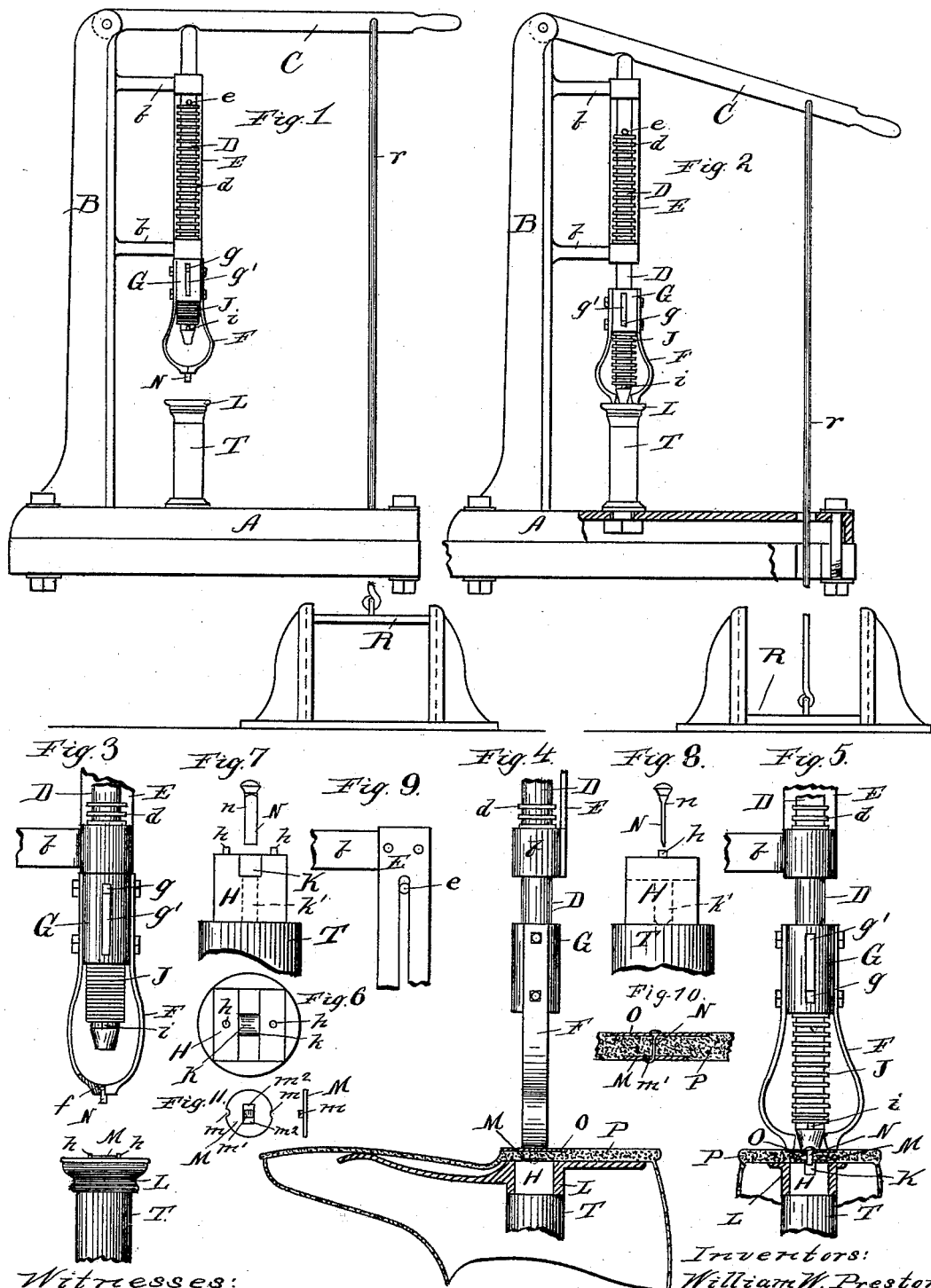


(No Model.)

W. W. & E. F. PRESTON.  
MACHINE FOR ATTACHING METAL PLATES.

No. 418,341.

Patented Dec. 31, 1889.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

WILLIAM W. PRESTON AND EDWARD F. PRESTON, OF BISMARCK, MICHIGAN,  
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## MACHINE FOR ATTACHING METAL PLATES.

SPECIFICATION forming part of Letters Patent No. 418,341, dated December 31, 1889.

Application filed December 3, 1888. Serial No. 292,579. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM W. PRESTON and EDWARD F. PRESTON, citizens of the United States, residing at Bismarck, in the county of Eaton and State of Michigan, have invented a new and useful Improvement in Machines for Attaching Metal Plates to Rubber, of which the following is a specification.

The machine forming the subject of this invention is specially designed for attaching ice-creeper and heel-plates to rubber overshoes by the fastening illustrated at Figure 10 of the accompanying drawings. It may, however, be used for other kindred purposes.

The machine embodies a holder for positioning the washer, a die for turning or clinching the point of the nail around the bar of the washer, a plunger for forcing or driving the nail, and a nail-holder for properly supporting and positioning the nail preparatory to its being driven, and which may also open and release the nail at the proper time. All these parts are fully shown and described in the drawings, in which latter—

Figs. 1 and 2 are elevations of the machine, the first showing it at rest and the second showing it at the time of completing a fastening. The latter view is partly in section. Fig. 3 is an enlarged elevation of the lower end of the plunger, the nail-holder, (partly in section and partly broken away,) and the washer-holder. Figs. 4 and 5 are views showing, respectively, a front and side elevation of the same parts as Fig. 3, but in the position occupied at the completion of an operation. Fig. 6 is a plan of the washer-holder and clinching-die. Figs. 7 and 8 are elevations at right angles to each other of said holder and die. Fig. 9 is a detail of the guide employed with the plunger. Fig. 10 shows the fastening which the machine effects, and Fig. 11 gives a flat or face and an edge view of the washer which we prefer to employ therein.

Similar letters of reference indicate like parts throughout the several figures.

In said drawings, A represents the base-plate of the machine, and B an upright or standard rising therefrom. To the top of the upright is pivoted the lever C, whereby

the plunger D is operated. Arms *b* extend out horizontally from the uprights and form bearings or guides for the plunger. After each operation the plunger is retracted by the spring *d* and is prevented from twisting or turning on its axis by the pin *e*, which works in the slot of the guide E. The lower portion of the plunger carries the nail-holder, which consists of two converging spring-arms F, secured at their upper ends to the sleeve G, sliding upon the plunger to the extent permitted by the guide-pin *g*, secured in the plunger and extending through the slot *g'* in the sleeve. The lower ends of the spring are bent toward each other, as shown, and at their meeting extremities are recessed or countersunk, as at *f*, so as to receive and yieldingly hold the nail during the initial portion of the operation. A lifting-spring is also applied to this nail-holder. It appears at J, and is confined to the plunger between the sleeve G and a pin *i*. This spring is, however, lighter than the plunger-retracting spring, and will be collapsed by the latter when the plunger is drawn up to its position of rest. The spring J serves to retain the holder in its upper position until the plunger has come in contact with the head of the nail, and may move the holder upward until said contact occurs. It also forces the holder up as the plunger retracts.

The washer-holder is shown at H. It is provided with appropriate means for properly positioning the washers so they may register correctly with the line upon which the nail will be driven, and thus be able to receive its point. Appropriate devices for this purpose are found in the pins *h*, which set into the notches *m* of the washer, employed as a part of the fastening and shown at M. In the center of the holder is the clinching-die K, having the cavity *k* for turning or deflecting the point of the nail. This die is preferably made separate from the washer-holder and is set therein, a depending tang or shank *k'* being provided for it to hold it firmly in its proper location. A supporting-plate L, having an opening corresponding to the exterior of the washer-holder, and thus adapted to be secured thereon, may be em-

played to steady the overshoe during the operation of the machine.

The fastening devices consist of the washer M and the nail N. The first of these should  
5 have a cross-bar  $m'$  at or near its center and a recess or opening  $m^2$  at the side of said bar to allow the nail to pass down through the washer into the clinching-die. The nail is provided with a flat tapering shank  $n$ , so it  
10 may readily penetrate the rubber and be clinched.

The lever C is preferably operated by a foot-treadle R, connected to it by the rod  $r$ . The washer-holder may be conveniently mounted  
15 on the standard T, secured to the base-plate by the screw and nut seen at  $t$ . The point of the plunger is recessed upon its under side, as at  $v$ , to make it conform to the head of the nail, and assists in centering the same.

20 The operation of the invention is as follows: The shoe and the creeper or heel-plate to be attached thereto being properly positioned in the machine and a nail being inserted in the nail-holder, as at Figs. 1 and 3,  
25 the lever C is brought down, forcing the plunger to descend. The point of the latter contacts with the nail-head, and both plunger and nail-holder descend together until the nail-holder is in proximity to the surface of

the shoe. The plunger, however, continues  
30 to descend until the nail is driven home, and in so doing compels the spreading of the arms of the nail-holder, as seen at Fig. 5. In the meantime the nail has been driven through the opening in the creeper O, thence  
35 through the sole of the rubber P, and thence into the deflecting-cavity of the clinching-die, by which die its point is bent around the cross-bar  $m'$  of the washer M, as seen at Figs. 4 and 10. 40

We disclaim the construction shown in patents to Goddu, No. 250,723; to Bidelman, No. 213,162; to Smith, No. 286,741, and to Bray, No. 199,503.

We claim—

45 1. The nail-holder supported from the plunger and a spring J, acting to raise the nail-holder upon the plunger, in combination with the plunger, substantially as set forth.

2. The combination, with the plunger and  
50 its retracting-spring, of the nail-holder having a slotted sleeve and a lifting-spring, substantially as specified.

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