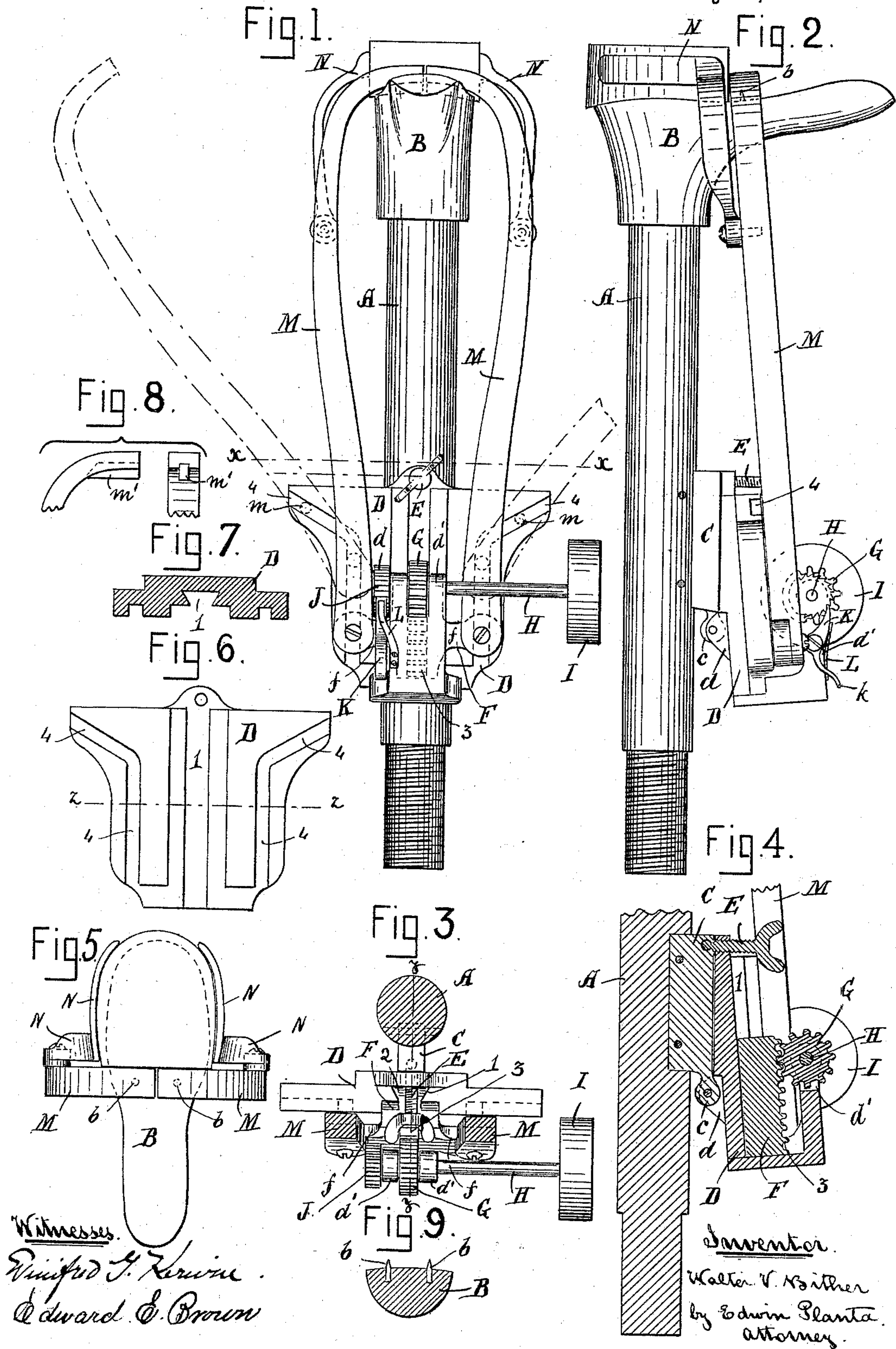


(No Model.)

W. V. BITHER.
LAST AND CLAMP FOR HEEL NAILING MACHINES.

No. 497,010.

Patented May 9, 1893.



UNITED STATES PATENT OFFICE.

WALTER V. BITHER, OF BOSTON, MASSACHUSETTS.

LAST AND CLAMP FOR HEEL-NAILING MACHINES.

SPECIFICATION forming part of Letters Patent No. 497,010, dated May 9, 1893.

Application filed January 13, 1893. Serial No. 458,197. (No model.)

To all whom it may concern:

Be it known that I, WALTER V. BITHER, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Lasts and Clamps for Heel-Nailing Machines, of which the following, taken in connection with the accompanying drawings, is a specification.

The invention consists of a clamp for holding the boot or shoe sole and heel so that the heel cannot shift its position upon the last after the heel nails have been driven and before the top lift is applied as hereinafter fully described and pointed out in the claims.

Referring to the accompanying drawings: Figure 1—represents a front view of a jack spindle and last of ordinary construction with a heel clamp embodying my invention applied thereto. Fig. 2—is a side view of the same. Fig. 3—is a horizontal section taken on line x, x , of Fig. 1. Fig. 4—is a vertical section taken on the line y, y , of Fig. 3. Fig. 5—is a plan or top view of the last and clamps. Fig. 6—is a front view of the cam plate. Fig. 7—is a section taken on line z, z , of Fig. 6. Fig. 8—shows respectively a side and edge view of the upper portion of one of the clamp arms. Fig. 9—is a cross section of the last showing the pins or points for holding the boot or shoe thereto.

A, represents the jack spindle, and B, the iron last as usually employed in heel nailing machines, except that the last is provided with two pins or points b, b , for holding the boot or shoe sole thereto.

To the jack spindle A, is secured a block C, this block may be formed in one with or attached to the spindle in any suitable manner. In the drawings I have shown the spindle with a slot formed therein into which the block is fitted and secured by two pins or rivets. The lower end of the block is formed with an ear c .

D, is a tilting frame provided at its rear with two ears d , to correspond with the ear c , on the block C, a pin passing through same to connect them together and form a hinge. The upper portion of this tilting frame is formed with a screw-threaded hole through which passes a screw E, one end of which is formed with a ball secured in a socket in the

block C, and the outer end with thumb pieces by which the screw can be turned so that the inclination of the frame D, can be adjusted as may be required, and the central portion of this tilting frame D, is formed with a dove-tailed groove 1.

F, is a sliding block having at its rear a dovetail 2, that fits into the dovetailed groove 1 in the frame D. This block has at its lower end two arms f , that project on either side, and to the center of its face is secured a rack 3.

G, is a pinion in gear with the rack 3, and is mounted upon a short shaft H, that has its bearings in ears d', d' , formed in one with the tilting frame D. One end of this shaft H, is fitted with a hand wheel I, by which the pinion is rotated and on the other end of the said shaft is secured a ratchet wheel J.

K, is a pawl fulcrumed to the front side of the frame D, and fits into the teeth of the ratchet wheel J. It is held in place by a spring L, and is provided with a tail piece k , so that the ratchet wheel can be released by hand when desired.

To the end of the arms f , of the sliding block F, is pivoted a clamp arm M, the upper ends of which are curved as shown so as to fit over the top of the last B. To the rear of each of these arms is secured a small roller m (shown in dotted lines in Fig. 1) that works in a cam groove 4, formed in the tilting frame D, so that as the sliding block F, is raised or lowered the clamp arms M, will be thrown out or drawn in. The upper ends of each of these arms are fitted with a small piece of hard india rubber, leather or other suitable material m' , that fits over and presses the sole onto the pins or points b , in the last B.

To the rear of each of the clamp arms M, is secured a spring jaw N, that embraces the heel of the boot or shoe to be nailed, so as to hold it firmly in one position, so that after the heel has been nailed on and the top lift carried into position to be applied, the heel will be in its proper normal position, and the top lift will be placed thereon true and square.

The operation is as follows: The hand wheel I, is first turned so as to operate the rack G, and move the sliding block F, up, which movement by means of the rollers m , on the clamp arms M, throws the latter apart thereby leav-

ing the last free. The boot or shoe to which the heel is to be applied is then placed upon said last B, the hand wheel I, is then turned so as to move the sliding block F, down, which
 5 carrying the clamp arms M, bring their lower ends down, and the rollers *m*, working in the cam slots 4, causes the upper ends of said arms M, to be drawn toward the center of the last B, and then press down over the pins or
 10 points *b*, so as to secure the sole of the boot or shoe thereon. The spring jaws N, being thus brought inside of the line of the boot or shoe; the heel is then sprung in between said jaws N, and nailed. The driver is then moved
 15 out of the way and the top lift brought into place and as the heel is held firmly the top lift is applied so as to fit true onto the heel.

What I claim is—

1. In a heel nailing machine, a last having
 20 pins or points in combination with clamp arms for forcing the sole of the boot or shoe upon said pins or points, and spring jaws attached to said clamp arms for holding the heel and means such as described for operating said
 25 arms substantially as set forth.

2. In a heel nailing machine, a last having pins or points in combination with clamp arms for forcing the sole of the boot or shoe upon said pins or points and means such as de-
 30 scribed for operating said arms substantially as set forth.

3. In combination with a jack spindle of a heel nailing machine, a block secured thereto, a tilting frame a sliding block having a rack
 35 upon its face and arms at its lower end clamp arms secured to said arms of the sliding block

and a rack and pinion for operating same substantially as set forth.

4. In a heel nailing machine, clamping arms secured to a sliding block mounted in a tilt- 40 ing frame a screw E for adjusting the inclination of the said frame and clamping arms so as to bring the upper ends of the latter over pins or points in the last substantially as set forth. 45

5. In a heel nailing machine the combination of the jack spindle A, and last B, having points or pins *b*, with a block C, tilting frame D, hinged thereto, a screw F, for adjusting the inclination of the frame D, a sliding block F, 50 clamp arms M, pivoted thereto, cam groove 4, in the frame D, in which rollers *m*, on the clamp arms work, and a rack 3 and pinion G, all operating substantially as and for the purpose set forth. 55

6. In a heel nailing machine a tilting frame hinged to the jack spindle said frame having a dove tailed groove in the center and cam grooves on each side thereof, a sliding block working in the dove tail groove and clamp 60 arms having rollers at their lower ends working in said cam grooves for throwing said clamp arms out and in as the sliding block is raised or lowered substantially as set forth.

In testimony whereof I have signed my 65 name to this specification, in the presence of two subscribing witnesses, on this 10th day of January, A. D. 1893.

WALTER V. BITHER.

Witnesses:

J. E. HANLY,
 EDWIN PLANTA.