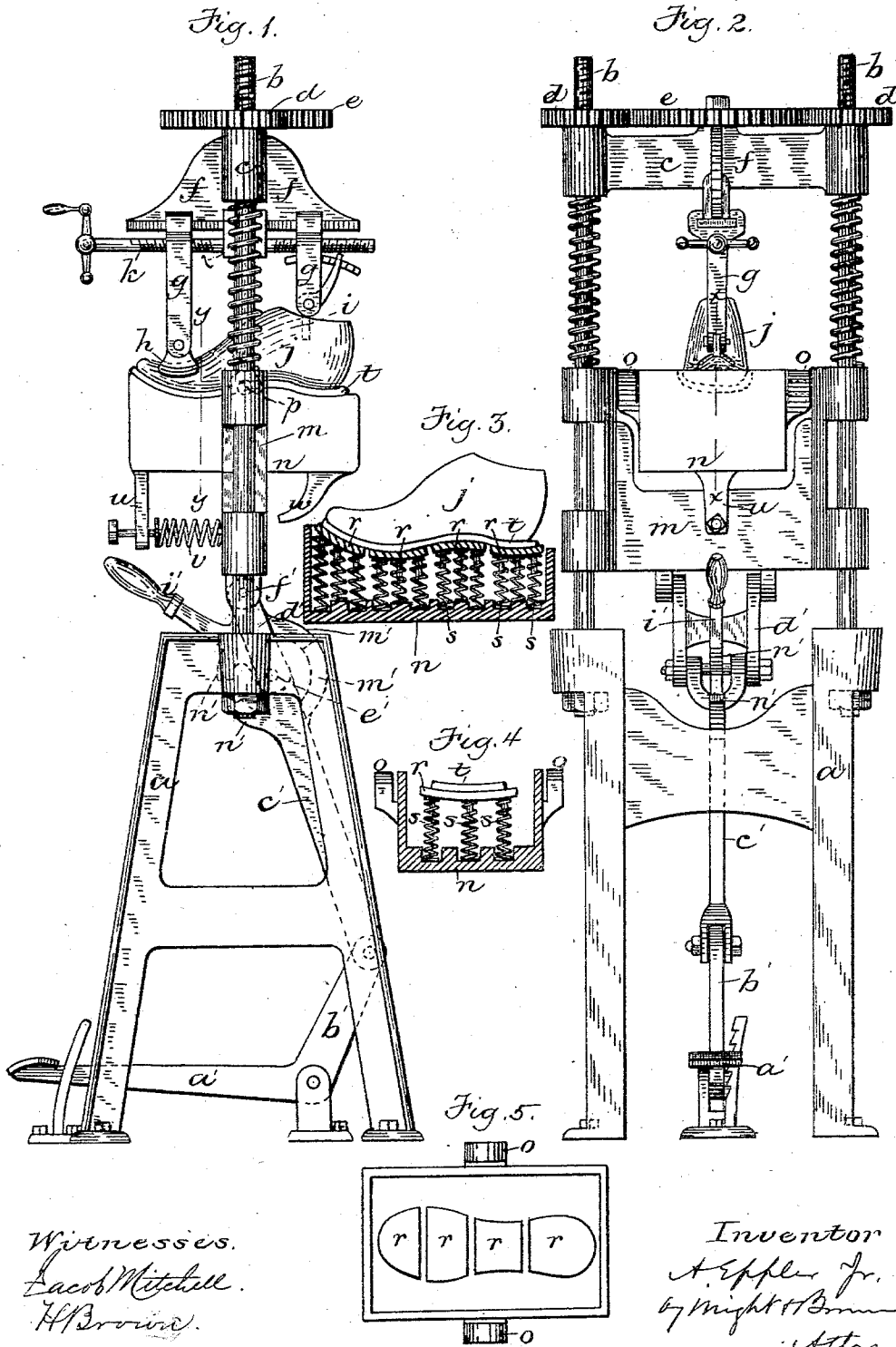


(No Model.)

A. EPPLER, Jr.
SOLE LAYING MACHINE.

No. 315,923.

Patented Apr. 14, 1885.



Witnesses.
Jacob Mitchell.
H. Brown.

Inventor
A. Eppler, Jr.
by Night & Bonner
Atty

UNITED STATES PATENT OFFICE.

ANDREW EPPLER, JR., OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE
BOOT AND SHOE SOLE LAYING COMPANY, OF PORTLAND, MAINE.

SOLE-LAYING MACHINE.

SPECIFICATION forming part of Letters Patent No. 315,923, dated April 14, 1885.

Application filed January 26, 1885. (No model.)

To all whom it may concern:

Be it known that I, ANDREW EPPLER, JR., of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Sole-Laying Machines, of which the following is a specification.

This invention relates to that class of sole-laying machines in which a series of independently-yielding pads or sole-supporting sections are employed to press a cement-coated sole against a lasted upper and hold it while the cement is setting or hardening, as shown in Letters Patent of the United States granted to me September 2, 1884, No. 304,416.

The invention has for its object, first, to provide certain improvements in the sectional sole-support, whereby the pads or sections thereof are made yielding in any desired direction; secondly, to provide means whereby the pressure of the sole-support against the sole may be commenced at the toe and caused to progress gradually to the heel; and, thirdly, to provide improved means for operating the sole-support.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a side elevation of a sole-laying machine provided with my improvements. Fig. 2 represents a front elevation of the same. Fig. 3 represents a longitudinal section of the sole-support on line *xx*, Fig. 2. Fig. 4 represents a transverse section of the same on line *yy*, Fig. 1. Fig. 5 represents a top view of the sole-support.

The same letters of reference indicate the same parts in all the figures.

In the drawings, *a* represents the base or supporting portion of the frame-work of the machine, from which rise two standards, *bb*.

c represents a cross-head adapted to move vertically on the standards *b*, and supported by nuts *dd*, screwed upon the threaded upper portions of the standards, and swiveled in sockets in the cross-head, so that when said nuts are simultaneously rotated they will rise or fall on the standards, and thus raise or lower the cross-head. The nuts *dd* are formed on their margins as pinions, and both engage with a pinion, *e*, pivoted on the cross-head, said pinion, when rotated, operating both nuts. The cross-head is provided with lateral arms *ff*,

the lower edges of which constitute guides for two movable standards, *gg*, one supporting a toe-rest, *h*, and the other a spindle, *i*, which is formed to enter the spindle-socket in a last, *j*. A right and left screw-threaded rod, *k*, swiveled in an ear, *l*, affixed to the cross-head *c*, and passing through correspondingly-threaded sockets in the standards *gg*, enables said standards to be moved simultaneously in opposite directions, to accommodate them to lasts of different sizes, as shown in my pending application filed December 18, 1884, Serial No. 150,638.

m represents a frame having ears which are capable of sliding on the standards *bb*. *n* represents a bed-plate formed with vertical sides, like a box, said sides being provided with ears *oo*, which are connected to the frame by pivots *pp*, so that the bed or plate can oscillate freely in the direction of its length. *rrrr* represent a series of plates or sections, which collectively form a sole-support, each being preferably curved to approximate to the curvature or inclination of a given portion of the sole. Said plates or sections are supported by a number of springs, *ss*, interposed between their under sides and the bed or plate *n*, each plate or section having a sufficient number of springs to support it in its normal position and permit it to be tipped or inclined in any desired direction. The sections are thus enabled to conform to the bottom of the last, so that in case the last is somewhat inclined sidewise in consequence of an inclination in the spindle-socket in the last, or from any other cause, the sections can readily adapt themselves to such inclination. The springs are kept in place in the present instance by studs on the lower surfaces of the plates and sockets in the bed or plate *n*, as shown in Figs. 3 and 4.

A sheet of rubber, *t*, is preferably placed on the upper surfaces of the sections *r*, to form the direct bearing for the sole to be cemented.

u represents an arm projecting downwardly from the bed or plate *n* under the toe-supporting end of the sectional sole-support. A spring, *v*, interposed between said arm and the frame *m*, acts to press said arm away from the frame, and thus turn the bed on its pivots, so as to raise the toe-supporting end of the sectional sole-support, and cause said end to act

first in pressing the sole against the lasted upper when the bed and sole-support are moved upwardly against the upper, as hereinafter described. The toe of the sole is therefore first pressed against the upper, and while the spring *v* is yielding and allowing the bed and sole-support to gradually assume the position shown in Fig. 1, the pressure of the sectional support against the sole progresses gradually from the toe to the heel. This method of applying the sole—viz., by pressure commencing at the toe and progressing toward the heel—is found to produce better results than pressure applied simultaneously to all parts of the sole.

The rear end of the bed *n* is provided with an arm or stop, *w*, which abuts against the frame *m*, to limit the upward throw of the toe-supporting end of the sole-support by the spring *v*.

The frame *m* is supported and raised and lowered by means of a pivoted treadle-lever, *a'*, having an arm, *b'*, a link, *c'*, pivoted to the arm *b'*, and a shorter link, *d'*, pivoted at *e'* to the link *c'*, and at *f'* to the frame *m*. The links *d'* *c'* constitute one member of a toggle-joint, whereof the lever-arm *b'* is the other member. The links *d'* *c'* also constitute the members of a second toggle-joint, whereby the frame *m* may be given an upward or downward movement in addition to that given by the joint action of the lever-arm *b'* and links *d'* *c'*.

When it is desired to depress the frame *m* to the lowest possible point, the treadle-lever *a'* is released to throw the arm *b'* out of line with the links *c'* *d'*, as shown in Fig. 1, and the pressure is applied to the link *d'* to throw it out of line with the link *c'*, the link *d'* being provided with a short handle or lever, *i'*, for this purpose. The bed is thus fully depressed, and the sole-support is entirely separated from the last. When it is desired to raise the sole-support to press a cemented sole against a lasted upper, the operator first, by means of the handle *i'*, throws the links *d'* *c'* into line, as shown in Fig. 1, thus partially raising the bed and sole-support, and then by depressing the treadle *a'* additionally raises the sole-support and presses the sole firmly against the upper. The treadle may be secured by any suitable means to maintain the pressure while the cement is setting.

This compound toggle-joint enables a greater extent of vertical movement to be given the sole-support than would be practicable with an ordinary toggle-joint operated by foot-power without greater complication of mechanism.

The links *c'* *d'* have stops *m'* *m'* on their rear sides, which abut against each other and prevent their connected ends from being thrown forward of the position they occupy when the links are in line with each other. Similar stops, *n'* *n'*, are provided on the front sides of said links, to limit the movement of the

links which throws them out of line with each other.

The vertical adjustability of the cross-head *c* by means of the nuts *d* *d*, as above described, enables the last to be raised or lowered, as may be required.

I do not limit myself in all cases to the details of construction and the specific combinations above described. The bed or plate *n*, pivoted to rock in the direction of the length of the sole, may be used with differently-constructed sole-supporting devices—for example, those shown in my pending application above referred to.

The improved sole-support shown and described may be used with a frame or holder which is not pivoted.

Any other suitable means may be employed for raising and lowering the frame *m* and the sole-support,

I do not claim, broadly, means for pressing the toe portion of the sole against the lasted upper, as I am aware that the same result has been accomplished by means differing from those above shown.

I claim—

1. In a sole-laying machine, the combination of a jack or last-holder, a frame movable toward and from said jack, a bed or support pivoted to said frame, and a sole-support composed of independently-yielding sections or pads supported by the pivoted bed, as set forth.

2. In a sole-laying machine, the combination of a jack or last-holder, a frame movable toward and from said holder, a bed provided with a sole-support pivoted to said frame so as to be capable of rocking in the direction of the length of the sole-support, and a spring whereby the bed is normally turned on its pivots to raise the toe portion of the sole-support, as set forth.

3. The combination of the bed or plate *n*, a sole-support composed of a series of independent sections, *r*, a series of springs interposed between the sections and bed, whereby each section is supported in its normal position and permitted to tip in any direction therefrom, a jack or last-support, and means, substantially as described, for exerting pressure on a sole interposed between a last on the jack and the sole-support, as set forth.

4. In a sole-laying machine, the combination, with a movable sole-support and mechanism, substantially as described, for raising and depressing the same, of a jack or last-holder, a cross-head supporting said jack, nuts *d* *d*, swiveled in said cross-head, threaded supporting-standards engaged with said nuts, and means, as described, whereby said nuts may be rotated in unison to adjust the jack vertically, as set forth.

5. The combination of a jack, a sole-support, the vertically-movable frame carrying the sole-support, the link *d'*, having the lever or handle *i'* pivoted to the frame, the link

c', pivoted to the link *d'*, and the treadle-lever having an arm, *b'*, pivoted to the link *c'*, as set forth.

5 6. The combination, with the frame *n* and its sole-support, of the links *d' c'*, having the stops *m' m'* and *n' n'*, and the treadle-lever *a'*, having the arm *b'*, as set forth.

In testimony whereof I have signed my

name to this specification, in the presence of two subscribing witnesses, this 17th day of 10 January, 1885.

ANDREW EPPLER, JR.

Witnesses:

C. F. BROWN,

H. BROWN.