(No Model.)

J. L. THOMSON.

MACHINE FOR ATTACHING METAL PLATES TO SHEET RUBBER.

No. 260,431. Patented July 4, 1882.

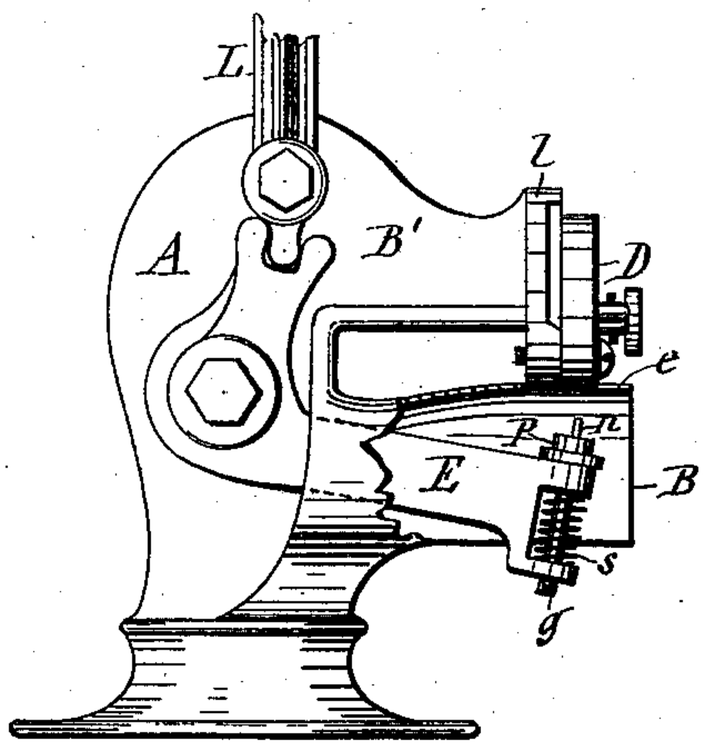

FIG-1-

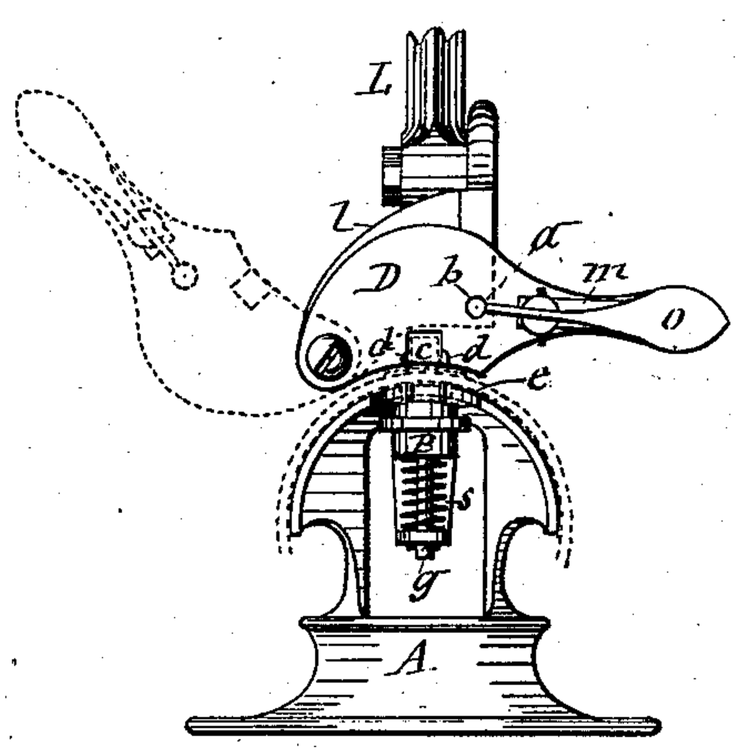

FIG-2-

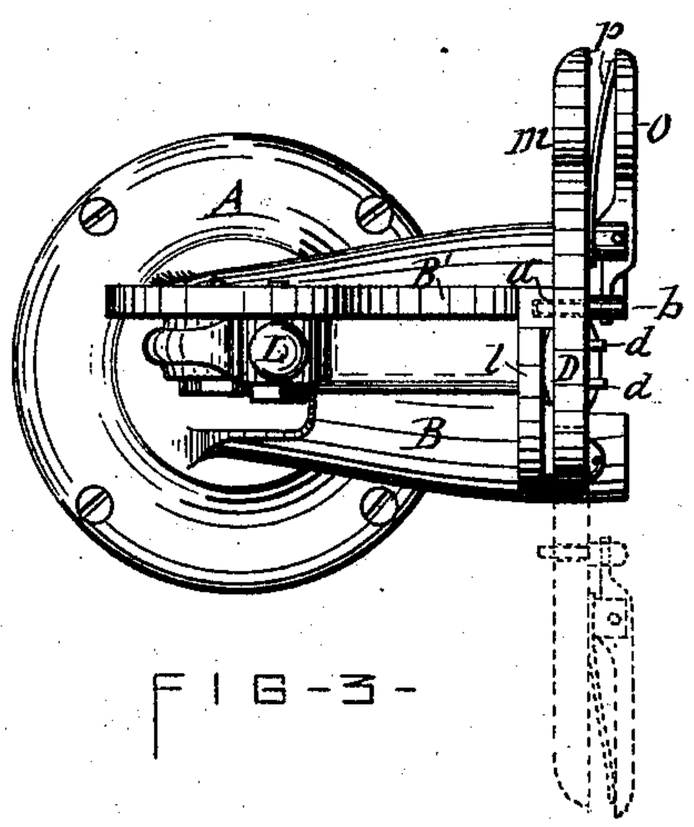

FIG-3-

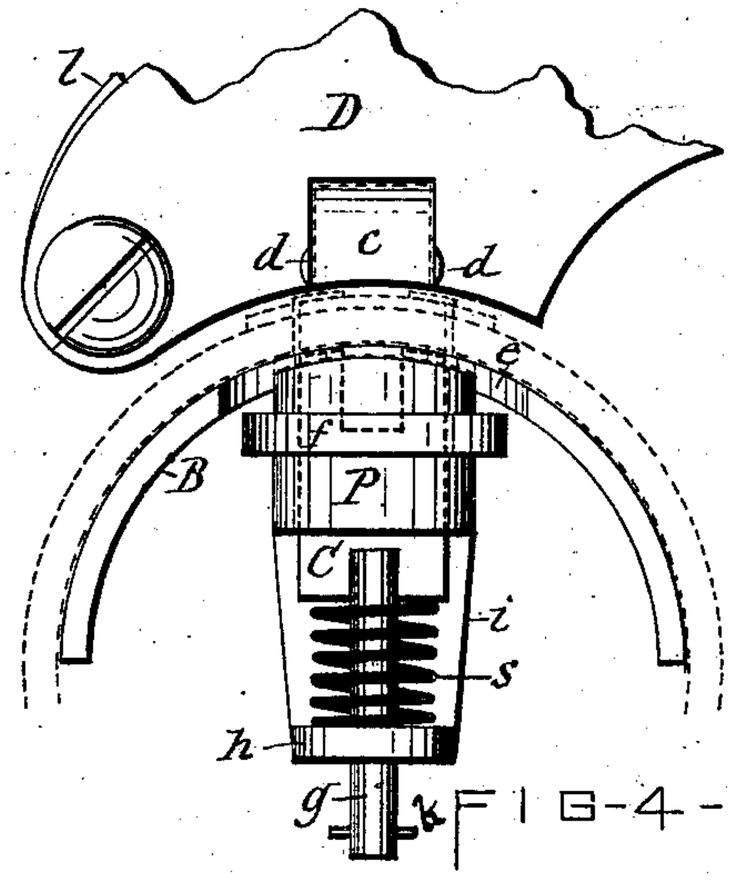

FIG-4-

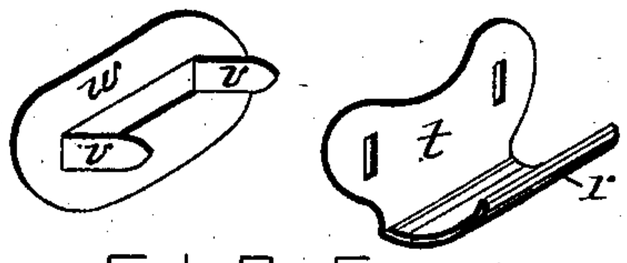

FIG-5-

WITNESSES —

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UNITED STATES PATENT OFFICE.

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MACHINE FOR ATTACHING METAL PLATES TO SHEET-RUBBER.

SPECIFICATION forming part of Letters Patent No. 260,431, dated July 4, 1882.

Application filed May 10, 1882. (No model.)

To all whom it may concern:

Be it known that I, JUDSON L. THOMSON, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Machines for Attaching Metal Plates to Sheet-Rubber, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to a machine designed to expeditiously and conveniently attach metallic heel-plates to rubber shoes; and it consists in a novel organization of its constituent parts, as hereinafter fully explained, and specifically set forth in the claims.

In the accompanying drawings, Figure 1 is a side elevation of my invention with portions broken away to better illustrate the construction and arrangement of the plunger. The manipulating end of the lever, which is of the ordinary form, is also broken away. Figs. 2 and 3 are front and top views, respectively, of my invention. Fig. 4 is an enlarged front view of the plunger and upsetting-die, illustrating their operation in attaching the metallic plate to the heel of a rubber shoe, the two latter parts being represented by dotted lines; and Fig. 5 is a perspective detached view of the metallic heel-plate to be attached to the rubber shoe.

Similar letters of reference indicate corresponding parts.

A represents a stout metal standard, adapted to be firmly secured in its desired operative position. From said standard project two horizontal arms, B B′, one above the other. The lower arm, B, is concavo-convex, with the concavity on the under side.

Back of the arm B there is pivoted on the standard A a bell-crank or elbow lever, E, one arm of which projects upward and engages with a lever, L, pivoted on the upper end of the standard. The other arm of the lever E is extended along the concavity in the under side of the standard-arm B, and terminates directly under an opening, *e*, in the top of the end of the arm B. The extremity of the lever-arm is provided with a laterally-elongated eye, *f*, in which is secured a metal block, P, which constitutes the plunger for driving through the heel or counter of the rubber shoe the attaching-prongs of the metal plate to be attached thereto, as hereinafter more fully described. Vertically through the plunger P plays a piston, C, provided with a rigid pendent shank or rod, *g*, which passes through a horizontal projection, *h*, on a pendant, *i*, cast on the under side of the lever-arm E.

A spiral spring, S, encircling the rod *g* and exerting an expansive force, respectively, against the under side of the piston C and against the top of the projection *h*, serves to impart an upward pressure on the piston, the movement of which is limited by a stop-pin, K, applied to the lower extremity of the rod *g*, and colliding with the under side of the projection *h*. The upper end of the aforesaid piston is provided with two upward-projecting lugs or prongs, *n*, by means of which the piston serves as a guide for passing the attaching-prongs of the metal plate through the rubber to which it is to be attached, as hereinafter explained.

The free end of the upper arm, B′, has a lateral extension, *l*, on the end of which is pivoted the clinching or upsetting die, D, consisting of a metal plate, which extends from its aforesaid pivot across the front face of the arm B′ and its lateral extension *l*, and is provided at its free end with a suitable handle, *m*, by means of which it can be swung either off the end of the arm B′, as shown by dotted lines in Figs. 2 and 3 of the drawings, or into its proper operative position, as illustrated by full lines in the aforesaid figures. It is secured in the latter position by means of a stop-pin, *b*, which passes through the plate D and into a notch or hole, *a*, in the end of the arm B′. A lever, *o*, pivoted on the outer side of the plate D, and connected at one end with the outer end of the stop-pin *b*, and pressed outward at the opposite end by means of a spring, *p*, serves to automatically throw the stop-pin into engagement with the notch *a* aforesaid.

The bottom edge of the clinching die or plate D is curved parallel to the convex upper surface of the arm B′, and is held at a proper distance above the same to receive between them the counter or back portion of a rubber shoe.

The front of the plate D is provided at its bottom edge with a recess, *c*, of proper depth

and dimension to receive the projection or toe-piece *r* of the metallic heel-plate designed to be attached to the rubber shoe. A lug, *d*, at each side of the recess *c*, serves to guide the aforesaid toe-piece *r* into said recess.

The operation of my invention is as follows, viz: The washer *w* is laid on the top of the plunger P, with the prongs or clinching-pins *v* upward and lying against the outer sides or edge of the two lugs *n* of the guide C. The counter or back portion of the rubber shoe is then slipped over the end of the arm B and over the plunger P, so as to bring the washer *w*, lying thereon, directly opposite the point to which the heel-plate *t* is to be attached, said heel-plate being placed against the under side of the clinching-die D, with the projection or toe-piece *r* of said plate resting in the recess *c* in the front of the clinching-plate D. Then by pressing on the lever L the elbow-lever E is swung so as to throw the plunger P, with the washer *w*, upward against the rubber and simultaneously force the prongs *v* of said washer through the rubber and through slots in the heel-plate *t*. The guide C, by its lugs *n* resting against the side of the prongs *v*, sustains the latter and prevents them from bending and yielding to the strain while passing through the rubber. The guide, being supported by the spring S, is allowed to recede from the end of the prongs *v* as they enter the rubber. The encounter of the end of the prongs *v* with the curved under side of the die D causes the protruding prongs to bend over and become clinched on the exterior of the heel-plate *t*. When this is accomplished the stop-pin *b* of the die D is thrown out of its engagement with the notch *a* in the arm B′ by pressing on the lever *o*. The die D thus released is then swung off from the top of the rubber, which, with the heel-plate attached thereto, is then readily removed from the arm B.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a machine for attaching plates to sheet-rubber, the combination, with the upsetting-die D, of the plunger P and guide C, arranged movably in said plunger and provided with lugs *n*, as and for the purpose set forth.

2. In combination with the upsetting-die D, the plunger P, guide C, arranged movably in said plunger, and the spring S, arranged to hold said guide projecting above the plunger, substantially as and for the purpose set forth.

3. The combination of the arms B B′, the upsetting-die D, pivoted arm E, lever L, and the plunger P on the free end of the arm E, as shown and described.

4. In combination with the arms B B′ and the plunger P, the upsetting-die D, pivoted on the arm B′, and provided with a locking device for retaining it in its operative position over the plunger, substantially as set forth.

5. In combination with the plunger P, the standard-arm B′, provided with a notch or hole, *a*, and the die D, pivoted on the arm B′ and provided with the stop-pin *b*, as and for the purpose set forth.

6. In combination with the plunger P, the die D, provided with the recess *c* and lugs *d d*, respectively at opposite sides of said recess, as and for the purpose shown and set forth.

7. The combination of the concavo-convex arm B, the arm B′ over the arm B, and provided with the hole *a*, the bell-crank lever E, pivoted on the standard, and having one arm extended under the arm B, and provided at its end with the plunger P, the guide C, arranged movably in the plunger, and provided with lugs *d d*, the spring S, the die D, pivoted on the arm B′, and provided with the stop-pin *b*, and with the recess *c*, and the lever L, all as shown and described.

In testimony whereof I have hereunto signed my name and affixed my seal in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 1st day of May, 1882.

JUDSON L. THOMSON. [L. S.]

Witnesses:
C. H. DUELL,
J. C. LAASS.