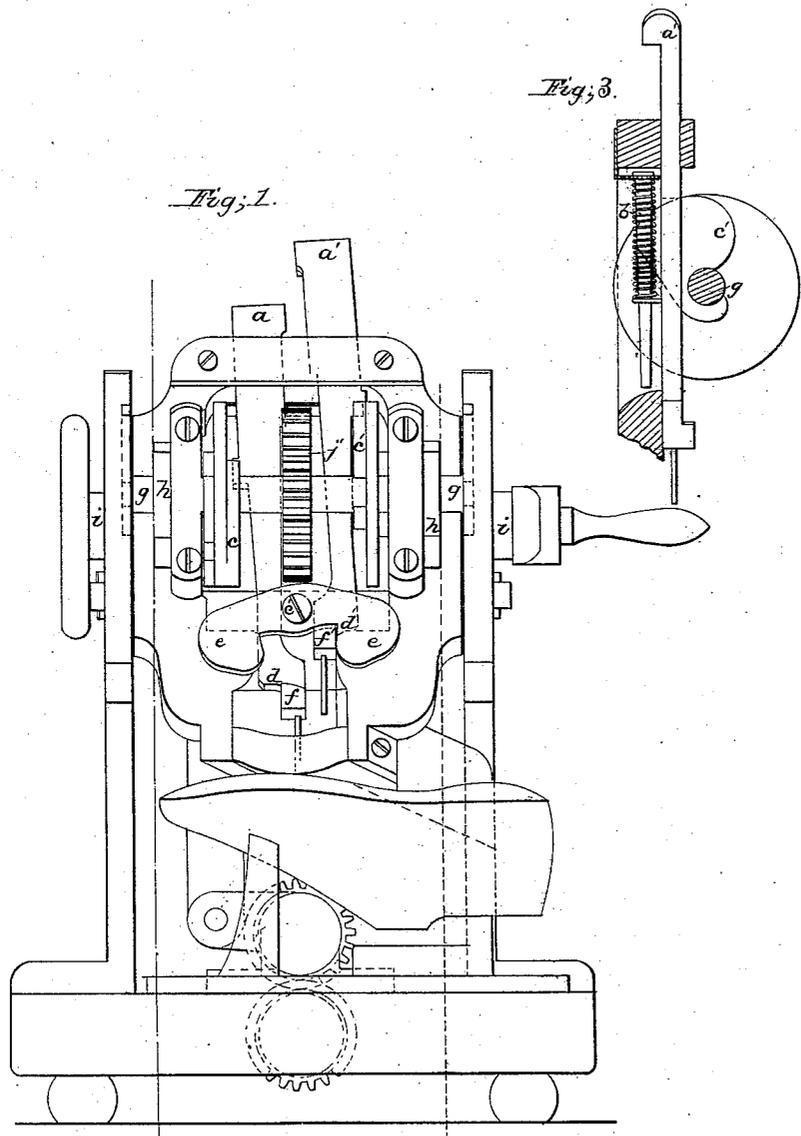


W. Fitzgerald,
Fegging Machine,
No 35,749,
Patented July 1, 1862.



Witnesses,
Aug^r & Sons
& Co. Smith

Inventor;
Walter Fitzgerald

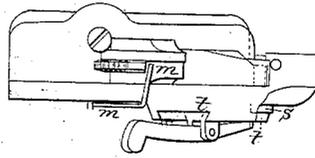
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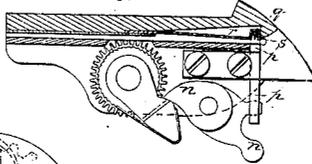
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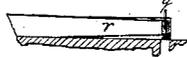
Fig; 4.



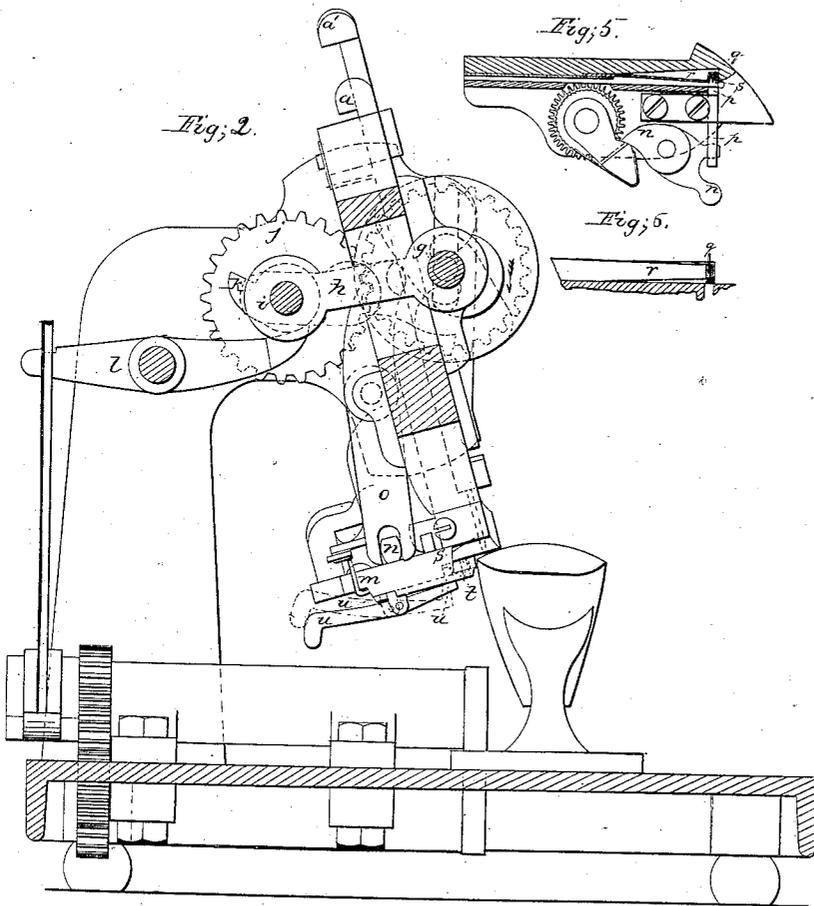
Fig; 5.



Fig; 5.



Fig; 2.



Witnesses;
Augustus
Edm. Smith

Inventor;
Walter Thompson

UNITED STATES PATENT OFFICE.

WALTER FITZGERALD, OF SALEM, MASSACHUSETTS.

IMPROVED PEGGING-MACHINE.

Specification forming part of Letters Patent No. 35,749, dated July 1, 1862.

To all whom it may concern:

Be it known that I, WALTER FITZGERALD, of the city of Salem, in the county of Essex, in the State of Massachusetts, have invented certain new and useful Improvements in Pegging-Machines; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

I have embodied my invention in a machine by which the peg-hole is made and the peg driven in the sole by proper instruments actuated by the recoil of springs, compressed and liberated at the proper times by rotating cams.

The sole is moved under the pegging mechanism by means patented by me May 22, 1860, by which, and by the oscillation of the movable head which carries the pegging mechanism, the horizontal curvatures of the sole are provided for, while the vertical curvatures are accommodated by the rising and falling of the head, the sole moving only in horizontal planes.

My invention consists in relieving the cams which compress the springs of the pressure consequent upon the compression thereof by causing the bars which are actuated by the springs to rest on fixed stops after they are elevated sufficiently to compress the springs the requisite amount, so that for the remainder of the rotation of the said cams the friction which would be consequent upon the resting of said bars on the cams is avoided, and the machine in consequence runs with a less expenditure of power than it would without this part of my invention; also, in the provision which I make for the peg nearest, but not under, the driver, whereby I am enabled to use a solid piston to close the open side of the peg-tube through which the peg is passed, instead of using the knife for the purpose of closing said tube, the purpose of which provision being to avoid breakage of knives and the derangement of the machine; also, in the arrangement or combination or its substantial equivalent of the gearing by which rotation of the cam-shaft is effected while permitting its elevation and depression and the oscillation of the head upon said shaft.

Figure 1 is a front elevation of a pegging-machine embodying my invention. Fig. 2 is

a sectional side elevation, the section being taken in the line *xx*, Fig. 1. Fig. 3 is a detailed view showing the spring and the form of the cam which act upon the driver-bar. Fig. 4 is a rear view in detail of the peg-wood box, the peg feeding and cutting mechanism, and the gage. Fig. 5 is a sectional plan in detail, showing the peg feeding and cutting mechanism and the piston which closes the open side of the peg-tube. Fig. 6 shows in detail parts which relate to the cutting and the control of the peg.

In describing the drawings I shall refer only to such parts as are embodied in or are necessarily connected with my invention, inasmuch as machines similar to that shown in general features are known to and used by the public.

a and *a'* are, respectively, the awl and driver-bars. These are so arranged that they can be moved in the direction of the length of the head, and so that their lower ends can have a sidewise movement upon the head, the upper bearing on each bar being the center of its oscillation. The movements of these bars are performed under the influence of the springs *b*, one of which acts on each bar, and is so arranged as to be compressed by the lifting of the bar, and so that in said movement it throws the free end of the bar outward from the center of the head over rests forming fixed parts of the head, so that when the rotations of the cams *c* and *c'* have respectively raised the bars *a* and *a'* to their greatest elevation, the parts *d* and *d'* of the bars are left bearing on the rests while the cams *c* and *c'* rotate away from the bars. A lever, *e*, of the form shown in Fig. 1, is hung at *e'* in such a way that the alternate lifting of the bars by the cams brings the upper sides of the projections *f* and *f'* alternately against the lower edge of the lever *e*, causing the end thereof opposite the end acted upon by the rising bar to move the bar at rest from its seat when it is driven downward by its spring, either making a hole in the sole or driving a peg, according as the bar actuated by the spring may be either *a* or *a'*. The side movement of *a* and *a'* outward, unlike other pegging-machines, is not caused by a positive movement, but by an inclined set of the springs; but the side movement in the descent of the bars is made positive by means of inclines forming parts of the bars and head. The shaft

g , upon which the cams c and c' are fixed, is connected with the head by suitable bearings, which it overhangs at each end. These projecting ends of the shaft fit in grooves made in the side frames and steady and guide the head in its movements, the shaft g being the center of oscillation for the head.

Two radius-bars, h , of equal length, keep the shaft i always parallel with and equidistant from shaft g , so that the equal gears j and j' , which are fast on each of the shafts g and i , will always work equally into each other without regard to position. The shaft i is kept substantially in one horizontal plane by boxes in which it is free to rotate, said boxes being held in slotted openings in the frames, free to move backward and forward in said slots as the head changes its position. The shaft i having the same angular velocity with g , I fix on it the cam K , which operates to feed the sole under the pegging mechanism through the lever l , as specified in my before-mentioned patent.

If a pulley is placed on the shaft i , to be rotated by means of a belt running vertically, it is plain that the shaft can move back and forward with the boxes in the horizontal slots in the frame, as with belting of ordinary length from above or from below there would be no practical difference between the arc described by the belt in movements of the boxes and the chord of said arc.

My peg-box is designed to receive strips of peg-wood, which are fed onward to the peg-tube by a spur-wheel operated intermittently by a ratchet-wheel and pawl, which are worked against the resistance of spring m by lever n , which is operated from cams on shaft g through lever o . The same lever, n , is made to work the plunger p , which closes the fourth or open side of the peg-box, and which plunger also operates to cut the pegs from the peg-strip by forcing it against the knife q .

In the arrangement shown in the drawings, especially in Fig. 5, but one peg is cut in advance of that in the peg-tube, the knife being stationary and the peg-wood being forced upon it by the plunger when it moves to close the peg-tube preparatory to the peg therein being driven through the tube into the sole.

As the peg-wood is moved laterally by p when the peg is cut from the wood, it is necessary to provide some means for bringing the peg-wood and the separated peg back into line with the peg-tube, so that the peg can be fed into the tube when the awl is withdrawn therefrom, at or before which time the plunger p has withdrawn and left the side of the tube open for admission of the peg. This means is found in the spring r , which is pressed backward as the plunger forces the peg-wood upon the stationary knife, and which returns the peg-wood and the separated peg into line with the peg-tube when the plunger is withdrawn. Of course it is evident that the cams must be so arranged that as soon as the feed-cam K has operated to move the sole the awl is forced into

the sole, during which time the plunger has withdrawn to open the peg-tube, and as soon as the awl has withdrawn the peg-feed operates to set a peg within the peg-tube. The plunger is then moved forward, closing the peg-tube and cutting off another peg, and the driver-bar is liberated and forced downward, driving the peg within the tube into the sole. After the driver has withdrawn the sole is fed along and under the pegging mechanism, and the described operations are repeated indefinitely. As the peg-wood is sharpened on that edge which forms the points of the pegs, a pointed instead of a chisel-edged peg is formed by bifurcating the lower part of the knife and providing a passage for the escape of the chips formed by the fork of the knife in pointing the pegs.

It is evident that the knife may be made movable instead of stationary, and may be made to operate anywhere between the peg-tube and the peg-wood feed, in which case the functions of the piston will be limited to closing the peg-tube, in doing which it will force out of the line of the peg-tube one or more pegs, according to the thickness of the piston, and the spring r will return them into line as the piston opens the side of the tube.

In this modification of the peg-cutting and peg-tube-closing apparatus the plunger should be slightly wedge-shaped on the side next the unmoved pegs, to crowd them slightly backward, so that they will not interfere with the replacement of the pegs by the spring r , which spring will then be made plain and not with the provision shown in the drawings for passing around the stationary knife. The operative manipulates the shoe by hand under the influence of the shoe-feed and keeps the edge of the sole pressed up against the gage s , the distance of which from the center of the peg-tube regulates the distance of the pegs from the edge of the sole, and where there is more than one row of pegs, it gages the distance apart of the rows.

It is of importance to have an efficient and simple device for changing the distance of the gage from the peg-tube center, as this change has to be made without stopping the operation of the machine. The gage consists of a roll which is pivoted to a movable slide, t , which bears the lever u . This lever serves as handle by which the slide t can be moved toward the tube-box. It has a projection on the end nearest the tube-box, which, when the gage is placed nearest the tube-box, is, by depression of u , forced through an aperture in the slide against the immovable part of its bearer and resists the thrust of the sole against the rest. This position of these parts is shown in black lines in Fig. 2. To peg the second row all that is needed is to raise the lever u to the position shown in red lines in Fig. 2, and the thrust of the shoe will move the gage back to the position requisite for pegging the second row.

I claim—

1. In a pegging mechanism, relieving the rotating cam or cams which lift the awl-bar or driver-bar, or both, from the pressure of a compressed spring or springs brought upon said cam or cams in elevating said bar or bars during that time of the rotation of said cam or cams in which said bar or bars are required to remain at rest in their highest elevation by transferring the contact and pressure of said bar or bars from said cam or cams to a stop or stops, from which said bar or bars can be detached at the proper times, substantially as specified.

2. Combining the piston *p* and spring *r*, so that the peg or pegs displaced by the piston in its movement to close the peg-tube shall be replaced by the spring in the line of the peg-tube when the piston moves to open the tube.

3. Combining the piston *p* and spring *r* and

a stationary knife, so that the movement of the piston shall sever a peg from the peg-wood by forcing the wood upon the knife, and so that the spring shall return the wood and the peg severed therefrom to their normal positions upon withdrawal of the piston.

4. In combination with the sliding and oscillating head of a pegging-machine, the arrangement, substantially as described, of the driving-shaft *i*, by which it is kept in one plane while its distance from the center of the driven shaft remains unaltered in the different positions which the head assumes in pegging, and by which I am enabled to connect the shafts *i* and *g* by spur-gearing.

WALTER FITZGERALD.

Witnesses:

AUGS. S. BROMER,
EDWD. SMITH.