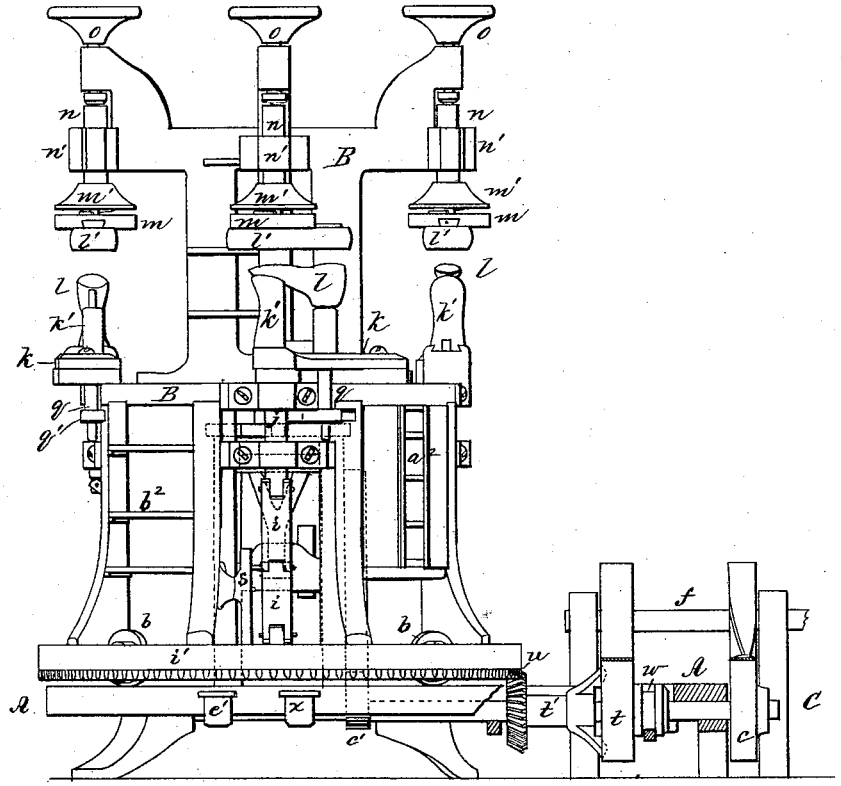
2 Sheets--Sheet 1.

C. W. COLLYER.

Machine for Attaching Soles to Boots and Shoes.

No. 164,363. Patented June 15, 1875.

Fig. 1.



Witnesses.

L. H. Latimer.

Wm Pratt.

Inventor.

Charles W Collyer

PER Crosby Gregory Atty's.

2 Sheets--Sheet 2.

C. W. COLLYER.

Machine for Attaching Soles to Boots and Shoes.

No. 164,363. Patented June 15, 1875.

Fig. 2.

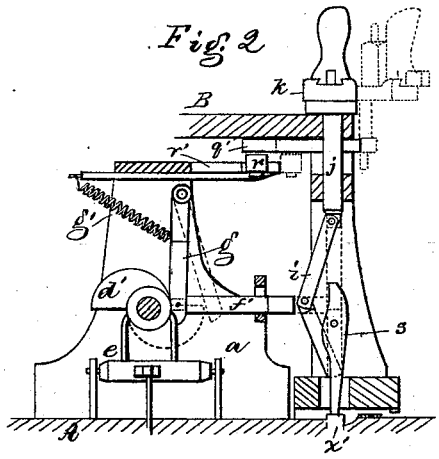


Fig. 3.

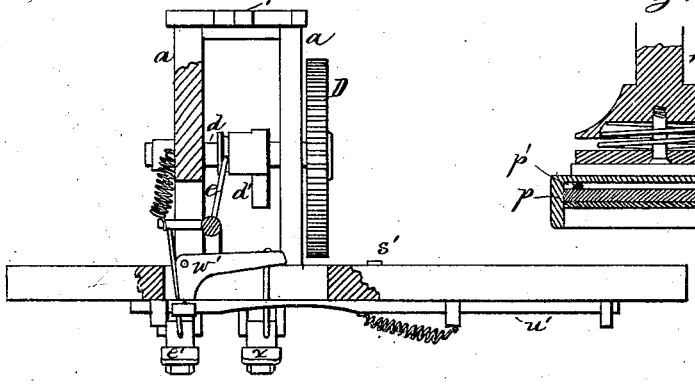
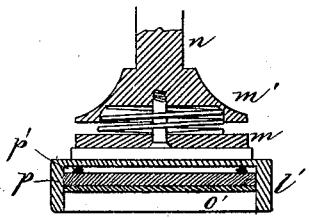


Fig. 4.



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Charles W Collyer

PER Crosby Gregory Atty's.

UNITED STATES PATENT OFFICE.

CHARLES W. COLLYER, OF MARBLEHEAD, MASSACHUSETTS.

IMPROVEMENT IN MACHINES FOR ATTACHING SOLES TO BOOTS AND SHOES.

Specification forming part of Letters Patent No. **164,363**, dated June 15, 1875; application filed April 24, 1875.

To all whom it may concern:

Be it known that I, CHARLES W. COLLYER, of Marblehead, in the county of Essex and State of Massachusetts, have invented an Improved Machine for Attaching Soles to Boots and Shoes, of which the following is a specification:

This invention relates to a machine for attaching soles to boots and shoes, and it is also adapted to "beating out" or pressing the channel-flap of sewed or nailed shoes in place after the sole is united.

The invention consists in a series of jacks mounted on a traveling table or support, combined with mechanism to reciprocate the jacks, and cause them to press the soles of the shoes or boots carried by them up against a sole-shaped die; also, the combination, with such mechanism, of treadles, to throw into operation the parts for moving the traveling support, or for moving the jacks vertically; and also in the combination of other parts of the machine, as will be hereinafter fully described.

Soles have been attached to shoes by a composition or cement. The uppers are mounted on lasts held in jacks. The inner soles are applied and coated with the cement or composition; then the edges of the upper and counter are bent over and coated with cement or composition, and then the outer sole is applied; and the shoe is then put in a press, and the outer sole pressed firmly against the inner sole and left to set.

In this invention it is proposed to use any well-known composition, and it is to be applied in the usual way to the parts of the boot or shoe; and this invention has reference only to mechanism to facilitate the operation of applying the soles of what are known as "compo" shoes.

Figure 1 is a side view of a machine provided with my improvements; and Figs. 2, 3, and 4 are sectional details, to be referred to hereafter.

A is the base of the machine, having a central frame, *a*, projecting within the traveling table or support B, sustained on rollers *b* resting on frame A. The main shaft C of the machine has a fast pulley, *c*, and a gear, *c'*, which engages a gear, D, on a shaft, *d*, mounted on frame *a*, and this shaft carries a cam, *d'*, secured to the shaft by a key or spline, so that the cam rotates with and may be slid on the shaft by the action of an arm, *e*, operated by a treadle, *e'*, and connections. The shaft C has motion imparted to it through a belt and pulley on a shaft, *f*, and when the cam *d'* is moved by depressing treadle *e'*, so as to bring it in the path of the slide-bar *f'*, connected with a radius-bar, *g*, held in contact with the cam by a spring, *g'*, the slide-bar will be moved forward, and will impinge against the toggle-lever *i* jointed to the base *i'* of the traveling support, and also to the rod *j* of the jack-carrying plate *j'*, and will elevate it and its attached jack, composed of a plate, *k*, pivoted to plate *j'*, and provided with an adjustable toe-rest, *k'*, and with a last-pin to support the last *l*. The sole-formed die or mold *l'* is adjustably connected with a disk, *m*, by means of a dovetail fin and slot. This disk is connected with a head, *m'*, on an adjustable rod, *n*, sustained in a bearing, *n'*, in frame B of the traveling support. This rod *n* is connected with a screw, *o*, to elevate or depress it and the sole-shaped die, to adapt the latter in height to correspond with the thickness of the material forming the shoe and sole. A spring is interposed between the disk *m* and head *m'*, and the connection is such that the sole-shaped die can adapt itself to the shape of the sole of the shoe, and at the same time the part *o'* of the die which bears directly on the sole is backed by a sheet of india-rubber, *p*, and by spiral or other springs, *p'*, so that the part *o'* adapts itself to the sole, or to any uneven portion thereof. A projection, *q*, from the jack-plate *k* has connected with it a jointed link, *q'*, pivoted at one end to the frame of the traveling support, and the link is preferably provided with a friction-roller, *r*, which bears against a stationary cam-projection, *r'*, just before the jack reaches the position occupied by the operator, and throws the jack out to the position shown in dotted lines, Fig. 2, so as to enable a shoe to be removed, and to permit another shoe and last to be applied. Before this jack is thrown out, and during the rotation of the support B, a shipper, *s*, meets a cam-ledge, *s'*, on the frame A, and moves the shipper, so that it engages a projection on the toggle-lever *i*, and turns the toggle to the

position shown in Fig. 2, and allows the jack to fall and carry its shoe away from the die l'. On the shaft C are placed a loose pulley, t, and a clutch-sleeve, t', provided with a pinion adapted to engage a toothed rim, u, at the lower side of the base i' of the traveling support. This loose pulley is operated by a belt from a pulley on the shaft f. This loose pulley and clutch are for the purpose of rotating the traveling support, and are brought into action intermittingly by moving the loose pulley along on shaft C by means of a bar, w', connected with the clutch through a cross-bar entering a groove, w, therein, and the bar is moved by an elbow-lever, w', connected with a treadle, x.

Supposing the jack in the position denoted in dotted lines, Fig. 2, a shoe and last with the parts applied and cemented are then mounted thereon; the jack is turned inward, the treadle x is depressed to engage the loose pulley with the clutch and move the traveling support, this movement continuing until the jack arrives opposite the end of the slide-bar f'; then the shipper s strikes a stop, x', Fig. 2, which stops the traveling frame in such position that the toggle-lever i is directly opposite the end of bar f'. At this point the treadle x' is released and the treadle e' depressed, which brings the cam d' in position to throw out the bar and straighten the toggle-lever, and raise the jack and compress the sole and parts of the shoe firmly together against the die l. When the toggle is made straight a pin projecting therefrom strikes the upper end of the shipper and moves its lower end out of the path of the stop x'. Then the treadle x is again depressed to engage the parts to cause the traveling support to bring another shoe into position. Each shoe is left under pressure while the traveling support makes nearly a complete rotation.

It is not intended to limit this invention to any particular number of jacks, as any desired number may be employed with the traveling support, according to its side. Nor is it intended to limit this invention to the exact devices shown for raising and lowering the jacks or turning the support, as other equivalent devices may be used without departing from this invention.

This invention will also be found valuable for "beating out" or turning back the channel-flap or lip of a boot or shoe sewed or nailed as commonly practiced, and may be used for such purpose if desired.

The traveling support is provided with a receptacle, a^2, having doors, and provided with shelves on which to lay the shoes after receiving the composition until the proper time to place the shoes on the jack and last. This receptacle a^2 may be heated if desired, and preferably so, and shelves b^2 may be placed on the frame for holding the shoes when completed or for holding tools.

I claim—

1. The combination of a traveling support with the shoe-holding jacks and independently-actuated levers and sole-pressing dies, adapted to operate substantially as described.

2. The combination of the jack and toggle-lever with the slide-bar and its operative cam, substantially as described.

3. The combination, with the jack and toggle-lever of the slide-bar, its operating-cam, and the treadle for moving the cam, substantially as described.

4. The combination, with the traveling support, of the jacks pivoted thereto, the links, and the cam-projection r' for turning the jacks out as the support rotates, substantially as described.

5. The combination, with the traveling support, of the shipper, toggle-lever, and stop x', to stop the support while the toggle-lever is straightened, and to release the shipper to allow the support to be moved, substantially as described.

6. The combination, with the toggle-lever, of the shipper and its actuating-cam s' to throw back the toggle-lever, substantially as described.

7. The removable die l, in combination with the plate o' and rubber packing and springs, substantially as described.

8. The dies l', in combination with their carrying-rods and adjusting-screws, substantially as described.

9. The combination, with the traveling support, of the loose pulley t or clutch and the mechanism for operating them to move the traveling support, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES W. COLLYER.

Witnesses:
G. W. GREGORY,
S. B. KIDDER.