2 Sheets--Sheet 1.

A. F. STRONG.

Improvement in Machine for Pegging Boots and Shoes.

No. 123,592. Patented Feb. 13, 1872.

Fig. 1.

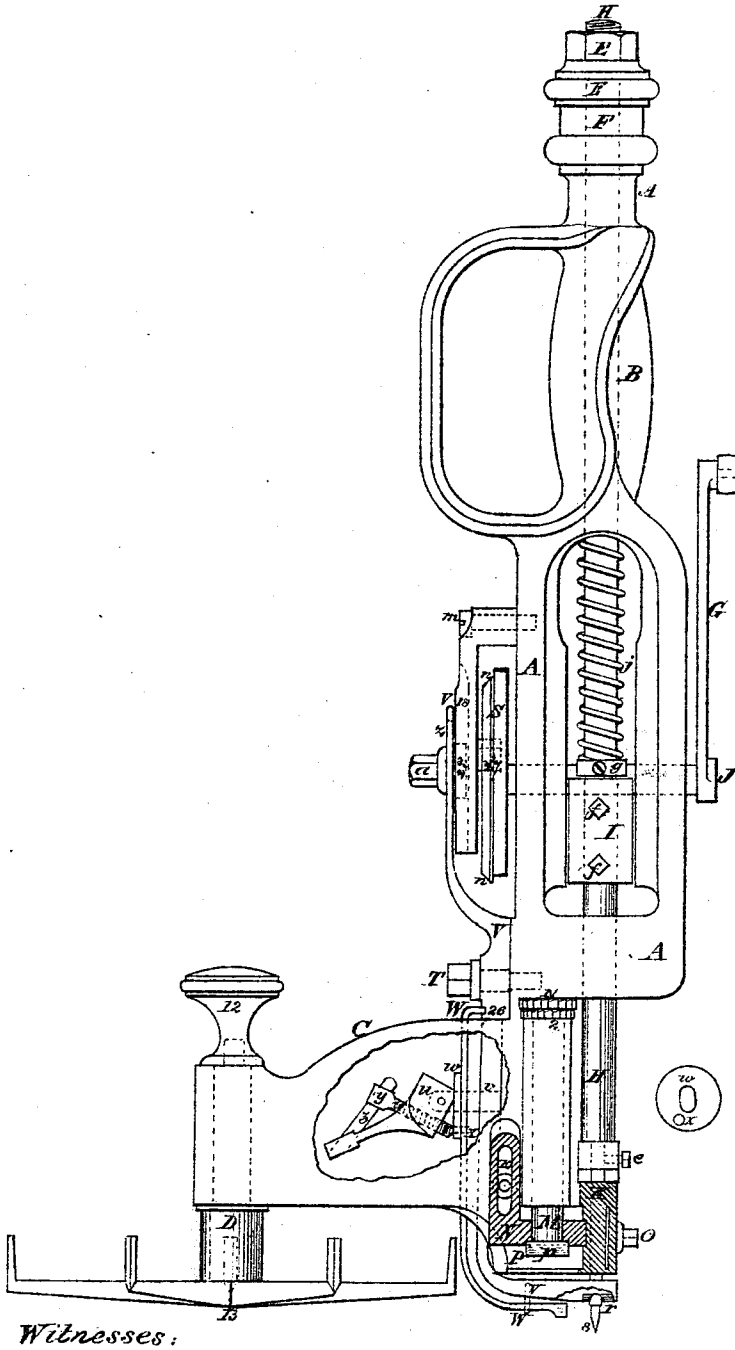
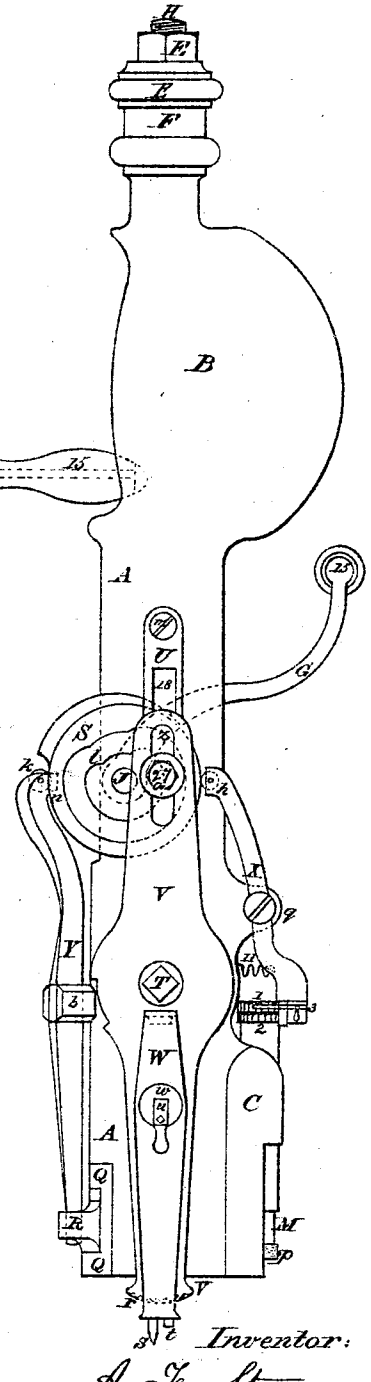


Fig. 2



Witnesses:
H. S. Knight
Wm. Minor

Inventor:
A. F. Strong
by his Atty P. Hathaway

A. F. STRONG.

2 Sheets--Sheet 2.

Improvement in Machine for Pegging Boots and Shoes.

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Fig. 3.

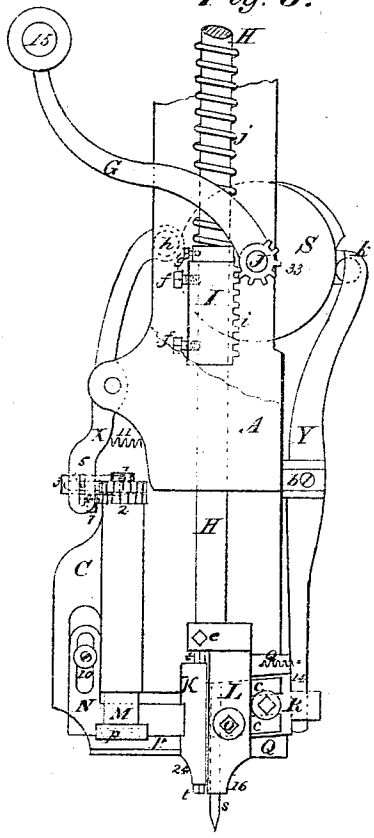


Fig. 4.

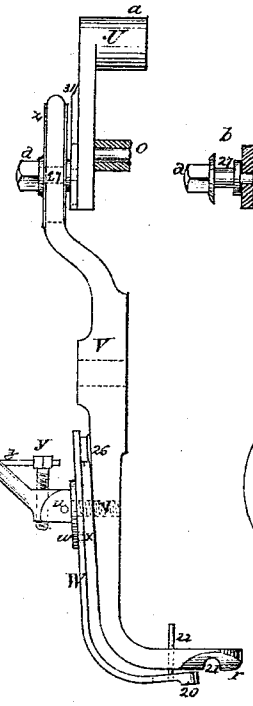


Fig. 5.

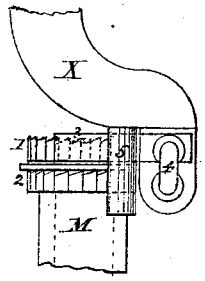


Fig. 11.

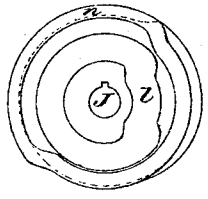


Fig. 12.

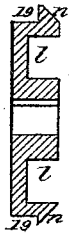


Fig. 6.

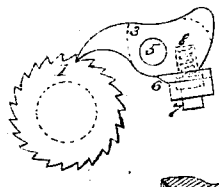


Fig. 7.

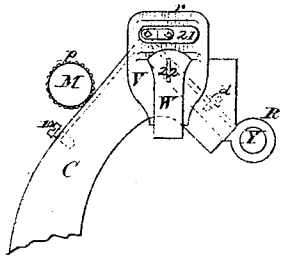


Fig. 8.

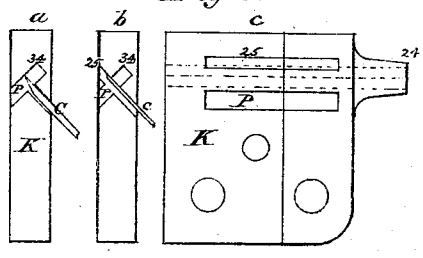


Fig. 9.

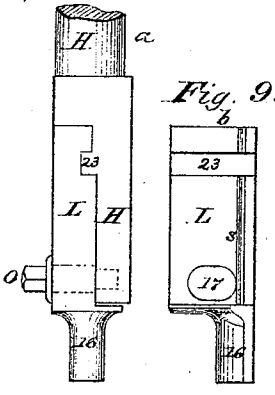
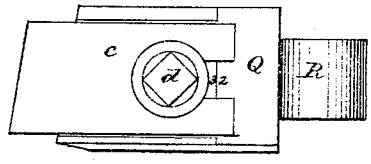


Fig. 10.



Witnesses:

J. G. Knight

Wm. J. Minor

Inventor.

A. F. Strong

by his Atty P. Hanway

UNITED STATES PATENT OFFICE.

AUGUSTUS F. STRONG, OF NORTHAMPTON, MASSACHUSETTS, ASSIGNOR TO NORTHAMPTON PEGGING-MACHINE COMPANY.

IMPROVEMENT IN MACHINES FOR PEGGING BOOTS AND SHOES.

Specification forming part of Letters Patent No. 123,592, dated February 13, 1872; antedated February 5, 1872.

Be it known that I, AUGUSTUS F. STRONG, of Northampton, in the State of Massachusetts, have invented certain new and useful Improvements in Machines for Pegging Boots and Shoes, of which the following, with the drawing, is a full description:

My inventions are more especially made as improvements upon the hand-pegging machines of Louis Goddu, patented December 5, 1865, and reissued March 30, 1869; and of Francis J. Vittum, patented November 10, 1868; and relate, principally: First, to regulating and changing the stride or step of the machine. Second, to changing and regulating the feed of the peg-wood. Third, to cutting the pegs. Fourth, to adjusting the distances of the pegs and the rows of pegs from the edge of the sole and from each other.

In the drawing, Figure 1 shows the machine in position for work, with a portion of the frame C broken out; Fig. 2, side view with part C cut away; Fig. 3, front view with top part broken off; Fig. 4, traveling foot and gauge, with appurtenances for adjustment; Fig. 5, lower part of lever, with pawl and ratchet for operating feed of peg-wood; Fig. 6, pawl and ratchet from above; Fig. 7, bottom of machine with part C broken off; Fig. 8, *a*, section of old peg-tube; *b* and *c*, section and view of new peg-tube; Fig. 9, awl-bar or clamp attached and unattached to plunger; Fig. 10, knife and holder; Figs. 11 and 12, front and section of main cam.

A is the frame of the machine, having at its upper end a handle with a guard, B. J is the main shaft, in suitable bearings, actuated by the hand applied to handle 15 of crank G. Through the main frame, from top to bottom, runs a plunger, H. Upon this plunger is placed a toothed block, I, fastened to the plunger by set-screws *f f*. Above this is a collar with set-screw *g*, upon which rests a spiral spring, *j*, encircling the plunger. Upon the main shaft is placed a toothed cam or partly-geared pinion, 33. As the crank is turned the geared cam 33, meshing in the geared rack I, raises the plunger H, compressing the spring *j* until the teeth cease to act, when the plunger falls off and the spring throws it down and drives awl and peg. E E are nut and set-nut on the top of the plunger, and F is a band or washer, of leather or rubber, to receive and deaden the blow as the plunger descends. L is the awl-bar or clamp, fastened to the lower end of the plunger (which is enlarged and squared) by set-screw O. Upon the plunger is formed a lip, 23, fitting to a slot, 23, on the awl-bar. The awl *s* lies in the recess *s*, and passes down through the point 16. The hole in the clamp through which the screw O passes is elongated, 17, so that the awl-bar may slide on the plunger and be adjustable as to its distance from the peg-driver *t*. The lower end of the awl-bar is constructed, as shown at 16, so as to hold the awl, in connection with the plunger, more securely in its place, and to enable the opening 21 in the bottom of the traveling foot to be made smaller, and so present more surface for the foot on the shoe. K is the peg-tube holder, fastened to the frame of the machine. The peg-driver *t*, which is a small rod of metal, is fastened to the plunger by a set-screw at *e*, and passes down through the peg-tube 34 in the holder to its lower point 24. The awl *s* makes a hole, and the driver *t* drives a peg at the same time. The distance between the pegs is regulated by sliding the awl-bar upon the plunger and clamping it in place by the screw O, as shown above, in connection with the regulation of the walk of the machine, to be shown below. C is a curved projecting part of the frame, at the outer end of and through which passes a spindle, D, with thumb-screw 12 at its top, and a reel, 13, at its bottom for holding a scroll of peg-wood. Q is the knife-holder, and *c* is the knife, fastened to the holder by a set-screw, *d*, and capable of adjustment by its open slot 32. This knife, vibrating on the lever Y, enters slot 25 in the peg-tube holder and cuts off a peg from the strip of peg-wood, forming at the same time a fourth side to the peg-tube. The peg-wood is fed into the peg-tube through the slot P by means of the roughened wheel *p* upon the revolving shaft M.

In the old machines the knife was fastened to the walking foot and was actuated with it, and the knife-slot in the peg-tube holder terminated in the peg-slot, as seen at Fig. 8, *a*.

By my improvements the knife is actuated by a separate cam and lever, and the knife-slot passes through the peg-tube holder, as at Fig. 8, *b c*. Thus the knife operates better,

cuts better, lasts longer, and carries the splinters out from clogging the peg-tube. S is the main cam at opposite end of driving-shaft from the crank. This cam has three cams; a slotted-face cam, *l*, a beveled-edge cam, *n*, and a horizontal-edge cam, 19. U and V form the traveling foot or walk of the machine. When the plunger is down the lower point of the awl-bar 16 rests on the surface of the sole of the shoe and supports the machine. While in this position, by the action of the cam *l*, the lower extremity *r* of the leg V moves forward, and, as the plunger is raised, the foot of the leg rests on the surface of the sole in advance, and the machine advances forward the distance of one peg. U is an arm, pivoted at its upper end to the frame of the machine by a screw, *m*. On its back side is a pin, *o*, with a friction-roller, which takes into the slot of the face-cam *l*. On its front is an open slot or depression, 18, in which slides a block, 29, with a pin-hole, 30. V is a leg, pivoted near its middle to the frame by a screw, T. In the upper part of this leg is a slot, Z, through which passes a clamp-screw, 27, with a washer and nut, *a*, to fix it at any point in the slot Z, and a pin, 28, to enter the pin-hole 30 of the sliding block, 29. By these means the throw or stride of the lower end or foot *r* of the leg V is increased or diminished, as desired, the length of the step being governed by the position of the clamp-screw 27 in the slot Z. The leg V is curved at its lower end, round underneath the frame, forming a foot to rest upon the surface of the shoe-sole. Through this foot is a slot, 21, for the ends of the awl-bar and peg-tube 24 and 16, and for the passage of the awl and peg-driver. The bottom of this foot is ogee-roughened, so as to take hold of the leather and not slip. W is a spring-arm, attached to the leg V at 26, having its lower part curved under and terminated with a broadened end, 20, which presses against the edge of the sole of the shoe, and gauges the distance therefrom of the rows of pegs. The position of 20 will determine the distance of 21 and of the awl and peg-driver from the edge of the sole. *u* is a V-lever, with handle pivoted on a screw, *v*, which passes through the arm W into the leg V. The two sides of this V-lever *u* are at different distances from the pivot. When one side is resting on W it will be crowded further from V and 20 will be further from 21. When the other side is resting on W it will be brought nearer V, and 20 will be nearer 21. When in the latter position, if a row of pegs be driven round the sole, and then the lever be changed to the former, a second row of pegs may be driven so much further from the former and from the edge of the sole. This alone would make the positions of these rows always the same. To vary these distances I put upon the upper end of the screw *v* a washer, *w*, having a small projecting pin, *x*, to take into a hole in the arm W, which washer turns with the screw. If the lever *u*, washer *w*, and screw *v* be turned outward or unscrewed, the arm W will recede from the leg V, and 20 from 21, and the awl and peg-driver will strike further from the edge of the sole. If they be turned inward or screwed in, the opposite result will follow. The pin *x* taking into its hole will keep the position stationary until it needs to be changed. This will determine the distance of the first row of pegs from the sole edge. Turning the lever *u* up or down, as may be, will determine the distance of the second row. But in order to vary this distance I pass through the lever *u* a set-screw, *y*, which, as screwed forward or backward, will increase or diminish the distance from the pivot, and so increase or diminish the distance between the rows of pegs. *z* is a small spring to prevent the screw *y* from turning when set. M is a revolving rod or shaft passing up and down in a portion of the frame, and having on its upper end two or more ratchet-wheels of different-sized teeth, 1 and 2, and on its lower end a roughened wheel, *p*. P, Figs. 1 and 3, is a peg-trough, through which the strip of peg-wood passes from the reel to the peg-slot of the peg-tube holder. N is a flat knee of metal, with a slot, 10, fastened to the frame by a set-screw, having its lower part in front of the peg-trough to hold the peg-wood in place. As *p* revolves its roughnesses seize on the peg-strip and feed it forward into the peg-tube. X is an arm, pivoted to the frame at 9. Its upper end *h* is provided with a roller, which rests on the edge-cam 19 and is operated by it. Its lower end is bent and slotted, as at 4, and has a downward-projecting pin, 5, attached to it. Upon this pin is placed a pawl, 3, shaped somewhat like a foot, and having for its ankle a projecting pin, 7, with an enlarged head, 6, and spring 8. Through the instep, from side to side, is a hole, 5. The pawl is placed with its hole 5 upon the pin 5 of the arm X, and its pin in the slot 4 of the arm. The spring 8 will serve to press and keep the head of the pin in either the top or bottom of the slot, as may be wanted, such top and bottom being severally indented to receive such head. Upon the top of M are two ratchet-wheels, 1 and 2, with different sizes of teeth. The pawl 3 may be set to operate either of these ratchet-wheels by placing its pin-head 6 in the top or bottom of the slot 4, and thus regulate the feeding of the peg-wood or conform to peg-wood of different sizes without changing ratchets. Y is an arm, pivoted to the frame at *b*. Its upper end K has a roller which rests on the beveled-end cam *n*, and is actuated by it. Its lower end enters the handle R of the knife-holder Q and causes it to vibrate. 14 is a spring, to throw out the lower part of arm Y and keep its upper end to the cam. 11 is a spring, to throw out lower part of arm X and keep its upper end to its cam. In the bottom of W is a small slot, 22, with a steady-pin, 22, fastened to V, entering into it. Thus 20 will move to and from 21 without moving sidewise.

In the drawing, Figs. 1, 2, 3, 4, 7, 11, 12 are supposed to be half size; Figs. 5, 6, 8, 9, 10, full size.

The operation is as follows: Place the machine upon the stationary shoe-sole, with the awl in the leather and the gauge pressed against the edge of the sole. The machine will then rest upon the point of the awl-holder or bar. Seize the machine by its handle with the left hand. Turn the crank with the right. As the crank turns the cam *l* will, by and through the pin *o*, arm U, block 29, clamp 27, and leg V, cause the foot *r* of the leg to advance. The geared cam 33 will act on the geared block I and raise the plunger and awl and peg-driver, and the machine will rest on the foot, advanced the distance of a peg. At the same time the horizontal end-cam 19 will operate the arm X, which will cause the pawl 3 to operate the ratchet 1 or 2 and the feed-wheel *p*, and feed the strip of peg-wood from the reel 13 through P into the peg-tube 34. At this time the beveled-end cam *n* will operate the arm Y and the knife *c* will enter the slot 25 in the peg-tube holder and cut off a peg from the strip, inclosing it in 34. The further revolution of the crank will cause the plunger-geared block I to fall off from gear 33, and the spiral driving-spring *j* will cause the plunger to descend and the peg-driver *t* to drive the peg in 34 into the hole previously made by the awl, and, at the same time, cause the awl to make a new hole in advance. Another revolution will repeat the process, until a row of pegs is driven around the shoe-sole. By turning the lever *u* with its triangular cam up or down, as may be, another row of pegs may be driven without further adjustment.

The distance between the pegs in the same row and the number of pegs to the inch is regulated by lengthening or shortening the walking-leg or the stride of the traveling-foot. The distances of the rows of pegs from the edge of the sole and from each other are regulated by lengthening and shortening the distance of the end of the gauge-foot from the awl and driver. The sizes and feed of peg-wood are regulated by applying the pawl to the different ratchet-wheels. The distance between the awl and peg-driver is regulated by moving the awl-clamp on the plunger.

What I claim is—

1. The combination of the slot *z*, adjusting clamp-screw 27 or equivalent device, adjustable actuating-pin 28, and oscillating arm U with traveling-foot V *r*, substantially as described, whereby, by regulating the length of the step of the traveling-foot, the distance between the individual pegs is graduated.

2. The combination of an adjustable awl-carrier, L, with a reciprocating plunger, H, carrying a peg-driver, *t*, substantially as described, whereby, on altering the length of the step of the foot, the relative distance between the awl and peg-driver may be made to correspond.

3. The combination of the stationary guide K and reciprocating peg-driver *t* with an adjustable awl-carrier, L, slot 17, and clamp-screw *o*, substantially as described, for the purpose set forth.

4. The combination of a spring gauge-foot, W, made fast at its upper end to the arm of the traveling-foot V *r*, with a cam-lever, *u*, having its fulcrum in a pin, *v*, secured to the latter, substantially as described, for the purpose of regulating the distance between the rows of pegs, and of each from the edge of the sole.

5. In combination with the lever *u* and pin *v*, arranged as described, I claim the screw *y*, disk *w*, and pin *x*, for the purpose set forth.

6. The combination of the reel 13 for carrying the peg-wood and feed-wheel P with an adjustable guide-plate, M, whereby different widths or numbers of peg-wood can be fed forward to the cutter, as set forth.

7. The combination of the feed-wheel P and its driving-shaft M, two or more ratchet-wheels, 1 and 2, each provided with teeth of a different size from the other, a pawl, 3, lever *x*, and actuating-cam 19 with a knife, C, substantially as set forth, whereby pegs of different thicknesses may be cut as desired.

8. The combination of the knife C and its holder Q with the lever Y and its actuating-cam *n*, whereby an intermittent motion is imparted to the knife, substantially as set forth, for the purpose of cutting and regulating the time at which the pegs are to be cut.

9. The combination of the traveling-foot V *r* and its actuating-pin 28, oscillating-arm U and its wrist-pin *o* with the cam *l*, substantially as described, whereby the foot is made to move forward in an intermittent but regular manner at determinate intervals, for the purpose described.

10. The combination of the peg-wood feeder P, traveling-foot V *r*, and knife *c* with a single three-fold cam, S, whereby each one is independently actuated at the proper time, in the manner substantially as set forth.

11. The combination of the plunger H, spring *j*, segmental pinion 33, and rack I with the three-fold cam S and its adjuncts, substantially as described, whereby motion is imparted to the peg-driver *t* and awl *s* after the peg has been cut.

12. The peg-tube holder K, constructed with a vertical slot, 25, so that the knife *c*, in cutting the peg, shall extend through the slot 25 across the peg-slot, in the manner as and for the purpose set forth.

13. The combination of an adjustable guide-plate, N, adjustable feed-wheel P, and reel 13 with a knife, *c*, whereby pegs of different lengths and thicknesses may be cut, substanstantially as set forth.

A. F. STRONG.

Witnesses:

C. EDGAR SMITH,

D. C. ROGERS.