtained in the process of preparing nber paper stock, in the manner and for the purpose substantially as described. Second, the utilization of the vegetable extract of cane (arundinaria macro-sperma) and other florous plants, when obtained from them in the process of preparing their fiber for paper stock without other chemical agencies than water or heat, as a new article of commerce.

61,365.—BASE BURNING STOVE.—Charles J. Shepard, Brook-

Styles. Disk Disking Sidver Contracts of the chamber, B, constructed and operating substantially as described, for the purposes set forth. Second, I claim in a stove with the upper or reservoir chamber constructed substantially as as described, for the position relatively to the grate as shown for the purposes herein fully indicated. Third, The use or employment of water, substantially as shown, for the purposes set forth.

61,366.—Hydrant.—Joseph Nottingham Smith, Jersey City

N. J. I claim the tubular flanged valve, F, operating substantially as herein speci

fied. I also claim the inverted cup-shaped valveseat, D, in combination with the valve, F, substantially as herein described. I also claim the filter, L, y, arranged in the hydrant as herein set forth. I also claim the combination of the filter tube, L, with the valve, F, sub-stantially as and for the purpose herein set forth. I also claim the fiexble packing, Q, in combination with the cups, P and T, substantially in the manner and for the purpose herein specified. 61,367. - WINDOW-SCREEN FOR RAILROAD CAR. - F. U

Stokes, Cincinnati, Ohio. Antedated Jan. 6, 1867. I claim a sash frame for a railway car window, constructed in such a man-ner that the upper half may be set with glass, and the lower with wire gauze or analogous material, the whole being combined together in the manner and for the purpose herein set forth.

61,368.-MODE OF PRINTING PHOTOGRAPHS.-Joseph Wilson

Solo and the preparation and use of colored gelatinous tissues, sub-stantially in the manner and for the purpose set forth. Second, The mounting of undeveloped prints, octained by the use of col-ored gelatinous tissues, if the manner and for the purpose set forth. Third, The retranster of developed prints, produced as above described.

61,369.-MANUFACTURE OF SHOE LACINGS.-J. P. Ferrell,

North Bridgewater, Mass. I claim combining with friction surfaces having a relative reciprocation, a co-operating mechanism which shall draw or feed the strip between these surfaces, substantially as and for the purpose set forth. I also claim in com bination with such an arrangement or organization mechanism for releasing the strip from the nippers, mechanism for separat-ing the abrading surfaces, and mechanism for returning the parts to normal position, substantially as set forth.

61,370.—HANGER BOX FOR CRANK SHAFTS.—Thomas Welch,

York City. First, I claim introducing chemicals into a rectifying or distilling column for tac purpose of analyzing or purifying, in whole or in part, the contents of such column. Second, Introducing such chemicals at option either in their natural state or mixed with water or other suitable liquids. Third, Introducing water into a rectifying or distilling column, in such a manner as to cause the mixing of such water with all or part of the contents of such column, for the purposes herein set forth. Fourth, Introducing Such chemicals, pure or mixed, or such water into such column, substantially by the means on in the manner herein described. Fith, Constructing a rectifying or distilling apparatus, in such a manner that one boher or still can supply and keep at work two columns, on such an anner that one other on secting are construction of the other in such a manner that one there, are connected with each other in such a manner that unce olumn with our face rough the other or in part, be passed into another column without interrupting the process of rectination, on substation, analyzation, or condensation. Soverth dynamics and analyzer of series of tubes or culuders substate. 61,370.—HANGER BOX FOR CRANK SHAFTS.—Thomas Welch, Churchville, N. Y.
First, I claim providing the hanger journal of the crank shaft or other journals of harvesters with self-adjusting or self-lning bearings, or boxes, substantially as and for the purposet shown a d described.
Second, The application of the wedge, E, with or without a set screw when used in combination with the box in which the journal revolves, for the pur-pose of compensating for the slack that might otherwise occur, by the wear-ing a way of the parts.
Third, The set screw, S, in combination with the self-adjusting or self-lining boxes of harvesters, substantially as and for the purposes set forth.
Fourth, In combination with a setscrew and self-lining or self-djusting boxes of harvesters, substantially as shown, and for the purpose described.
Fifth, In combination with a setscrew and self-lining or self-djusting boxes in any setsers, the cap, I, or its equivalent for the purposes described. 61,348.-BUNG FOR BEER BARRELS.-J. E. McBeth, New Orleans, La., assignor to himself and J. W. Chamberlain. First, I claim the rubber ring, D, substantially in the manner and for the urposes described. purposes acsorized. Second, I claim the combination of the parts, B and C, substantially in the manner and for the purpose described. Third, I claim the combination of the parts, B C and D, substantially in the manner and for the purposes described. analyzation, or condensation. Seventh, Constructing an analyzer of a series of tubes or cylinders, substan-tially like the upper compartment of the analyzing condenser, G 4, herein described. Eighth, Constructing a condenser of a series of tubes or cylinders, substan-tially like the lower compartment of the analyzing condenser, G 4, herein described. Ninth, Constructing the analyzing condenser, G 4, of a series of tubes or cylinders, and dividing the same into compartments, substantially as de-scribed and for the purposes named. Teuth, Providing arectifying or distilling apparatus, with a vessel, V28, for the reception or distribution of chemicals, substantially as described and for the nursees set forth. analyzation, or condensation. 61,349.-INSTRUMENT FOR GUIDING TAILORS IN CUTTING OUT COATS AND VESTS.-Herrman Mengel, Philadelphia. 61,371.—PROCESS FOR PURIFYING AND CLEANSING SIZING FOR PAPER, ETC.—Norman J. Wells, Huntington, Mass. I claim the use of alum or other equivalent mentioned, in the process of preparing sizing, when used and applied in the manner substantially as herein described and for the purpose set forth. Pa. I can I claim a plate, A, and adjustable strip, E, in combination with an adjusta-ble plate, B, adjustable strip, C, and strip, D, or its equivalent, the whole be-ing constructed, graduated and arranged substantially as and for the pur-pose described. uncreception or distribution of chemicals, substantially as described and for the purposes set forth. Eleventh, Froviding a rectifying or distilling apparatus with one or more tubs or vessels, T29, for the mixing of chemicals with liquids, substantially as described and for the purposes set forth. Twelfth, Supplying each or al of such tubs, T29, with a float or self-acting stop cock, 56, for the purpose of regulating the quantity of liquid required in call tub. 61,350. - MODE OF PRINTING ON GLASS. - Isaac L. Miles, 61,372.—CHEESE VAT.—Amos Westcott, Syracuse, N. Y. Charlestown. Mass. I claim transferring an impression form of elastic type having a rounded or curved surface to flat plate or sheet of glass by rolling the latter over and in contact with ways arranged adjacent to and having a curvature correspond-ing with that of the face of the form of type, as described. I claim the method above described of constructing, attaching and rendering adjustable, the leg, D, substantially as and for the purposes set forth. Thirteenth, The three-way stop cock, 75 76 77 78, or any desirable number of the kind, constructed substantially as herein set forth and used as de-61,373.-PISTON FOR STEAM ENGINES.-William D. White more, Boston, Mass. I claim my improved ring section and wedge piston as made not only with its ring sections and their wedges wholly within and suported by a case, C, separate from and to be attached to the cap, B, by screws, but ashaving the cap, B, applied to the piston roat, A, the whole being substantially as and for the purposes hereinbefore set forth. if the kind, constructed substantianty as account of the kind, constructed substantianty as account of the set 61,351.—CENTER BOARD AND BOX FOR VESSELS.—D. P. Nickerson, Cleveland, Ohio. Four central, value of the manner and for the purposes never between the stantially in the manner and for the purposes never between the pipes, substantially in the manner and for the purposes never between the pipes, 15a and 15b, in connection with pipes, 16a 16b 16c and 16d, and stop cock, 90 16 and 9, the whole substantially arranged in such a way as to enable the condensed inipurities of any given column to be returned or directed into any given still, substantially as described and for the purposes we there the substantially as described and for the purposes we there the substantially as described and for the purposes we there the substantially are substantially as described and for the purposes we there the substantially as described and for the purposes we there the substantially as the substantially as the substantially are subst First, I claim the arrangement of a metallic center board constructed with the two sides, G G, the brace, I, and stay bolts, H, in combination with the metallic box, B, for the purpose and in the manner set forth, Second, The portable metallic center board box constructed with braces, C, and angle irons, D, as an it or the purpose set forth. 61,374.-BED BOTTOM.-Newel J. Willis, Waltham, Mass., assignor to himself and Ammi Brown, Boston, Mass. I claim the improved construction of the slat lifter, B. and arrangement of it and its springs relatively to the slat. A, t. e. whole being as described, the part, c, of such lifter under such arrangement, being made throughout its length to bear against the underside of the slat and the springs to extend wholly below the part, c, and the slat as explained. set forth. Sixteenth, Regulating by means of valves, 27a and 27b, the quantity of va-pors required in any given column for rectifying or distilling purposes, all substantially as described. 61.352.-WASHING MACHINE.-George Palmer, Littlestown, Fig. I claim the washing cylinder, D D, as constructed with the revolving bars or rollers, F F, into which cylinder the clothes are placed and secured to be washed with the balls, I I, constructed as shown and described, the washing apparatus being arranged and combined with the gear wheels, d and e, and the crank handle, E, operating substantially in the manner herein described or the purposes specified. 51,389.—CHURN.—Jehial Borst, East Cobbleskill, N. Y. I claim the arrangement of the two dashers, the outer revolving faster than the inner, and both being operated by means of shaft, S, toothed plate, n, idle wheel, o, and gear wheel, m, with its shaft, m, the several parts being con structed and used as and for the purpose specified. 61,375.—SEED DRILL AND CULTIVATOR COMBINED.—John P. Zeller, Bourbon, Ind. I claim, First, The frame, A, constructed as described, with the hinges, &

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loop, g.g. studs, h.h. loops, f.i, studs, 55, and tongue, D, in the manner and for the purposes herein fully set forth. Second, The wheels, B and B' with corrugations upon their inner faces and connected to the frame by the short axle, cog bars, P, and metal slides in t. c manner and for the purposes specified. Third, The arrangement of the shaft, C, with cog segments, O, which mesh into the cog bars, P P, and used for elevating or appressing the frame, A. in the manner as set forth. Fourth, The drag, L, with shoc, M, and roller, constructed as set forth, and used with the frame, A, as specified. Fifth, The arrangement of the detachable drilling device, G, constructed specified and used in combination with the frame as specified. Sittli, The corn cultivator attachment, H, when used with the frame, A, as

set forth. 61,376.-A GIG OR MACHINE FOR RAISING THE NAP UPON

CLOTH, COMPOSED OF THE FOLLOWING ELEMENTS .- Anton Zschille, Grossenhain, Kingdom of Saxony, assignors to L. T. Downes.

to L. 1. DOWNES. I claim, First, A gig ormachine for raising the nap upon cloth, composed f the following elements. 1st, A mechanism for moving the cloth through he machine so as to present plane surfaces to the action of the teazles, $2d_i$, one, two or more pairs of plane surfaced independent teazle plates with neckmism for moving the same, while maintaining their parallelism with he cloth, in arcs of a circle or otherwise, so that each plate shall continuous-y move toward the cloth, sweep transversely and in contact with the cloth so the center toward the sides thereof, and then recede, and return toward he conter.

the center. Sec.nd. I also claim the means herein described for engaging or discngag-ing the cloth with or from the teazle plates, and regulating their pressure of contact, substantially as shown and set forth. Third I also claim the method of teazling cloth by machinery, substantially as herein shown and described, that is to say by "marcing" is the teazling surfaces the following motions, viz: to and from the cloth and also at right conter or thereof, so that the nap shall be raised crosswise troin the center or thereabouts to the sides as described.

61,377.—SAW SET.—W. A. Alexander, Mobile, Ala. I claim the combination of the lever, B, pivoted in the block, A', with the recess, b, and the set screw, c, in the block, A, forming an adjustable saw set, constructed and operating substantially as herein described.

61,378.-KINDLING FIRES.-Dexter B. Andrews, Fort Wayne,

Ind. I claim a composition for kindling fires compounded from the materials and substantially as set forth.

61,379.-Composition for the MANUFACTURE AND PRE-SERVING LEATHER.—Robert Andrews, Milwaukee, Wis. I claim making the composition out of the materials named in the manner named and to secure to me the right of using such a composition, and of ap-plying it to leadler in the process of manufacture or after it is unanfactured and to all articles made of leather, disclaiming every thing but the composi-tion

tion.

61,380.-Corset and Skirt Supporter Combined.-Wil-

liam Bacheller, West Newberry, Mass. I claim in combination with an ordinary corset, the skirt supporter for which letters Patent were granted me May 22, 1886, dashed to be worn a d secured together in the manner as and for the purpose specified.

61,381.—GOVERNOR.—William Bakme, New Media, Pa. I claum the arrangement upon the millshaft of a pivoted governor ball and arm to actuate a detaching apparatus for the water gate levers, substantially as described.

61,382-PAPER RULING MACHINE.-George A. Ball, San

61,382 — PAPER RULING MACHINE. —George A. Ball, San Francisco, Cal. First, I claim the division of the cylinder into any number of sections with nippers working between each section and the introducing the movable blocks, it i, between each nipper to preserve the circular forms of the cylinder in combination with the nippers, substantially as described. Second, Covering the cylinder with indis-rubber cloth, Z, and placing upon the edge of each section where the nippers strike a strip of gutta percha, Z', as described and for the purposes set iorth. Third, The gage, jrolls, II, and lock nuts, m m, affixed to the feed board, in combination with the feed board R.

61,383.—Apparatus for Amalgamating Ores. — Abner

61,383.—APPARATUS FOR AMAIGAMATING URES.—Abner Bassett, Virginia City, Nevada. First, I claim the barrel, e, or its equivalent, having a hollow shaft, o, pas-sing through it, by which heat is introduced by exhaust steam or otherwise, substantially as described and for the purposes set forth. Second, I claim the hot-air shell or bath, g, for the purpose of applying heat by exhaust steam or otherwise, to the outside of the vessel contabulog the pulp, whereby obturate ores are made to amalgamate more freely, sub-stantially as described and for the purpose specified. Third, I claim the application of steam or heat to the ore of pulp, both through and around it, without coming in direct contact with it, the said ore or pulp being confined in some suitable vessel, said vessel being molosed in a shell or bath, for the purpose herein set forth.

61,384.-EDGE PLANE FOR BOOTS AND SHOES.-Willigam

Bayhouse, Portland, Oregon. First, I claim an edge plane having a cutter, D, with straight and concave edges, and the adjustable solucted guard, F, placed over the said cutter, sub-stantially as described and for the purpose set forth. Second, The guay, C B, with slots, b and b, and the screw, I, for elevating the cutter, in combination with the screw, G, and thumb nut, H, substantially as described and for the purposes set forth.

61,385.—Sorghum Stripper. — Amos Bean, Canaanville,

Unito. First, I claim an improved cane stripper, formed by the combination of the adjustable spring knives, B, and east iron box or frame, A, said parts being constructor and arranged sutstantially as herein shown and described. Second, The combination of the levers, C, with the spring buives, B, and box or frame, A, substantially as herein shown and described, and for the purpose set forth.

61.386.—SIFTING DEVICE FOR GRATES.—Jacob Beesley, Phil-

adelphia, Pa. First, I claim a grate, d, for receiving the ashes and cinders, in combination with the sliding frame, C, and projections, e e, the whole being constructed and operating beneath the fire grate of a store heater or furnace, substan-tially asamé for the purpose herein set forth. Second, The ribs, cc, with their recesses, x.x., in combination with a grate d, and with the sliding frame, C, and its lugs, e e, the whole being arranged substantially as described. Third, The combination of the detachable box, R, grate, d, and sliding frame, C, the whole being constructed and operating substantially as specified.

61,387.—CowL.—W. F. G. Beeuwkes, Holland, Mich. I claim the arrangement of the guard pipes or casings, C F, plate, H, and short cylinder, J. for projecting the roof from the heat of the cliimney, sub-stantially as here in shown and described.

61,388.—Apparatus and Preserver for Rectifying Al-

COHOL AND OTHER SPIRITS .- Jean Gustave Bequet, Paris, France, assignor to himself and Moritz Pinner, New

Ohio.

adelphia, Pa.

York City.

61,390.-COMPOUND FOR TELEGRAPH INSULATORS AND FOR

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61,390.—COMPOUND FOR TELEGRAPH INSULATORS AND FOR OTHER PURPOSES.—John F. Boynton, Syracuse, N. Y. First, I claim as composition for an electric insulator, a combination of subject of alumina.
Second, I claim the combination of subject of alumina and silicit acid and silicate of alumina, as and for the purpose set forth.
Third, I claim as a combosition of subjecting said substances with subject of substances, with respect to the fork as and for the purposes herein specified.
Fourth, I claim saturating earthen ware, brick tiles, drain pipes, porous statistical earther ware, brick tiles, drain pipes, porous substances with substances on a sufficient described, after subjecting said substances to a sufficient described.
61 Soil — STEAM BLOWER —G. W. Bright Philadelphia, Pa.

61,391.—STEAM BLOWER.—G. W. Bright, Philadelphia, Pa. I claim the arrangement of the shaft, A, the hub, B, the wings, C. the screw, b, and the nut, c, with the jets, e, substantially as herein described for the purposes set forth.

61,392.-Tool for Cutting off Boiler Tubes.-R. H.

Bucks, Green point, N. Y. First, 1 claim the cutter head, G, with feed screw, F, and tubular nut, E, in combination with the cutters, H, and pipe, A, constructed and operating cultantially as and for the purpose described. Second, The supplementary Heers, 1, in combination with the pipe, A, and head, G, carrying the cutters, H, substantially as and for the purposes of forth

61,393.—Cooler for Coffee, etc.—J. Burns, New York

City. City. First, I claim, as an article of manufacture, the portable cooler herein described, the same consisting of the open monneed nan, A, with perforated false bottom, B, and connecting (ubo, D, as and for the purgoe sepecified. Second, The arrangement of the stationary suction blower, E, on the noor, with the pipe, b, below it, in combination with the removable mounted cooler, A B U, supported by its tube, D, as and for the purgoe specified.

61,394.-HARVESTER CUTTER.-Caleb Cadwell, Waukegan, T11.

Ill. First, I claim a rotary cutter, consisting of the teeth, I, and links, H, in combination with the blocks, G G'g, when constructed and arranged in the manner and for the purpose specified. Second, I claim the arrangement of the cutter, H I, blocks, G G', guides, M M', roller, L, spring, L', gearing, D E, shaft, B, and bevel phrions, C C, as herein described and represented.

61,395.—SCAFFOLD.—L. B. Carpenter, Milwaukee, Wis. I daim the cor bination and arrangement of the posts, A, the horizontal sliding timbers, E, the arms, F, crank shafts, H, cranks, I, ropes, J, and pul-leys, K, with each other, substantially as herein described and for the pur-

61,396.-HAND STAMP.-Dexter H. Chamberlain, West Rox-

bury, Mass. First, I claim the thetype wheels, a bc, of different diameters, mounted upon separate and independent axes, as an of or the purpose set forth. Second, I claim the combination of the inking ribbon with two reels and a stud, in such a manner as to form a double fold of the ribbon underneath the type wheels or die book, substantially as and for the purpose specified. 61,397.—REPAIRING RAILROAD RAILS. — Octave Chanute,

Chicago, IM. I claim a ple for forming a rallway bar, composed of an old or worn rail and a new bar of iron or steel for the head and foot, or either, substantially as herein shown and described.

61,398.-MEASURING FUNNELS.-W. B. Cleves, Binghamton,

N. Y. I claim the peculiar construction of the measure, A, in combination with the gage tube, B, communicating with the inside of the measure above the fancet, C, with the single scale to indicate the quantity in the vessel, and the stand, D, with the adjustable clamp to hold the measure io its upright posi-tion, substantially as described and for the purposes set forth.

61,399.—CAR COUPLING.—Wm. B. Coates, Philadelphia, Pa. I claim the coupling pins constructed in the manner and for the purpose de-scribed in this specification.

61,400.-FILTERING TUBE FOR WELLS.-Chas. C. Cole, Northfield. Vt.

Held, $\forall i$. First, I claim protecting the countersunk strainers, A, by hinged plates, D or stationary plates, B, substantially as represented and described. Second, The combination of the cone or consultance strainers, G, with the tubing, substantially as herein shown and described.

61,401.—FURNACE SHIELD.—Edward S. Collins, U. S. Navy. I claim the shield, B, so hung or arranged upon a frame, C H and G, that it can be adjusted to the required angle with regard to the furnace door, sub-stantially as and for the purpose specified. The combination with the door shield, B, of the fender, A, when arranged together and so as to operate substantially as and for the purposes described.

61,402.—WHEEL AND AXLE CONNECTION.—Henry S. Cook, Boston. Mass.

BOSTON. MASS. I claim the improved carriage wheel and axle connection consisting of the plates, a and e, with their stud, c c c, and openings, f f, operating in com-bination with the collar, h, as described. I also claim, in combination with the above-described arrangement of parts, the paw, i, or its equivalent, substantially in the manner and for the purpose as set forth.

61,403.- COVERING FOR THE HEAD. - Edwin Copleston, Wrentham, Mass

I claim a head covering produced as herein described as a new article of manufacture.

61,404.-EXTRACTING IODINE FROM SEA WATER.-Rene Cupper, New York City. I claim the process substantially as herein described, for the purpose speci-fied.

61.405.—WASHING MACHINE.—Chas. Daniel, Lamont, Mo

01,203.— WASHING MACHINE.—UNAS. Daniel, Lamont, Mo. First, Iclaim the combination of the adjustable slotted cylinder, C, and the adjustable slotted concave frame, G, with each other and with the box or hub, A, when said cylinder and frame are constructed and operated substantially asherein shown and described. Second, The clamping device formed by the combination of the movable jointed frame, J, with the concave frame, G, substantially as herein shown and described and for the purpose set forth.

61,406.—BOAT-DETACHING TACKLE.—Wm. A. Devon, Port Richmond, N. Y.

I claim the combination of the jaws, A and B, of the pivoted locking c C, with its cam-shaped lever, h, and cheek or face piece, i, for operatio the jaws, substantially as specified.

61,407.—FILTER.—Justus Doering, Philadelphia, Pa. First, Iclaim the perforated vessel, B, and its pipes, c and d, in combination with the casing, A, and its pipes, f and g, the whole being constructed and ar-ranged substantially as specified. Second, An inclined discharge pipe, arranged in respect to the concave bottom of a filter, substantially as and for the purpose described. Third, The pipe, 4, with its openings, i in combination with a filter, sub-tantially as and for the purpose set forth.

tantially as and for the purpose set forth. 61,403.—GANG PLOW.—J. H. Douthit, Albany, Oregon. First, I claim the attaching of the plow beams. F F, to slides, H A. fitted between suitable guides, c, at the inner sides of the bars, A.A. in connection with the foot lever, I, attached to one of the slides, H, and the pin, K, passing through any of a series of holes in the other slide, H, substantially as and of the purpose set forth. Second, The windlass, L, having the cords or chains, M M', attached, and the latter connected to the plow beams, F F, to operate in the manner sub-stantially as and for the purpose specifier. Third, the windlass, L, having a cord or chain, A, attached, which is con-nected to the plow beams, F F, one of the bearings of the windlass being fitted in a slide, S, and having a pulley, V, on one end, around which and a pulley, W, on wheel, D, a bein, passes in combination with the lever, T, attached to fitde, S, all being arranged to operate in the manner substantially as and for the purpose set forth.

61,412.—DEVICE FOR CHANGING WATER INTO STEAM GEN-

I claim the attachment of the disk, H, to the stem, B, by means of the pin which is fast in the stem, and working in a groove in the disk as herein shown and described.

61,415.-CHURN.-Stephen M. Golden, Marcelline, Ill.

01,410.—UNURN.—DUPINED M. GOIGEN, MATCHINE, III. First, I claim the arm, D, as operating on the wrist, G, shaft, B, and adjust-able bolt, F, as herein described, and for the purposes set forth. Second, I also claim the construction of the frame, C, with its toothed wheels, K and L, fly-wheel, H, and adjustable piston, D, in combination with the shaft. B, and churn, A, when arranged and operated as herein described and for the purposes set forth.

61,416.-AUTOMATIC TOY.-William F. Goodwin, Washington, D. C.

ton, D. C. I claim constructing the legs of toys or hobby horses, with bars or pieces joining them together, making hinged or vibrating joints at the several points where the legs are required to bond so that when attached or pivoted on the studies, S, or their equivalents on the shoulders and hips, and acting by the rotating of the crarks, B', the legs are made to move, bending all the joints, raising and turning the toot, stepping, walking, and rotating with both the foreand hind legs and feet, in imitation of the manner and for the pur-pose substantially as described. Second, The crarks, B', or their equivalents, operated in any manner or by any means whereby they can be made to rotate, the rolating of which im-parts to the legs their vibrating and reciprocading motions, arranged to oper-ate in the manner and for the purpose substantially as described. 61 417 — Dupercope peop Lurpenyte Suppopt — W. G. Grant

61,417.-DIRECTOR FOR UTERINE SUPPORT.-W. G. Grant,

Ul, 411. — Diffection to a construct of the section of the section of the section of the section of the substantially as and for the purpose specified. In also calaim the guester, B, in combination with the director, A, substantially as described, and for the purpose set forth.

61,418.— PEAT MACHINE. — Stephen B. Greacen, Norwich, Conn.

Conn. First, I claim the combination with the eccentric outer cylinder, B, and ir-regular cam, E, of the revolving inner cylinder, D, with its separately oper-ating radiata slides, b, forning sides to the molds, the whole ceing constructed and arranged for operation together substantially as and for the purpose berein set forth. Second, The combination with the revolving cylinder, D, slides, b, and cam, E, of the knife or scraper, f, arranged for operation in relation thereto, as shown and described.

61,419.-Toy Gun.-Albert Hall, New York City.

First, I claim the construction of the stock of a spring toy gun, in two long-itudinal halves or sections, a b, secured together by the barrel, C, substantally as herein set forth, Second, The cylinitical india-rubber spring, g, arranged in relation with the piston, f, barrel, c, and trigger, k, substantially as herein set forth, for 'the purposes specified.

61,420.-Tool Holder for Planing Machines.-Charles

01,420.-100L HOLDER FOR PLANING MACHINES.-Charles Hall, New York City. I claim the combination of the tool stock of a planer, with its support or rest, by means substantially as above set forth, so 'hat t e tool stock can move a limited distance in two directions, in the line of cutting, whereby two opposite cutting edges may be alternately brought into operation and held there.

61,421. — REVERSIBLE BUTT HINGE. — William Hancock, Saco, Maine. Antedated Jan. 14, 1867. First, I claim the hinge, in combination with the washer, for the purpose

bified

specines. Second, I claim a double round edge hinge, as specified in combination with a movable pin or plutle, whereby I am enabled to obtain a "right or left hand" hinge movement from one and the same hinge. 61,422.-MACHINE FOR PULLING FLAX.-John Harrington,

61,442. —W OOD TURNING LATHE. —John McMichael (assignor to Joseph Wright), Philadelphia, Pa.
First, I claim the rocking frame, H, arranged with the cutters, G and G', and the standing frame, A, substantially as hereinbefore described, and for the purposes specified.
Second, Combining the cam, V, with the rocking shaft, T, and rocking frame, H, forgiving a reciprocating motion to the latter, substantially as and for the purpose above described.
Third, The combination of the cam-lever, O', with the centre, O', and lever, P, the latter being operated by the lever, Q, or its equivalent, substantially as and for the purpose set forth.
Fourth, arranging the sliding handle, Y, and spring, X, with the upright W, for the double purpose of giving arocking motion to the frame, H, by means of the cam, V, and actuating the cam lever, O', through the intermediatelevers, P Q, substantially as escribed and for the purpose specified. 61,422.—MACHINE FOR PULLING FLAX.—John Harrington, Menomonie, Wisconsin. First, I claim the rotating reel provided with fixed radial plates, c, and movable plates, J, arranged so as to operate as clamps, and as the machine is frawn along pull the standing flax and deposit it on the platform substan tially as set forth. Second, The cam-shaped grooves, L, at the inner sides of the plates, M, and the pivoted arms, K, to which the plates J are attached, in connection with the rollers, e, at the inner ends of the arms working in the grooves, L, for the purpose of operating the plates, J, substantially as set forth. The shafts, j, at the outer ends of the plates, J, substantially as and for the purpose specified. Fourth, The combination of the main frame and platform, with the reel arranged with clamps to operate as set forth. F. Miller, New York City. Frst, I claim the septa or plates f, in combination with the diaphragm, e and radiating case. cd. substantially as and for the purposes set forth. Scoord, I claim arranging the diaphragm, e, and case, c, in the manner shown in Figs. 1 and 3, so that the space through which the heated gases or products of combustion pass shall be nearly of equal area to the pipe, a, for the pur-poses and as set forth.

61,423 - TRAVELING-BAG FRAME. - George Havell, Newark, N. J.

I claim as an article of manufacture the within-described frame for travel-ng bags, when constructed and used as and for the purpose specified.

 poses and as setforth.
 61,444.—Copy Holder.—Charles B. Moseley and Lucius L. Woolley, Medford, Mass.
 We claim the cylinder, D, or its equivalent, having a spring jaw, F, when hung in a suitable frame, substantially as and for the purpose described.
 We also claim, in combination with the above, the swinging ilid. H, arranged substantially as described, and for the purpose specified.
 We also claim the notcbed head of the gylinder, D, or its equivalent, in com-bination with the pawlor catch, N, for the purpose described.
 We also claim the iron frame on which the working portion of the machine rests, and which holds the same in position, substantially as specified. -MEAT CUTTER.-James L. Haven, Cincinnati, Ohio. 61,424. 61,445.—RAILWAY CHAIR.—Michael C. Murray, West Acton,

01,424.— MEAT CUTTER. — James L. Haven, Chichman, Ohio. I claim the mode of securing an entire series of meat cutting or mincing knives, G, by means of a single set sorew, L, ribbed plate, F, and slotted case, A B, substantially as set forth. Second, The provision of ribs, f, on the side of a meat cutter, whether cast on the case or separately, in combination with a correspondingly ribbed loose part, when arranged so that one lateral movement will firmly hold all the knives substantially as set forth. Third, The mode of securing a series of meat cutting or mincing knives, G, by means of the lateral movement of a ribbed plate, F, against correspon-ing ribs on the slotted case, A B, substantially as set forth.

61,425.—APPARATUS FOR AUTOMATICALLY WEIGHING SPIR-ITS AND OTHER LIQUORS.—Samuel K. Hawkins, Lan-

TTS AND OTHER LIQUORS.—Samuel K. Hawkins, Lansingburgh, N. Y.
Iclaim the automatic weighing machine, constructed and operating substantially as and for the purpose herein described.
Second, In combination with the levers, D and C, and the clutch hooks, p, I claim the drop weight, F, so arranged that the clutch hooks will alternately lift and afrop the weight substantially as and for the purpose described.
Thurd, The combination of the balance levers, D and C, with the mechanism for operating substantially as and for the purpose described.
Thurd, The combination of the balance levers, D and C, with the mechanism for operating the valves, a, and b b, substantially as described.
Fourth, The combination of the balance lever, D, the gripping bars, G d, the clutch hooks, p, p, the weight, F, and the V-shaped slot, V, constructed and operating substantially as described.
Fift, D, 'Int dial plate', M, in combination with the index, m, the ratchetwheel, N', the pawl, n, and the arm, O, operated by a rock shaft substantially as and for the purpose described.
Sixth, In combination with the lower lever, C, and the drop weight, E, I claim the elastic platform, E', substantially as and for the purpose described.
Sixth, In combination with the lower lever, C, and the drop weight, E, I claim the elastic platform, E', substantially as and for the purpose described. 61,446.—BROOM.—Henry E. Newton (assignor to himself and W. A. Newton), Manchester, N. H. I claim one or more springs, B, which connect the handle, C, with the broom head, A, substantially in the manner and for the purpose herein shown and described.

61,447.—PUMPS.—John Nicholson, Allegheny City, Pa. I claim providing the upper end of the valve chamber or working barrel, h, of a pump with alock, ff', furnished with catches, g, and springs, e, said lock being used in connection with a coupling, A, case, C, seat, J, nuts, k, g and 9, spiral spring, r, and rollers, v', on the pump rod, D. the whole being con-structed, arranged and operating substantially æ herein described and for the purpose set forth.

cribed. Fighth, In combination with the lower lever, C, the connecting bars, H and h, and the valve, a, I claim the inclines, J and J, constructed and oper-ating substantially as and for the purpose described.

61,426.-REVOLVING SLUICE FOR SAVING METALS.-T. D. and

61,426.— KEVOLVING SLUICE FOR SAVING METALS.—T. D. and W. A. Hedger, Meadow Lake, Cal. We claim a sluice with revolving belt, D, so constructed that the sides will form flexible joints, b b, in passing around the drums, closing up and forming close joints while passing and down the incline, forming a sufficient channel between them for the purpose described, substantially as set forth. Second, The monthpiece of opening, G, beneath the platform, so that the sand or pnlp which is fed to the machinemay enter a sufficient distance be-low to give the action and force to the water introduced through the open-ing, G, to sweep dawn the incline and carry with it the sand and debris, sub-stantially as described, and for the purpose set forth. Third, Separating the or passing the valuable portions, up the incline, and the debris down to the food, as waste matter, as described. forth, we claim the construction of the vertical walls of the kiln, with con-cave si desso as to resist the entire pressure from the expansive force of the heat and steam. 61,449.-BRICK KILN.-L. R. Norman and W. F. Dieterichs,

Jr., St. Louis, Mo. We claim, First, Constructing the sides of our improved brick kiln of double

61,432.—BURNER FOR VAPOR STOVES.—R. L. Howell (assignor to himself, E. M. Wilkins and W. S. Browning), Baltimore. Md.

FEB. 9, 1867.

Datifinore, ind. First, I claim the residuum chamber, N N, and the pipe, B, arranged sub-stantially as described, in combination with a vapor stove. Second, The conical headed pin, H, within the aperture, J, of the retort, operated by theser ew pluz, E, substantially as and for the purpose specified. Third, The retort, F having stands, L, and partition, K, cast solid there-with, the latter having vent, J, extending through it, and valve seat, L on its side, as and for the purpose specified.

61,433.-WINDOW SASH AND FASTENER.-Anthony Iske, Lan-

caster, Pa. I claim the tongue and groove connection of the strip, B, with the sides, A of the sash, in combination with the turning button, for either locking both parts, A B, together, so as to move up and down jointly, or for locking both to the casing, the whole arranged and operating in the manner and for the purpose specified.

61,434.—STEAMBOAT SIGNAL APPARATUS.—Patrick Kenny,

61,334.—STEAMBOAT SIGNAL APPARATUS.—Patrick Kenny, New York City.
First, I claim the combination of the signal handles with each other in the manner described, so that each signal handle will have a different line of movement, as and for the purposes set forth.
Second, Attaching the connecting cords to the index shaft at intervals pro-portioned and corresponding to the intervals between the signal marks upon the dial, substantially as described.
Third, the combination of one or more levers, G, or their equivalents, with the index shaft, substantially as described.

61,435. — APPARATUS FOR TETHERING ANIMALS. — Daniel

Kidder, Franklin, N. H. I claim the spring, E, applied to the pole, D, in combination with the stake , substantially as and for the purpose described.

61,436.-CHURN.-Norman S. Kinyon, Chenango Forks, N. Y.

I claim the combination, construction and arrangement of the dasher blades or floats, with the angular blades, s s, on the lower end of the shaft, B, sub-stantially as described and for the purpose set for th. 61,437.—RAILROAD SWITCH.—George T. Lape and Jephthah

Leathe, New York City. We claim the street car replacer, consisting of the side pieces, B B, groove, lug, a, when constructed and operating as herein set forth for the purpose pecified.

61,438.-COTTON CHOPPER AND THINNER.-David P. Lewis,

Huntsville, Ala. Iclaim a machine for cutting and thinning cotton and for other purposes, ionstructed, arranged and combined substantially as herein shown and de-icribed.

61,439.—STOP MOTION FOR LOOMS..—Alphonse Julien Lois-

eau, New York City. I chim the oscillating plate, F, and cross bar, E, in combination with weights or rods, a, dog, e, catch bar, N, and stop, K, constructed and operating sub-stantially as and for the purpose described.

61,440.—Attachment for Holding Skirts Together.-

Emile Loiseau, New York City. Iclaim a strap, A, whereby a lady's hoop skirt is attached to a petticoat suidstrap being made substantially as herein shown and described, 61,441.-BALANCE SLIDE VALVE.-Isaac V. Lynn and George I. Snowlen, Pittsburgh, Pa. I claim the packing ring, D,or its equivalent, when used in combination with the cylinders, f and C, plate, B, and valve, A, const ucted, arranged and operating substantially as herein described, and for the purpose set forth.

61,442.—WOODTURNING LATHE.—John McMichael (assignor

61,443.-CALORIC RADIATOR FOR STOVE PIPES.-Benjamin

Mass. 1 claim the improved chair as constructed with the base plate. A, separate

from and to extend under and support the jaw, C, as baying the rebate, a, and as provided with the projections, cc', and the shoulders, b, arranged with respect to the base plate, A, and the jaws, B C, and so as to intend into and under the rails, as specified. I also claim the rails as made with the notches, d d, arranged in them at their joints or ends as specified and to be used with the chair made as ex nlained.

ancea. I also claim the nut holder, d, as made with the nut recesses, ii, and the anges, k, or their equivalents.

61,409.-SKATE-Robt. E. Ellerbeck, Washington, D. C.

61,409.—SKATE.—Kobt. E. Ellerbeck, Washington, D. C. First, I claim the laterally adjustable clips, a, attached to the skate on a line diagonal to the longitudinal plane of the blade, A, for the purpose of grasping and securely holding the boot or shoe, when applied thereto, sub-stantially as shown and described. Second, The projection, o, having a groove formed therein and arranged to operate in connection with the plate, n, and secured by the catch, e, or its equivalent, substantially as set forth. Third, in combination with the clips, a, arranged as described. I claim the grooved projection, o, and plate, n, spring, f, and catch, e, arranged to operate as and for the purpose set forth.

61,410.-MACHINE FOR CUTTING FILES.-Alfred B. Ely, New-

I claim the combination of the beaters, G H and I J, arranged the one with-n the other, and revolved with the same or different velocities, and in the supe or opposite directions, substantially as shown and described.

61,427.- Composition for Roofing.-Cyrus Hill, Dover, Maine.

I claim the compose sisting of the ingredie stanually as set forth composition for covering roofs, and for similar purposes, con-

61,428.—CORN HUSKER.—Joseph Hindman, Olathe, Kansas. Iclaim a corn husker having the tang, B, turned back and pointing toward the wrist, as herein shown and describe d.

61,410.—MACHINE FOR CUTTING FILES.—AHIFCU D. Eq., 1.000
first, ? claim lining the socket and graping the tool in the stock or head with rubber, when the parts are arranged and constructed to operate substantially as a described.
Second, Connecting the combination with the seed shides, H H, Nacchine FOR OPENING AND CLEANING COTTON.—
61,429.—BENCH VISE.—John D. 1000, 1100

set forth. Second, The regulating slides, J, in combination with the seed slides, H B, arranged substantially as and for the purpose specified. Third, The combination of the installic tubes, L, and covering shares, U, all arranged and applied so as to be capable of operating and being adjusted sub-stantially as shown and described.

61,448.-BRICK KILN.-L. R. Norman, and W. F. Dieterichs, 61,445.—BRICK KILN.—L. R. ROTHAH, and W. F. Dicertens, Jr., St. Louis, Mo. We claim, First, The construction and arrangement of the smoke flues, D d D', as described and set forth. Second, We claim the cold air or supply chambers, C, with the distribution of the air to the furnaces through a series of orfices, c, as described and, set

we chall is not does a hot air chamber when the outer wall is in wardly curved or arched, the inner wall being straight, all substantially in the manner de-scribed and for the purpose set forth. Third, We claim also the arrangement of a hot air chamber, D, over the cold air supply chamber, B, between the fire spaces of our improved kiln con-structed and operating substantially in the manner and for the purpose herein arconic.

structed and operating substantially in the manner and for one purpose here may be appended. Third, The combination and arrangement of the outer chimneys, F, the valves, F' and the air chambers, A2 and D, endosing the kiln, all substant tially in the manner and for the purpose herein set forth. Fourth, We claim also the arrangement of the fire boxes with grate bars extending entirely across our improved kiln, substantially or herein set forth.

61,450,—CULTIVATOR.—C. P. Norton, Roseville, Ill. First, I claim the pole, B, arch, C, and supporting wheels, D D, constructed and arranged substantially as and for the purpose herein set forth. Third, I claim the pole, B b, fig. 1, sliding box, f, loop, F, and set screw, k, in connection with the plough beam, A, all arranged and operating as and for the purpose described.

61,451.—HAT BODY.—Julius A. Pease, New York City. I claim a hat or hat body male from raw or untanned hide, substan as before described. tantially

61,452.-Cot or Covering for Rolls for Spinning, etc.-

Edward L. Perry, New York City. Iclaim a cot or covering for rolls of spinning or other machines when made or composed of three or more separate layers or thicknesses joined together of which the outer layers, a and b, consist of leather and the intermediate layer, c, of fibrous or elastic material, substantially as descr bed.

61,453.-OIL TANK.-H. Pierce and J. C. Button, Cleveland,

Ohio. We claim, First, The arrangement of the sills, B, keys, C, abuttent brace F, in combination with the foundation floor, G, for the purpose set forth. Second, The construction and arrangement of the bottom, C', placed with the tank, the interlayer, e', in combination with the tank, H angle - ens. and floor, G, for the purpose and in the manner set forth.

61,454.-COMBINED LAMP, COFFEE POT AND BOILER.--Luke

61,494.—COMBINED LAMP, COFFEE FOT AND BOILER.--Luke A. Plumb, Biddeford, Me. Iclaim, First, The tube, D, attached to a cone, C. of the burner of the lamp when used in connection with a vessel provided with a central draft tube to fit over said tube, D, substantially as and for the purpose herein set forth. Second, The employment or use in a vessel provided with a central draft tube for a lamp of a vessel, E, provided with two or more removable chamb-erg, J, substantially as and for the purpose specified. Third, The combination with a lamp of two or more vessels, E H, provided with central draft tubes arranged so that the draft tube of one vessel will ex-tend above fits top to admit of the lower end of the tube of the other vessel being fitte. upon it, substantially as and for the purpose set forth.

61,455.—CARRIAGE JACK.—Oscar T. Potter, Scott, N. Y. I claim the arrangement of the arm, b, with its fork, a, and crooked m, in combination with the standard, a, when used as and for the purpor forth. 61,456.—CARTRIDGE FILLING MACHINE.—Timothy J. Pow-

ers (assignor to Fitch and Van Vechten), New York City.

City. I claim, First, The spring or contractible crimping die or device for closing the mouths of the shells on to orin the bullet, constructed to operate substantially as described. Second. I further claim said contractible crimping die or its equivalent in combination with as intermittent shell carrier for operation together, as (s-sentially æ herein set forth. Third, The combination of an automatic bullet feeder, with an automatic shell carrier, substantially as specified. Fourth, The combination of an automatic bullet feeder, shell carrier, and bullet feeder for action, together as herein set forth. Fifth, The combination with an automatic bullet feeder of a bullet, take up or slide to deposit the bullet over the shell. Sixth, In combination with an automatic bullet feeder, a divided or open-ing and closing conducting die toguide the bullet to its place in or over the shell and to hold it while the charge is being rammed, substantially as speci-fied. Seventh, Providing the bottom of the yowder honner or space intervening

fied. Seventh, Froviding the bottom of the powder hopper or space intervening between it and the charge measurer or distributor, with an independent bush and rubber packing, or their equivalents for operation together and in com-bination with the distributor, essentially as and for the purpose herein set

bination with the distributor, essentially as and for the purpose herein set forth. Eight, Griping the shell, while being crimped by an independent slide or its equir and citerwards and retire therefrom, essentially as specified. Ninh, The Combination in one machine of an antomatic stell carrier bulket feeder, howder charger or measurer and distributor and crimping device or die for operation together, substantially as herein set forth. Tenth, While not claiming irrespective of the models for the device of an in-combination in the combine of the models of the shell at each the time in the combination in one machine the set forth. Substantially as describes the lifting corrier provided with chambers, substantially as describes the lifting rod, it arranged to crake during a pause in the motion of the carrier the shell further name of the shell arise of the toretreat, essentially as and for the purpose herein set forth. Eleventh, Also elevanting rod, arranged to operate in connection with the carrier and suitable crimping by the connection with an far antermittently reciprocating fold, arranged to operate in connection with the carrier and suitable crimping device, substantially as specified.

61,457.-VISE.-James S. Ralston, Indiana, Pa.

I claim in combination with the A A', of a vise, the cam disks, C C, placed on a coupling rod, B, for opening and closing the jaws to be held to their work by the ratchet wheel, c, and spring dog, e, constructed and operating substinually as herein described.

61,458.-BUTT HINGE.-Andrew Remkin, Philadelphia, Pa. I claim the roller, m, adapted to the two plates of a lift off hinge, substan-tially in the manner and for the purpose herein set forth.

61,459.—GLOBE CLOCK.—Smith E. G. Rawson, Saratoga

Springs, N. Y. Iclaim, First, Providing for the winding up of a globe clock through an aperture in the shaft or axle of rotation of the globe within which the clock

aperture in the shart of an of rotation of the globe clock coincident with the is contained. Second, Having the winding up shaft of a globe clock coincident with the axis of rotation of the globe within which the clock mechanism is contained. Third, Sustaining a globe clock upon an adjustable support, C, or its equiva-lent, substantially as described. Fourth, Supporting a globe clock by means of a vertical spindle up on a pedestal in such manner that the globe can be rotated about a vertical axis,

Fourth, supporting a statistic stati

61,460.—DENTAL PLUNGER.—William G. Redman, Louis

ville, Ky, First, I claim the casing as represented in form by A and A', containing the bar, D, the let off bar, f, the spiral sping, h, the spring and stop, z and z', the disks, V and V', the partial disk or joint plece, w, and the swivel joint, E, construct ed substantially as described for the purpose specifice. Second, Ic laim the arm or lever, C, connected with the spring helve by slot and bolt, substantially as described. Third, I claim the spring helve, b, add its connection with the case at 11, and also the spring, d, asting against the helve.

61.461.—CAR TRUCK.—J. W. Reynolds, Hyde Park, Pa., as-

61,461.—UAR 'IRUCK.—J. W. REYDOIDS, HYDE FAIK, FA., assignor to himself and S. H. Cutler.
Iclaim, First, The construction and arrangement of the pivot or king bolt, D, of the truck on a socket, C, applied to the cross bar, B, substantially as and for the purpose set forth.
Second, The combination and arrangement of the springs, I, bars, G, and the boxes, F, substantially as and for the purpose specified.
Third, The openings, d, in the outer side so the boxes, F, in combination with the slides, e, substantially as and for the purpose set forth.

61,462.-VALVE GEAR FOR DIRECT-ACTING ENGINES.-M. S.

61,462.—VALVE GEAR FOR DIRECT-ACTING ENGINES.—M. S. Richardson and Erasmus A. Pond, Portland, Vt. We claim, First, The piston valves connected with and directly actuated by a system of levers operated by the steam piston asherein described; so as to effect the induction and eduction of steam to and from the steam cylinder second, The combination of the piston valves with an oscillating lever actuated by auxiliary levers arranged within the steam chest and cylinder, substantially as shown and set forth. Third, The combination with a system of levers located within the steam chest and cylinder and actuated by the steam piston as described of the cyl-indrical plungers or piston valves silding in recesses formed is the steam chest on each side of the central steam admission and exhaust chambers, substantially as herein shown and specified.

61,463.—EXTRACTING OIL FROM SEEDS.—John Robertson, Brooklyn, N. Y., assignor to himself and Abraham Bart-

Itoll. I claim, First, The process substantially as herein described of treating seeds or other substances for the extraction of oil by subjecting the same to the action of beaters in a heated cylinder or case, essentially as herein set forth. Second The within described

the action of beaters in a instelled cylinder of case, essentially as merch set forth. Second, The within-described process of extracting the oil from seeds or other substances reduced to a pulp by exposing the same to the action or a centrfugal machine, substantially as specified. Third, The combination with a centrifugal machine of revolving beaters working in a cylinder or case as described and to which steam is or may be admitted for separate or joint action on the material from which the oil is to be extracted, essentially as specified. Fourth, The arrangement in a loose or detachable manner within the re-volving cylinder of the reticulated cylinder or screer, in which the material is placed for action, as described.

61.464.—PEAT MACHINE.—Almon Robertson, McLean, N. Y

61,464.—PEAT MACHINE.—Almon Robertson, McLean, N. Y. First. I claim the carriage molds, as, arranged relaively te each other and to the grinding and depositing mechanism, DL D2, or their equivalents, substantially as and for the purpose herein set forth. Second, I claim the preser, G, in combination with the carrier molds, a a, and arranged to operate relatively, substantially as herein specified. Third, I claim the stack cloth, g, arranged on the presser, G, so as to be pulled off by a motion commencing at the edge or edges, as represented and desoribed for the purpose herein specified. Fourth, I claim the slack cloth, M, arranged as herein shown relatively to the section of molds, a a, so as to unfold, peel off and expel, in the manner and with the effect substantially as herein shown.

holding the background and likeness on separate and divergent planes, sub-stantially as and for the purpose described. Third, The combination of purpose described. and the same axis, for the purpose of changing the groupley and scenery of the pleture, and pringing different figures in juxtaposition successively, substan-tially as set forth.

16,470.—PLOUGH.—Israel Long, Terre Haute, Ind. First, Iclaim the adjustable beams, F F, occupying positions at opposite sides of the machine and outside of the wheels, and each adapted for the at-tachment of one or more ploughs, substantially as and for the purpose here in specified.

specified. Second, I claim the combination with the ploughs, G G', beams, F F, of the collars, E E, fitted to turn upon the ends of the axle, and adjusted by means of levers or otherwise, as and for the purpose specified. Third, I claim the combination of the plough beams, F F, collars, E E, lev-ers, H, and notched bars, I I, all arranged and operating in the manner and for the purpose herein set forth. Pourth, I claim the adjustable double-tree, K, in combination with the in-dependent hounds, D D', whereby the dirait may be transferred to either side of the machine, substantially as and for the purpose described.

61,471.-MACHINE FOR SEPARATING IRON FROM SAND.

George H. Sanborn, Boston, Mass. I claim the nse of the cylinder, B, when provided with the magnets, g g, one or more rows arranged substantially as and for the purposes described, in combination with the brush C, the hopper, D, the spout, E, the trough, F, and the drawer, J, substantially as and for the purposes set forth.

61,472.—EMBALMING BODIES.—George W. Scollay, St. Louis, Mo.

Mo. First, I ctalmembalaning dead bodies or preserving them from putrefac-tion, by introducing an autiscipility as described. Second, Embalaning dead bodies or preserving them from putrefaction by the introduction of an antiseptic gas or gases into the bowels, stomach, or lungs, substantially as set forth. Third, Embalaning dead bodies or preserving them from putrefaction by combining the internal and external application of the gases thereto, sub-stantially in the manner described.

61,473.-CLOTHES DRYER.-John Seeman and Silas P. Ca-

trow, Middletown, Ohio. We claim, in combination with the hinged frames, B, the frame, E, hung hereto and locking together, substantially as described for the purpose prefined. 61,474.—PETROLEUM STILL.—John S. Shapter, New York

01,474.—PETROLEUM STILL.—John S. Shapter, New York City. First, I claim the arran ement of the boller superheated and still, by which the heat from the boller is made to pass through the superheated, and then through under and around the still. Second, The arrangement of the furnaces, L L, colar, C, and dampers, N N N, in combination with the coil, F for superheated steam within the still. Third, inclosing a petroleum still in brick work with two side channels, one above and the other below the collar, c, and a third beneath the still, sub stantially in the manner and for the purpose described. Fourth, Placing the cycellees, Q, in a tube connected with the still, so that the operation within the still can be seen, although enclosed in brick walls with channels for smoke and not air between the masory and the still. Flith, The air pipe, S, when applied to a petroleum still for regulating the Yacuum.

61,475.—RAILROAD SWITCH.—Benjamin Shiverick and Thos.

L. Calkins, Philadelphia, Pa. rst, We claim the switch lever, I, contained within a building or inclos and arranged in respect to the door of the same substantially as set Firs

ure, and arranged in respect to the door of the same substantially accord forth. Second, The combination and arrangement of the frog rails, D and D', and switch rails, E and E', the bar, H, with inclinations, x and y, yielding plates G and J, and rods, F and K, the whole being arranged for joint action, sub-stantially as and for the purpose herein set forth.

61,476.—CRANBERRY GATHERER.—George Shove, Yarmouth-

DOTATION CRANERATION TO ATTREMENT CONTROL OF CONTROL AND THE ADDATES TO A STREAM OF CONTROL OF CO

61,477.—BUCKLE.—Earl A. Smith, Waterbury, Conn. I claim the combination of the bow part, Fig. 4, with the lever part, Fig. 3, when they are constructed, connected and fitted for use substantially as herein described and set forth.

61,478.—GRIDDLE OR COOKING UTENSIL.—E. J. Smith, Wash-

ington, D. C. I claim as a new article of manufacture the cooking utensilherein de-scribed, composed of plates, B B, removable rests, a a, and support, A, sub-stantially as and ter the purpose set forth.

61,479.-TRANSPLANTING TRAY.-Wm. W. Smith, Montrose,

La. I claim a plant tray constructed substantially as described for the propoga tion and growth of plants and flowers, as herein set forth. 61,480.-MACHINE FOR COMBING AND ASSORTING BRISTLES.-

tion and growth of plants and flowers, as herein set forth. 61,480.—MACHINE FOR COMBING AND ASSORTING BRISTLES.— Nathan H. Spafford, Baltimore, Md. First, 1 claim the endless apron and feed roller, E e, with the picker, E', on the slaft, F, having a continuous mot on as described, in combination with the intermitting endless apron and feed roller, E'e', operated substantially as herein set forth, for the purpose described. Second, The comb, J, with its app urbanaces, consisting of the comb stock and teeth stem J', gare plate, K, arms, K', and spring, I, all combined sub-stantially as and for the purpose set forth. Third, The manner of operating the comb, J, by means of the shaft, g, and erank wrist, I, in combination with the sidding stem, J', and its socket and with the adjustable joint, K, and came, m m, substantially as set forth: and while the adjustable joint, K, and came, m, substantially as set forth is and with the adjustable joint, K, and came, m, substantially as set forth. Fourth, The combination with the came, R, and springs, s, and either with or requivalents, substantially as and for the purpose to mbination with the gage plate, M, operated by means of therock shaft, J, stud. n, and toe, n', or their equivalents, substantially as and for the purpose set forth. Fifth, The dogs, u, on the shaft, t'', in combination with and operating by means of the windlass, P', and chains or any equivalent device, substantially as and for the purpose set forth. Sixth, The dogs, u, on the shaft, t'', in combination with and operated by the tumbler, t, slotted bar, t', and lever, v, or its equivalent, substantially in the manner and for the purpose set forth. Sixth, The endless platform, u, arranged substantially as described. Seventh, The endless platform, u, arranged substantially as described, substantially as described, in combination with the endless apron, W, over the depositibox, W, ior the purpose set forth. Eighth, The sweering ingers, X'', '', operating as set forth, and by me

arrange and operating substantially as and for the purpose set forth.
61,481.—STREET CAR.—John Stephenson, New York City. First, I claim the pedestals, B, formed or provided with pendant Jaws, a., in combination with springs, D, located at each side of the axile box, and applied or arrange din such a manner as to admit of an universal motion or pendulous vibration of the car body, substantially as shown and described.
Second, The inverted T, connecting the lower ends of the jaws, a a, of the pedestals and arrange or applied in relation to the sale boxes, substantially as and for the purpose set forth.
Third, The truck, M, constructed with its horizontal side bars not under the springs or pendants, but at the sides thereof, and free therefrom, and connected with the axie boxes, C, or the hous ngs, G, by means of the arms, N, substantially as and for the purpose, such the the purpose, Second applied.
Fourth, The yck, or budeing, G, with one or beth of the arms as described and applied to the axie boxes; C, either without the elastic substance, b' substantially as and tor the purpose specified.
Fifth, The clog arms, N and C, beth or either of them connected with the purpose specified.
Fifth, One construct of the purpose specified.
Fifth, One construct of the purpose specified.

rod. V, hung to an adjustable arm, W, of the crank arm, Y, at one end of the shuft, Z, substantially as and for the purpose described. Second, The combination with the file bed, or block, of the notched plate, K, for receiving the tang of the file, and side clutches or jaws. L or M, each arranged and applied to the said block, so as to be operated substantially as and for the purpose described. Third, The springs, O 2, constructed and arranged as described in combin-ation with the lifting beam, D 2, and ecc intric or cam pulleys, T 2, ubstan-tially as and for the purpose described. Fourth, The combination with one or more of the springs, O 2, of the lift-ing arm, W 2, arranged with regard to the same as and for the purpose speci-fied. Fifth, The arm, f 4 attached to file carriage D in combination with

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fied. Fifth, The arm, f 4, attached to file carriage, D, in combination with the lever, g 4, connection rod, h 4' catch, l 4, and m 4, and no tohed arm, c 4, of the beam shaft, O 3, when all arranged and connected together so as to be operated by the arm, f 4, substantially as described, and for the purpose specified. 61,487.-BOOT OR SHOE.-Rudolph Vollschwitz, New York

City. I claim the combination of a flexible wedge; B, with zig-zag loops, a, at-tached to the opposite edges of the slit or opening in a shoe or gaiter boot, substantially as and for the purpose described. Discrete Described.

OLION DATRACTOR. — JAMES WAIKER, Cincinnati, Ohio. First, I claim the arrangement of a djustable guide, E, cylindrical stock, E, collar, I, crank, H, and cam headed lever, J J' K, for the purpose set forth. Second, The provision, in combination with the abov; of the thimbles, I, of equal external but dissimilar interior diameters, as and for the purpose ex-plained.

61,489.-MACHINE FOR CUTTING SOLES.-J. H. Walker, Wor-

cester, Mass. First, I claim the combination and arrangement of the broad table, D, for supporting the side of leather with the adjustable bed or cutting block, L, and the reciprocating platen, K, substantially as and for the purposes set

and the reciprocating platen, K, substantiatey as and for the purposes set forth. Second, The combination and arrangement with the table, D, bed, L, platen, K, and shaft, J, of the peculiarly constructed frame composed of the parts marked E H H', and G, substantially as described.

61,490.-HAND CORN PLANTER.-Lewis Weaver, Canton,

Ohio. I claim the bar, L, in connection with the valve standard, C, and opening, S, substantially in the manner and for the purpose specified,

61,491.—RAILROAD CHAIR.—Geo. Webb, Williamsport, Pa. First, Iclaim the joint plate, A. resting on the ties, C. in combination with the fanged clamp, D. and rail, B. constructed and secured in the manner as and for the purpose specified. Second, The combination of the joint plate, A. flanged clamp, D. gibs, d, split keys, e, as and for the purpose specified.

61,492.—PUMP.—J. R. Weisiger, Danville, Ky. Iclaim the pump cylinder or tube A, provided with a piston, B, partition plate, D, and valve, G, in combination with the tubes, H J L, having valves, IK M, respectively, when all arranged with regard to each other so as to operate substantially in the manner and for the porpose described.

61,493.—PEAT CAR-—Thomas J. Wells, St. Anthony, Minn. I claim a car for transporting and drying peak, constructed with a series of frames, arranged substantially in the manner as herein shown and described.

61,494.—CHURN AND EGG BEATER COMBINED.—George C. Westover, Paducah, Ky. Iclaim the construction and combination of the churn, with its devices, G HIJLM, as herein described and for the purposes set forth.

61,495.—LIME KILN.—George W. White, Greensburg, Ind. Iclaim the horizontal taper lime kiln. A, when constructed as described, and provided with the doors, b, and dividing perforated partition, C, in the manner and for the purposes set forth.

61.496.—WASHING MACHINE.—Isaac Whitney, Dayton, Ohio. First, I claim the hinged scaping box, 1, with its bans, n n, and removable rough, L, adapted to contain either bar, or soft soap, substantially as de-cribed.

Second, The combination of the brush roller, F, with the corrugated wooden orbited. J. Interaction of the brush roller, F, with the corrugated wooden roller, E, substantially as described. Third, In combination with the brush roller, F, and corrugated wooden roller, E, I claim the treadle, k, substantially as and for the purposes set forth. Fourth, The arms, G, operating independently of each other by means of the elastic bands, D D, in combination with the corrugated roller, E, in the manner and for the purposes described. Fifth, The combination of the corrugated wooden roller, E, brush roller, F, treadle, K, gear wheels, H C, arms, C, spring, D, and sosping cover, I, and trough, K and L, substantially as and for the purposes set for th.

61,497.-WINDOW FASTENER.-L. C. Wing, Concord, Mass.,

and A. R. Bradeen, Waterborough, Me. We claim an improved window blind fastener, formed by the combination of the arm, A, bars, B and C, perforated plate, D, and spring bolt, E, with each other, substantially as herein shown and described and for the purpose

61,498.-CLOTHES DRYER.-Leonard Wordworth, Morrison,

I claim the braces, D,D,1 n combination with the standards, A A B B B B, and bars, e e e e, substantially as and for the purpose set forth.

61,499.-Tool FOR CUTTING OFF BOILER TUBES.-Nathan

Wright, Jersey City, N. J. I claima tool for curting of boiler and other tubes, constructed substan-tially as described, or in any other equivalent manner, so that a thrusting cut is given to the tool, and whereby the same action that thrusts the cutter through the tube also serves to complete the operation of severing the same by a draw cut, essentially as specified.

61,500.—LIFE BOAT.—William H. Wylly, Savannah, Ga. Iclaim the boat consisting of the guttapercha or elastic sides, A B, keel, C', copper covering, b, flexible tube, c, force pumps, D, bars, I, seats, J, support-ing bars, if', rudder, D, when all are constructed and arranged as herch set forth and for the purpose specified.

REISSUES. 2,463.—SEALING FRUIT JARS.—Wm. H. Lyman, Boston, Mass., assignee by mesne assignments of Elbridge Harris.

Mass, assignce by mesne assignments of Elbridge Harris. Patented Feb. 9, 1864. First, Ickaim forming a groove or depression in or around the neck of a can, for the retention of an elastic ring or band impervious to air, substan-tially as and for the purpose described. Second, The employment of an elastic ring or band when used between the rim of a cover and the neck of a can, substantially as and for the purpose described. Third, I claim as a new article of manufacture, fruit jars composed of the rim cap, G G, elastic ring or band, D, and jar or can, D, substantially as and for the purpose described. Fourth, I claim the rebate formation; C, in combination with the elastic band, B, and the fiange, G' substantially as and for the purpose described.

2,464.—HARVESTER RAKE.—Adam R. Reese, Phillipsburg, N. J. Patented Feb. 16, 1864. First, In a floating beam harvester I claim a rake standard rigidly attached to and vibrating with the platform and supporting the rake shaft bet ecn the driving wheels. Second, I cla m the combination of radial rake arms pivoted between the vertical rake shaft and the rake head, and a guide located between the rake shaft and the plat.

vertical rake shaft and the rake head, and a guide located between the rake shaft and the pivot. Third, The combination of revolving rake and reel arms with a camway between two parallel cams, for the purpose of keeping the rake and reel arms firmly in position while revolving. Fourth, The combination of a hinged platform, a support of the revolving rake rigidly attached to and moving with the said platform or finger beam and radial plyoted rake arms. Fifth, the combination of the rake shaft, K, with the driving shaft, o, by means of the endless chain, M, when arranged and operating substantially in the manner described, for the purpose of driving the rake in any position of its shaft without the intervention of gearing, as set forth.

2,465.—HARVESTER RAKE.—Adam R. Reese, Phillipsburg,

Ill.

and with the effect substantially as herein specified.		N.J. Patented May 1, 1866.
Fifth, I claim the roller, I, arranged to pass into and out of the several		I claim, First, In a harvester having a hinged cutting apparatus, the com-
molds and replace the slack cloth, M, or its equivalent, in the manner herein	York City.	bination of a revolving rake and reel attach d to and vibrating with the plat-
shown.	First, I claim the canopy, D. for the covering of the platforms of cars con-	form of said harvester, and a driver's seat located up on the main frame, the
61,465.—AMALGAMATOR.—Juan A. Robinson, Jr., San Fran-	First, I claim the canopy, D, for the covering of the platforms of cars con- structed separately from the roof and body of the car, and attached thereto	whole so arranged and operating that the rakes shall not revolve over the
cisco, Cal.	snostantially as and for the purpose specified.	driver. Second, The combination of a hinged cutting apparatus, a driver's seat on
	Second, The smaller canopy or "frontlet," F, applied to the ends of the car	the mainframe, and hinged radial rake or reel arms.
I claim an amalgamator constructed of copper and wood or an alloy of copper with frictional surfaces, substantially as and for the purposes de-	roof, A, over the end ventilators, c, substantially as and for the purpose set	Third, The combination of the finger beam and main frame with the tubular
scribed.		X-shaped frame, G G' as described, for the purpose of supporting and brac-
	61,483.—Sounding Board for Planos.—F. Strothmann,	ing the rake shaft.
61,466.—MANUFACTURE OF SOAP.—George W. Rogers, Lan-	Louisville, Ky., assignor to Peters, Webb & Co.	Fourth, The combination of a revolving rake and reel attached to and mov-
caster, N. Y. assignor to himself and John D. Shepard.	I claim the improvements in sounding board for planofortes and other mu-	ing with the platform of a hinged finger hear machine and endless chain and shives having pockets or cells, whereby the revolving rake and reel can be
I claim the within-described manufacture of soap by subjecting the ma-	sical instruments herein specified, the same consisting in separating or divid- ing the board, substantially as and for the purpose specified.	driven while it is free to rise and fall with the platform.
terial to a high pressure at a moderate temperature, substantially as and for	ing the board, substantially as and for the purpose specified.	Fifth. The combination of an endless driving chain a pulley on the main
the purpose herein specified.	61,484.—CAN OPENER.—Sinius E. Totten, Brooklyn, N. Y.,	Fifth, The combination of an endless driving chain, a pulley on the main shaft, a corresponding pulley on the vertical or nearly vertical revolving reel
61,467.—CARPET SACK.—Adaline Rose, Bath, N. Y	assignor to himself and C. L. Topliff.	and rake shaft mounted on the inger beam or its extension and the interme-
I claim the carpet sack, A, with the straps, B, and buckles, and with the		diate guide for guiding the chain, between the main shaft and rake shaft.
I claim the carpet sack, A, with the scraps, D, and buckles, and with the	I claim a tool, A, provided with a sharp edged end, c, from which projects	
keepers, C, as and for the purpose specified.	a pointed tooth, d, substantially as and for the purpose described.	DESIGNS.
61,468.—Римр.—John Ross, Greenville, Mich.	61.485.—CORK SCREW.—William H. Van Gieson, Passaic.	DESIGNS.
61,468.—PUMP.—John Ross, Greenville, Mich. First, I claim the arrangement of the bore, B. bores, F. F. chamber, C.	61,485.—CORK SCREW.—William H. Van Gieson, Passaic,	DESIGNS. 2,560.—Coal Shovel.—Samuel W. Gibbs, Albany, N. Y.
61,468.—PUMP.—John Ross, Greenville, Mich. First, I claim the arrangement of the bore, B, bores, F F, chamber, C, chambers, LM, and piaton rock, P K, secured to racka, S T, in combination	61,485.—CORK SCREW.—William H. Van Gieson, Passaic, N. J.	2,560.—COAL SHOVEL.—Samuel W. Gibbs, Albany, N. Y.
61,468.—PUMP.—John Ross, Greenville, Mich. First, I claim the arrangement of the bore, B, bores, F F, chamber, C, chambers, L M, and piston rods, P K, secured to racks, B T, in combination with the stock, A, and valve eyiloders, H I, and operating substantially as de-	61,485.—CORK SCREW.—William H. Van Gieson, Passaic, N. J. First, I claim constructing the upper part, B, of the stem, in the form of a	
61,468.—PUMP.—John Ross, Greenville, Mich. First, I claim the arrangement of the bore, B, bores, F F, chamber, C, chambers, LM, and piston rock, P, Secured to racka, S T, in combination with the stock, A, and valve cylinders, H I, and operating substantially as de- scribed for the purpose specified.	61,485.—CORK SCREW.—William H. Van Gieson, Passaic, N. J. First, I claim constructing the upper part, B, of the stem, in the form of a twist, spiral or screw, turned in a direction the reverse of that of the lower part, A, substantially as and for the purpose set forth.	2,560.—COAL SHOVEL.—Samuel W. Gibbs, Albany, N. Y.
61,468.—PUMP.—John Ross, Greenville, Mich. First, I claim the arrangement of the bore, B, bores, F F, chamber, C, chambers, L M, and piaton rods, P R, secured to racks, S T, in combination with the stock, A, and valve cylinders, H I, and operating substantially as de- scribed for the purpose specified. Second, In combination therewith the vent tube, X, of the chamber, C, and	61,485.—CORK SCREW.—William H. Van Gieson, Passaic, N. J. First, I claim constructing the upper part, B, of the stem, in the form of a twist, spiral or screw, turned in a direction the reverse of that of the lower part, A, substantially as and for the purpose set forth. Second, The combination with the stem, A B, constructed substantially as	2,560.—COAL SHOVEL.—Samuel W. Gibbs, Albany, N. Y. 2,561.— TRADE MARK.—August Heidelberger, New York City.
61,468.—PUMP.—John Ross, Greenville, Mich. First, I claim the arrangement of the bore, B, bores, F F, chamber, C, chambers, LM, and piston rock, P, Secured to racka, S T, in combination with the stock, A, and valve cylinders, H I, and operating substantially as de- scribed for the purpose specified.	61,485.—CORK SCREW.—William H. Van Gieson, Passaic, N. J. First, I claim constructing the upper part, B, of the stem, in the form of a twist, spiral or screw, turned in a direction the reverse of that of the lower part, A, substantially as and for the purpose set forth. Second, The combination with the stem, A B, constructed substantially as described, of the tube, E, plate, H, or its equivalent, spring catch, I, and	2,560.—COAL SHOVEL.—Samuel W. Gibbs, Albany, N. Y. 2,561. — TRADE MARK.—August Heidelberger, New York City. 2,562 and 2,563.—CLOCK CASE.—Nicholas Muller New York
61,468.—PUMP.—John Ross, Greenville, Mich. First, I claim the arrangement of the bore, B, bores, F F, chamber, C, chambers, LM, and piaton rods, P K, secured to racka, S T, in combination with the stock, A, and valve cylinders, H I, and operating substantially as de- scribed for the purpose specified. Second. In combination therewith the vent type, X, of the chamber, C, and notched rod, A', arrange, to operate substantially as and for the purpose specified.	61,485.—CORK SCREW.—William H. Van Gieson, Passaic, N. J. First, I claim constructing the upper part, B, of the stem, in the form of a twist, spiral or screw, turned in a direction the reverse of that of the lower part, A, substantially as and for the purpose set forth. Second, The combination with the stem, A B, constructed substantially as described, of the tube, E, plate, H, or its equivalent, spring catch, I, and handle. F the whole working together in the manner and to accomplish the	2,560.—COAL SHOVEL.—Samuel W. Gibbs, Albany, N. Y. 2,561.— TRADE MARK.—August Heidelberger, New York City.
61,468.—PUMP.—John Ross, Greenville, Mich. First, I claim the arrangement of the bore, B, bores, F F, chamber, C, chambers, LM, and piaton rods., P K, secured to racks, S T, in combination with the stock, A, and valve cylinders, H I, and operating substantially as de- scribed for the purpose specified. Second, In combination there with the vent tube, X, of the chamber, C, and notched rod, A', arrange, to operate substantially as and for the purpose specified. 61,469.—MODE OF MOUNTING PHOTOGRAPHS FOR EXHIBI-	61,485.—CORK SCREW.—William H. Van Gieson, Passaic, N. J. First, I claim constructing the upper part, B, of the stem, in the form of a twist, spiral or screw, turned in a direction the reverse of that of the lower part, A, substantially as and for the purpose set forth. Second, The combination with the stem, A B, constructed substantially as described, of the tube, E, plate, H, or its equivalent, spring catch, I, and handle, F, the whole working together in the manner and to accomplish the results et forth.	2,560.—COAL SHOVEL.—Samuel W. Gibbs, Albany, N. Y. 2,561. — TRADE MARK.— August Heidelberger, New York City. 2,562 and 2,563.—CLOCK CASE.—Nicholas Muller New York City.
61,468.—PUMP.—John Ross, Greenville, Mich. First, I claim the arrangement of the bore, B, bores, F F, chamber, C, chambers, LM, and piaton rods, P K, secured to racka, S T, in combination with the stock, A, and valve cylinders, H I, and operating substantially as de- scribed for the purpose specified. Second. In combination therewith the vent type, X, of the chamber, C, and notched rod, A', arrange, to operate substantially as and for the purpose specified.	61,485.—CORK SCREW.—William H. Van Gieson, Passaic, N. J. First, I claim constructing the upper part, B, of the stem, in the form of a twist, spiral or screw, turned in a direction the reverse of that of the lower part, A, substantially as and for the purpose set forth. Second, The combination with the stem, A B, constructed substantially as described, of the tube, E, plate, H, or its equivalent, spring catch, I, and handle. F the whole working together in the manner and to accomplish the	 2,560.—COAL SHOVEL.—Samuel W. Gibbs, Albany, N. Y. 2,561. — TRADE MARK. — August Heidelberger, New York City. 2,563 and 2,563.—CLOCK CASE.—Nicholas Muller New York City. 2,564 and 2,565.—CASTER FRAME.—Horace C. Wilcox (as-
 61, 468.—PUMP.—John Ross, Greenville, Mich. First, I claim the arrangement of the bore, B, bores, F F, chamber, C, chambers, LM, and piaton rods, P R, secured to racka, S T, in combination with the stock, A, and valve cylinders, H I, and operating substantially as described for the purpose specified. Second, In combination therewith the vent tube, X, of the chamber, C, and notched rod, A', arrange to operate substantially as and for the purpose specified. 61,469.—MODE OF MOUNTING PHOTOGRAPHS FOR EXHIBITION.—Isaac Rowell and Francis E. Mills, San Francisco, Cal. 	61,485.—CORK SCREW.—William H. Van Gieson, Passaic, N. J. First, I claim constructing the upper part, B, of the stem, in the form of a twist, spiral or screw, turned in a direction the reverse of that of the lower part, A, substantially as and for the purpose set forth. Second, The combination with the stem, A B, constructed substantially as described, of the tube, E, plate, H, or its equivalent, spring catch, I, and handle, F, the whole working together in the manner and to accomplish the results et forth.	 2,560.—COAL SHOVEL.—Samuel W. Gibbs, Albany, N. Y. 2,561. — TRADE MARK. — August Heidelberger, New York City. 2,563 and 2,563.—CLOCK CASE.—Nicholas Muller New York City. 2,564 and 2,565.—CASTER FRAME.—Horace C. Wilcox (assignor to the Meriden Britannia Company), West Meriden,
 61,468.—PUMP.—John Ross, Greenville, Mich. First, I claim the arrangement of the bore, B, bores, F F, chamber, C, chambers, LM, and piaton rods, P B, secured to racka, S T, in combination with the stock, A, and valve cylinders, H I, and operating substantially as de- scribed for the purpose specified. Second, In combination therewith the vent tube, X, of the chamber, C, and notched rod, A², arrange. to operate substantially as and for the purpose specified. 61,469.—MODE OF MOUNTING PHOTOGRAPHS FOR EXHIBI- TION.—Isaac Rowell and Francis E. Mills, San Francisco, Cal. First, We claim arranging or mounting photograph likenesses on a plane 	 61,485.—CORK SCREW.—William H. Van Gieson, Passaic, N. J. First, I claim constructing the upper part, B, of the stem, in the form of a twist, spiral or screw, turned in a direction the reverse of that of the lower part, A, substantially as and for the purpose set forth. Second, The combination with the stem, A B, constructed substantially as described, of the tube, E, plate, H, or its equivalent spring catch, I, and handle, F, the whole working together in the manner and to, accomplish the result set forth. 61,486.—MACHINE FOR CUTTING TILES.—Charles Vogel, New York City. First, I claim the sliding carriage, D, for the file blank, arranged to move 	 2,560.—COAL SHOVEL.—Samuel W. Gibbs, Albany, N. Y. 2,561. — TRADE MARK. — August Heidelberger, New York City. 2,563 and 2,563.—CLOCK CASE.—Nicholas Muller New York City. 2,564 and 2,565.—CASTER FRAME.—Horace C. Wilcox (as-
 61,468.—PUMP.—John Ross, Greenville, Mich. First, I claim the arrangement of the bore, B, bores, F F, chamber, C, dambers, LM, and piaton rods, P R, secured to racka, S T, in combination with the stock, A, and valve cylinders, H I, and operating substantially as described for the purpose specified. Second, In combination therewith the vent tube, X, of the chamber, C, and notched rod, A', arrange to operate substantially as and for the purpose specified. 61,469.—MODE OF MOUNTING PHOTOGRAPHS FOR EXHIBITION.—Isaac Rowell and Francis E. Mills, San Francisco, Cal. First, We claim arranging or mounting photograph likenesses on a plane divergent from the plane of the backgronn and forgeround, substantially as 	 61,485.—CORK SCREW.—William H. Van Gieson, Passaic, N. J. First, I claim constructing the upper part, B, of the stem, in the form of a twist, spiral or screw, turned in a direction the reverse of that of the lower part, A, substantially as and for the purpose set forth. Second, The combination with the stem. A B, constructed substantially as described, of the tube, E, plate, H, or its equivalent, spring catch, I, and handle, F, the whole working together in the manner and to accomplish the result set forth. 61,486.—MACHINE FOR CUTTING TILES.—Charles Vogel, New York City. First, I claim the sliding carriage, D, for the file blank, arranged to move forward and backward upon the bed plece, A, or its equivalent, when oper- 	 2,560.—COAL SHOVEL.—Samuel W. Gibbs, Albany, N. Y. 2,561. — TRADE MARK. — August Heidelberger, New York City. 2,562 and 2,563.—CLOCK CASE.—Nicholas Muller New York City. 2,564 and 2,565.—CASTER FRAME.—Horace C. Wilcox (assignor to the Meriden Britannia Company), West Meriden, Conn.
 61,468.—PUMP.—John Ross, Greenville, Mich. First, I claim the arrangement of the bore, B, bores, F F, chamber, C, chambers, LM, and piaton rods, P B, secured to racka, S T, in combination with the stock, A, and valve cylinders, H I, and operating substantially as de- scribed for the purpose specified. Second, In combination therewith the vent tube, X, of the chamber, C, and notched rod, A², arrange. to operate substantially as and for the purpose specified. 61,469.—MODE OF MOUNTING PHOTOGRAPHS FOR EXHIBI- TION.—Isaac Rowell and Francis E. Mills, San Francisco, Cal. First, We claim arranging or mounting photograph likenesses on a plane 	 61,485.—CORK SCREW.—William H. Van Gieson, Passaic, N. J. First, I claim constructing the upper part, B, of the stem, in the form of a twist, spiral or screw, turned in a direction the reverse of that of the lower part, A, substantially as and for the purpose set forth. Second, The combination with the stem, A B, constructed substantially as described, of the tube, E, plate, H, or its equivalent, spring catch, I, and handle, F, the whole working together in the manner and to, accomplish the result set forth. 61,486.—MACHINE FOR CUTTING TILES.—Charles Vogel, New York City. First, I claim the sliding carriage, D, for the file blank, arranged to move forward and backward upon the bed place, A, or its equivalent, when oper- ated through a driving shelt O, gears 	 2,560.—COAL SHOVEL.—Samuel W. Gibbs, Albany, N. Y. 2,561. — TRADE MARK. — August Heidelberger, New York City. 2,563 and 2,563.—CLOCK CASE.—Nicholas Muller New York City. 2,564 and 2,565.—CASTER FRAME.—Horace C. Wilcox (assignor to the Meriden Britannia Company), West Meriden,

Scientific American.

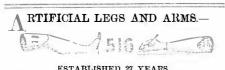
FEB. 9, 1867.

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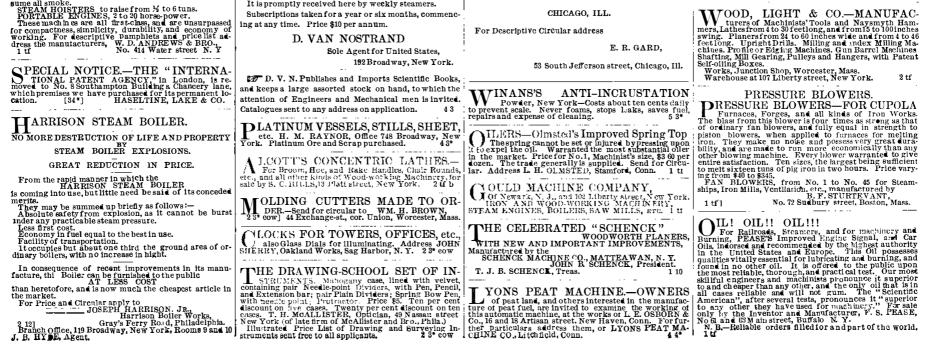
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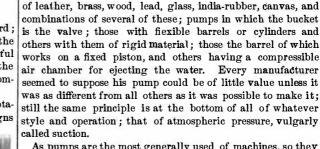
the spindle by a sleeve in a manner similar to the ordinary way of attaching the hour hand. The minute hour spindle has attached at the rear of the face plate two cams, C, the outer one of which gives a reciprocating movement to a long lever, D, and carries a shorter onejaw seen at E-which is pivoted at F, and has a projecting pin, G, that engages with the teeth of the wheel, A.

The operation is as follows: When the clock is to be set to the hour the minute hand is turned two-thirds or five-sixths of a revolution as the cams may be set. The pin, G, by the movement to the lever, E, is carried out of the wheel teeth and transversely across and up sufficiently to again engage a tooth before the hour hand receives any motion. The wheel is then turned-by the pin one tooth or one-twelfth of a revolution. From this brief descripwatch and clock makers tion may understand the device and its objects. The inventor claims it is cheaper than the common differential movement in a clock. that there would be no pin and washer to be lost, that applied to a watch the face could be made permanently fast and the wheels would not get changed

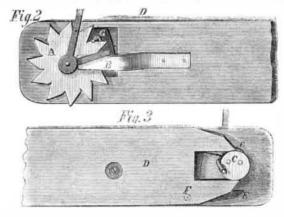
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pler the pump, the fewer its parts, the stronger its build, the better it is fitted for its work. That pump which fulfils these conditions and can be repaired by any person of ordinary ability, being made of material not likely to injuriously affect the water for domestic purposes is the best common pump for ordinary uses. The object, then, of the improvers of the pump who are continually claiming to perfect this implement should be to make it so simple and durable that getting out of order shall be nearly impossible unless from legitimate wear. Such a pump would, to be sure, largely diminish the amount of work now expended in repairs, but as these repairs are not the special business of any workshop but are generally done

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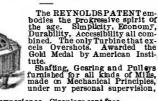
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