ing an induction pipe projecting above its bottom, substantially as described, to relieve the induction valve from the weight of the de-ritur, as set forth. Birth, The combination in a sand pump of an air chamber, and onducting pipe with a sand chamber, when so arran ed that the eduction pipe of the air chamber forms the induction pipe of the sand chamber.

Sand chamber. Seventb, The combination in a sand pump of an sir chamb vaive, a conducting pipe, a sand chamber and a discharge pipe.

46.757

Auve, a conducting pipe, a sand chamber and a discharge pipe. 16,757.—Rock Drill.—Thomas J. Lovegrove (assignor to himself and Henry Baldwin, Jr.), Philadelphia, Pa.: I claim, first, A rock drill, having its cutting edges sloped with the center to the circumference, and with more cutting edges sloped with the dide than on the other, so that the stroke of the drill will tend to torce the drill to one side, and thusmake a hole larger than thedrill, substantially in the manner described. Becond, A rock drill, baving a chamber or concavity in its face, merroanded by polygonal cutting edges, substantially in the manner described, for the purpose of cutting edge on one side, three or more cutting edges on the other, substantially in the manner de-keribed, for the purpose of cutting both radial and transverse lines, is set forth.

Fourth, A rock drill, having a chamber on its face surrounded by cutting edges, substantially as described, and a channel leading therefrom to the head of the drill, for the purpose of cleaning away the chip, at every stroke of the drill, and thus leaving a clear surface

ate upon. , The combination of a perforated drill with a flexible hose harps pipe, substantially as and for the purpose set forth. , The combination of a perforated drill, a value and a flexible hastardaily in the manner and for the purpose described. 64.758.

-Machine for Cutting Keyseats.-J. C. Morgan seignor to Wm. A. Nixon and J. S. Everhard),

64,765.—Machine for Cuttury Reyscaus.—v. C. Murgue, (assignor to Wm. A. Nixon and J. S. Everhard), Alliance, Ohio: I claim. first, Chucking the piece of work, while the key-eat is being cut to a slotted mandrel, which may be fixed or movable, sub-stantially as set forth. Second, Providing the mandrel with a slot, substantially as de-scribed, so as to allow the saw to pass through it. Third, The set screws or guides, a' a', applied in combination with the socket, C. mandrel, D, and saw, E, substantially as and for the purpose set forth.

a processet forth. Fourth, The knuckle, i, and shoe, k, applied in combination with he slide, n, feed screw, f, and saw, E, substantially as and for the appose described.

(This invention consists in a machine provided with a mandrel which may be fixed or movable, and on which the piece in which the keyseat is to be cut, can be chucked. This mandrel is slotted, so a to allow the saw to pass through it, and the saw is adjusted at the requisite angle for cutting by a guide or set screws, which hold the 1 wer part of the same in position. The feeding arrangement is composed of a screw with a dog hingel to a knuckle in such a man ner that the saw is thrown forward when cutting and allowed to drop hack when not cutting.]

6,759.—Piano-forte.—S. T. Parmelee (assignor to Par-melee Piano Commany), New Haven. Conn.: I claim, first, The entire isolation of both the metallic frame and ounding, in the manner and for the purpose substantially as speci-46,759.

f d Second. Combining and uniting the sounding board with the fram substantially as and for the purpose specified.

46,760.—Cranberry Gatherer.—Geo. Shove (assignor to himself and Chas. Thacher), Yarmouth, Mass.: I claim the arrangement and combination of the litting comb. B, in the manner substantially as described, with the receiver, A, pro-vided with teeth, as explained.

vided with teeth, as explained. I also claim the combination of the partition, h, with the toothed receiver, A, and the lifting comb. B, arranged and so as to operate together, substantially as described. I also claim the arrangement of the handle of the lifting comb at an inclination as described, with the comb, when such comb is dis-posed with a toothed receiver, substanti lly in manner as set forth, the purpose of such arrangement being to cause the comb while be-ring raised uwward, to be tilted backward so as to discharge the ber-ries into the space in rear of the partition of the receiver.

46,761.—Heel Polishing Machine.—James M. Thompson, Stoneham, Mass., and Seth D. Tripp, Lynn, Mass., Assignors to Seth D. Tripp, Lynn, Mass.:
 We claim, first, The rocking plate, L, in combination with the support of the rotating disk, J, substantially as above described. Accound, We claim the adjustable arm, M, and spring, N, in combi-nation with the frame, K, which holds the rocking plate, substan-tially as above described.

Third, We also claim operating the disk, J, and its supports, I H, y means of the treadle C, and spring, D, substantially as de-writed.

Fourt -, We also claim cooling the pollshing wheels of machines r pollshing heels of boots and shoes by the application of a blast f all to the same, substantially as and for the purpose above de

Fifth. We also claim the combination in machines for polishing the eels of boots of a granding and a polishing wheel upon the same baff, substantially as above described.

[This invention consists in various improvements in the devices for holdin the work up to the polishing whee s; in providing two or more polishing wheels which slide upon their shaft and so are brought ite to the holding devices, and in a method of cooling the p ishing wheel during their operation.

ishing wheel during their operation.
46.762.—Repeating Cannon.—Timothy Tufts, Somerville, Mass., assignor to J. H. W. Page, Boston, Mass.: I clim the combination composed of machinery for imparting to the magazine its intermittent rotary motion—machinery for releasing at the proper lime the stopping mechanism of the magazine, in order to enable the rotation of the magazine to be effected—machinery or elevating the hammer-machinery for interacting to the proper lime the stopping mechanism of boding the hammer at oock—machinery for dischar ing the hammer, and finally, machin-ery for advancing the priming rubbon, and operated by the recipro-cating movements of a hand lever or brake, arranged and applied with rappet to the stock, substantially as specified.
I also claim the application of the stock to the axle, and the car-riage by a compound joint (as described) in combination with the varifical and horisonfal screws and their blocks, the whole heing substantially as and for the purpose spec fied.
And in comhination with the barrel, the stock and the magazine, described, for moving the said boxes, so as iomaintain the periphery of the magazine in its proper relation to the breech of the barrel.
46,763.—Machines for Planing Buttons.—John G. Val-

46.763

the magazine in its proper relation to the breech of the barret. ,763.—Machines for Planing Buttons.—John G. Val-entine (ass gnor to himself and R. H., Isbell), Nau-getack, Conn.: claim. First, The use of a series of cutters, F F, in a rotary head. to operate in combination with a clamp, G, secured to a recipro-ting slider, H, in the manner and for the purpose substantially as rein set forth. Second, The springs. f, stude, g, and abutment, h, applied in com-iation with the movable is wo for the clamp and with the recipro-tin s ide, H, substantially as and for the purpose described.

) [This invention relates to a maching for making square or polygo nal buttons of bone, ivory, india-ru, ver, or other suitable materials. and said machine is composed of a revolving cutter head, carrying a series of cutters calculated to shape the face or back of the button and its edges, and operating in combination with a sliding clamp in which the button is fastened in such a manner that by passing said sliding clamp with the button through under the cutter head its face or back and two of its edges are brought to the proper thape, and a large number of buttons can be made with little trouble or loss of time,]

46,764...Submerged Pump. J. H. Williamson (assignor to himself and Levi Beemer), Branchville, N. J.: I claim the tuhular post or standard, A, with the two pump cylin-ders, B B, permanently attached with valves, b, at their upper parts, in connection with the reciprocating yokes, D D, provided with the tubular pistons. F F, having valves, f, at their upper ends, all ar-ranged to operate in the manner substantially as and, for the pur-pose herein set forth.

[This invention relates to a new and improved doub and it consists in a novel arrangement of parts, hereinafter shown and described, whereby a very simple and economical pump is ob tained, and one which may be kept in repair or proper working order by any one of ordinary ability.]

RE-ISSUES.

8.—Machine for Making Paper and Paper Boards.— John F. Jones, Rochester, N. Y. Patented Oct. 13, 1.898

1,050.- Indecide the intervention of the series of any thickness, in a continuous sheet, by adding to the web a succession of any thickness, in a continuous sheet, by adding to the web a succession of any number of layers of pulp, each successing layer being added and pressed to the preceding one in the aggregate or compound web, before leaving its fits, and the compound web being subjected to pressure, after each addition of a layer of pulp, substantially as and for the purposes berein specified. Second, I also claim forming paper board of a continuous or in such a manner that each separate machine successively deposits a layer or web of its own to form the aggregate layers of the board in the accine, substantially as herein set forth. Third. The combination of a system of cylinder molds, as herein above specified, and a continuous series of drying cylinders and called a manner that the manufacture either of boards of any thickness or of several webs of paper may be carried on by a single continuous process, substantially as hare in decirible. Fourth, The arrangement of the several spouts, G E J, pipes, or and J, vaive, 12, and self-acting fed ga e d, in combunation with each other and with the several vata, substantially as and it or the purpose herein ageified.

The analysis of the several vals, substantially as and for the purpose the anal with the several vals, substantially as and for the purpose of the several several composed of a vat, a cylinder mold, a concher and a scraper, combined and applied in connection with one or more aper-making machines, substantially as herein specified. Sith, The combunation of press rolls, illustrated by MY MY, in 'Is, i, to obtain two pressures from three rolls, as herein described. Seventh, The employment of calender rolls on the top of drying with the board and make it of uniform dryness as it passes over the dry-rs, and partially effect the glazing and calendering process while be board to being dried. Eighth, The cutting apparatus, X Z, operated by the means and in he manner herein set forth. -Ninth, The lay box. Z Z, constructed and operating in the manner ind by the means here in described. сy

ers, the E

and by the means here in described.
1,899—Straw Cutter.—H. K. Parsons (assignee by mesne assignments of Jacob H. Mumma), Harr sbu g, Pa. Patented Jan. 26, 1859. Re-issued Sept. 6, 1859. Again March 29, 1864:
First, I claim broadly a knife for use in straw cutters be constructed that its cutting edge shall be on a line with its outer surface, instead of its inner surface-said edge being formed by bereling or grinding the knife from its inner instead of its outer side; and this I claim whether the whole or a portlon only of the body o said knife shall form the arc of a crole coincident with the axis around which it revolves in the operation of cutting. Second, I claim a knife constructed as above described, and having two under beveled cutting edge—one at its front and the other at its near edge. two ul

ing two inder beveled cutting edges—one at its near edge. Third, I claim so constructing a knife for straw cutters, whether single or double edged, that its cutting edge shall continue to re-volve in the same circle when partially worn or ground away as when new, and thus avoid the necessity of adjusting either the Knives, the cylinder, or the cutting box, as herein set forth. Fourth, I claim the reversivie feed gear, in combination with double-edged knives, when arranged to operate as herein set forth. Fifth, I claim the combination of the rubber springs, e. with the feed rollers, H H, when arranged and operating sherein set forth. Sixth, I claim operating the roller, I, by means of the tappets, g, as and for the purpose set forth.

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