(No Model.)

A. EPPLER, Jr.

SOLE LAYING MACHINE.

No. 304,415. Patented Sept. 2, 1884.

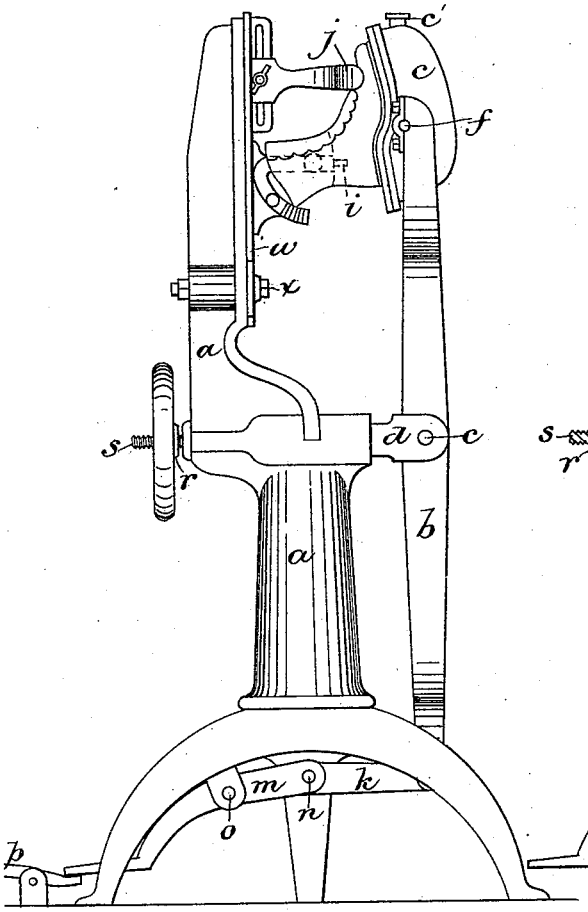

Fig. 1.

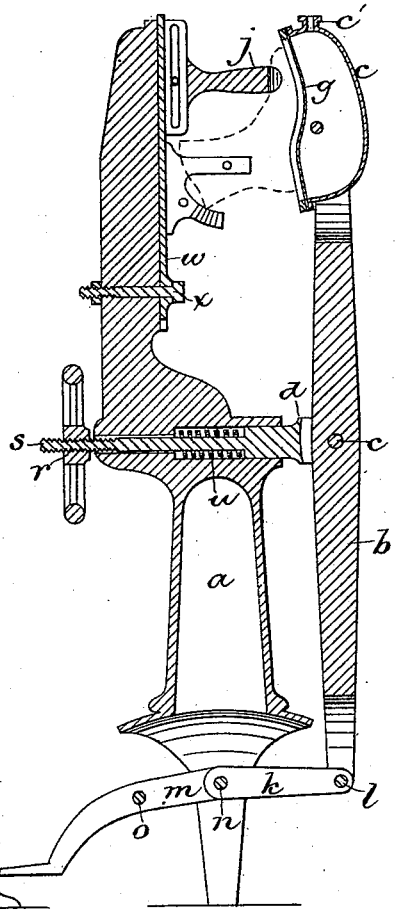

Fig. 2.

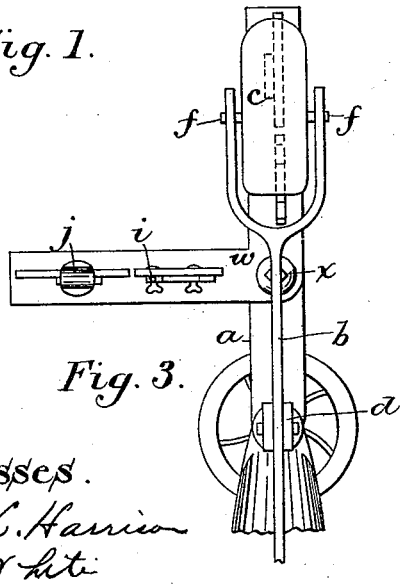

Fig. 3.

Witnesses.
Henry L. Harrison
A. L. White

Inventor.
A. Eppler Jr.
by Wright & Brown
Attys.

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. 304,415, dated September 2, 1884.

Application filed April 17, 1884. (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 consists in certain improvements in sole-laying machines, whereby an operator is enabled to press an outer sole against a lasted upper by means of a flexible or yielding presser adapted to conform to any size and shape of last and sole that may be employed, as I will now proceed to describe.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a side elevation of a machine embodying my invention. Fig. 2 represents a vertical section of the same. Fig. 3 represents a rear elevation of a portion of the machine.

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

In the drawings, *a* represents the supporting frame or standard of my improved machine.

b represents a lever pivoted at *c* to a support, *d*, connected with the standard *a*. The upper end of the lever *b* is forked, as shown in Fig. 3, and in its arms are journaled trunnions *f f*, formed on a metallic shell or casing, *c*, the casing being thus pivotally connected to the lever.

g, Fig. 2, represents a diaphragm, of rubber or other flexible material, secured at its edges to the shell *c*, the diaphragm and shell constituting a chamber or receptacle adapted to contain water. The margin of the shell to which the diaphragm is secured is curved to conform approximately to the lengthwise curvature of the boot or shoe bottom, as shown, the diaphragm being therefore similarly curved. The diaphragm is of suitable size and shape to cover differently-sized outer soles for boot and shoes, and thus act as a presser to force a sole against a lasted upper. The last having an upper and an inner sole is placed on a support or jack secured to the frame *a*, said jack having a spindle, *i*, adapted to enter the socket of the last, and a toe-rest, *j*, adapted to bear on the toe of the upper, said parts being constructed and arranged in any suitable manner.

At the lower end of the lever *b*, I provide suitable mechanism for applying foot or other power to the lever, so as to press the diaphragm against an outer sole interposed between the bottom of the lasted upper and the diaphragm. In the present instance I have shown a toggle-joint composed of a link, *k*, pivoted at *l* to the lower end of the lever, and a link, *m*, pivoted at *n* to the link *k* and at *o* to an ear on the frame *a*. The link *m* is extended and acts as a lever, which, when raised at its end opposite that to which the link *k* is pivoted, straightens the toggle-joint and moves the lever *b* on its pivot in such manner as to cause the lever to press the diaphragm against the sole. The space in the casing *c* behind the diaphragm is preferably filled with water, which constitutes a yielding support for the diaphragm. The yielding condition of the diaphragm enables it to press the sole closely against the bottom of the lasted upper, causing the sole to conform to the curvature of said bottom. The pivotal connection of the casing *c* to the lever equalizes the pressure of the diaphragm against the sole, the casing turning on its pivots, so as to cause the diaphragm to bear with an equal pressure against all parts of the sole.

The toggle-joint may be operated to give the described movement to the lever *b* by means of a foot-lever, *p*, Fig. 1, or by any other suitable means, and may be held by the operator so long as it is desirable to continue the pressure on the sole. In case the operator while holding the toggle-joint, as above indicated, desires to apply more pressure than can be obtained by the toggle-joint alone, he may move the support *d*, to which the lever *b* is pivoted, by rotating a nut, *r*, on a threaded stem, *s*, formed on said support. The support *d* is adapted to slide in a socket formed in the standard *a*, and may be drawn by the rotation of the nut toward the standard, and thus move the lever and increase the pressure of the diaphragm against the sole. A spring, *u*, in said socket presses the support *d* away from the standard *a*, when the nut *r* is turned backwardly. The nut is provided with a hand-wheel, whereby the operator may conveniently rotate it. The means for adjusting the support of the lever *b* may be used to adjust the

initial position of the diaphragm prior to the pressing operation.

I prefer to provide two or more jacks or last supports, secured to a frame or plate, *w*, which is common to both, and pivoted at *x* to the frame *a*, so that while one support holds an upper for the action of the diaphragm the other is ready to receive another last, the jacks or supports diverging, as shown in Fig. 3.

The work for which my improved machine is particularly intended is the temporary attachment of outer soles to lasted uppers by means of cement, which is applied to the outer sole or the bottom of the upper, or both, the thorough contact afforded by the diaphragm enabling all parts of the cemented surfaces to adhere. After a continuance of the pressure for a few seconds or minutes, the sole is secured with sufficient firmness to hold it until it can be permanently secured by nails or other fastenings, as described in my application for Letters Patent of the United States, filed March 17, 1884.

The casing *c* preferably has an orifice, *c'*, for the admission of water, said orifice having a suitable cap or stopper.

I do not limit myself to the provision of the water-backing, nor to the pivotal connection of the diaphragm to the lever.

If desired, the marginal frame which holds the diaphragm may be attached rigidly to the lever, and may or may not be provided with a water-backing.

I claim—

1. The combination, in a sole-laying machine, of a support or holder for a lasted upper, a lever pivoted to the base of the machine, a flexible presser or diaphragm pivotally supported in said lever and adapted to cover the sole, and a treadle for operating the lever to press the diaphragm against the sole, substantially as described.

2. In a sole-laying machine, the combination of a pivoted plate provided with two or more holders or supports for the lasted upper, a lever pivoted to an adjustable fulcrum on the machine, a casing or bag adapted to contain water, and provided with a flexible diaphragm pivotally supported in the lever, and means, substantially as described, for operating the lever, substantially as described.

3. In a sole-laying machine, the combination of a support or holder for a lasted upper, a casing adapted to contain water, and provided with a flexible diaphragm, a lever pivotally connected to said casing, means, substantially as described, for applying pressure to said lever, a movable support to which the lever is pivoted, and means, substantially as described, whereby said support may be adjusted, as set forth.

4. In a sole-laying machine, the combination, with the flexible diaphragm and mechanism for pressing the same against a sole, of a plate pivoted to the supporting-frame of the machine, and provided with two or more sets of supporting devices for lasts adapted to be used interchangeably, as set forth.

5. In a sole-laying machine, the combination of the metal shell or casing having trunnions *f f*, and diaphragm *g*, the pivoted lever having bearings for said trunnions, mechanism for operating said lever, and a holder or support for a lasted upper, as set forth.

6. In a sole-laying machine, the combination of the lever *b*, means for applying pressure to the lower end thereof, the movable support *d*, to which said lever is pivoted, devices, as described, for adjusting said support, the bag or casing pivoted to the upper end of the lever, and provided with the flexible diaphragm, and a support or holder for a lasted upper, all arranged and operated as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 11th day of April, 1884.

ANDREW EPPLER, JR.

Witnesses:

C. F. BROWN,

A. L. WHITE.