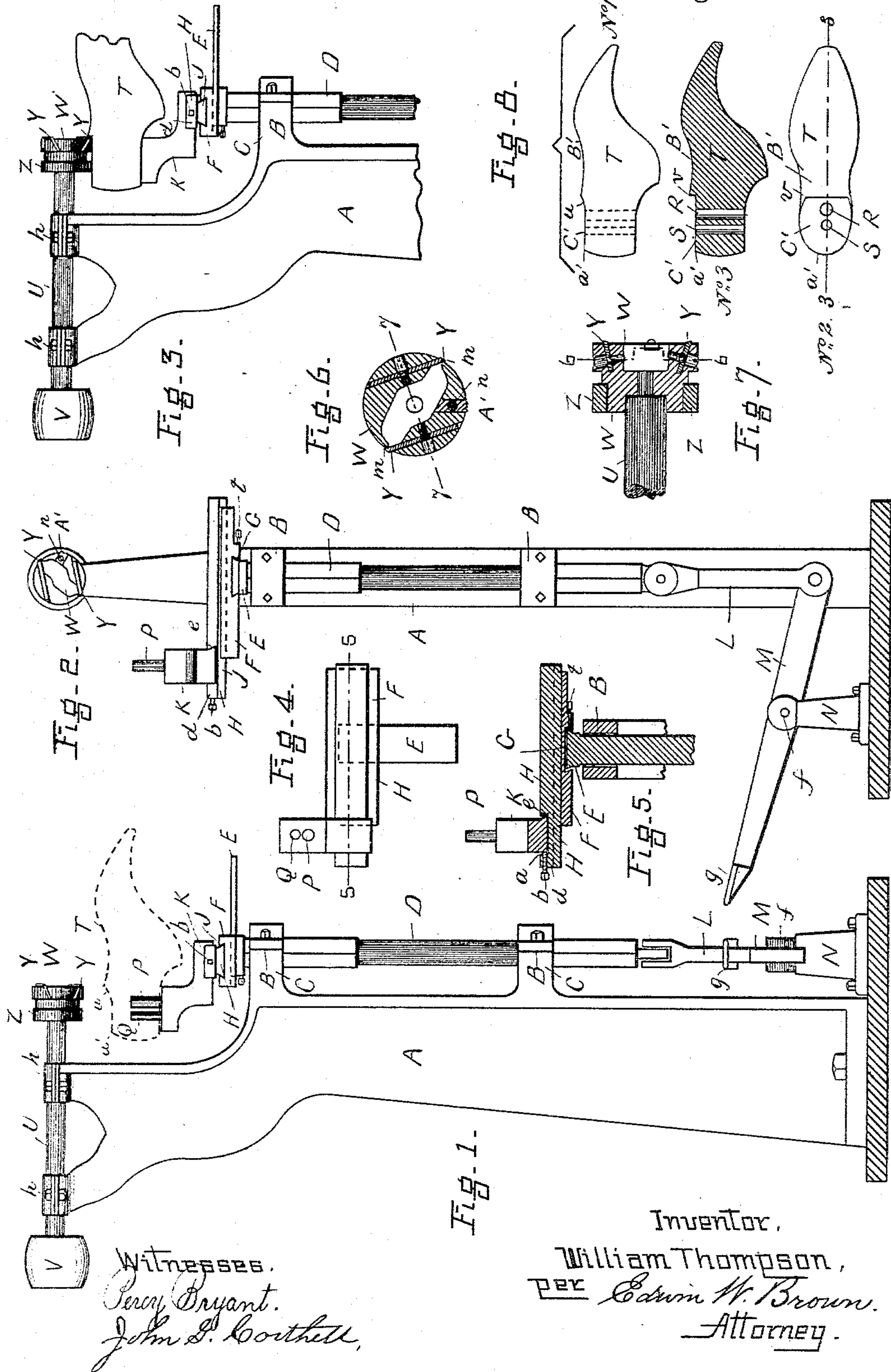


(No Model.)

W. THOMPSON.
ANVIL HEEL SHOULDERING MACHINE IN THE MANUFACTURE OF LASTS.
No. 388,744. Patented Aug. 28, 1888.



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UNITED STATES PATENT OFFICE.

WILLIAM THOMPSON, OF BROCKTON, MASSACHUSETTS.

ANVIL HEEL-SHOULDERING MACHINE IN THE MANUFACTURE OF LASTS.

SPECIFICATION forming part of Letters Patent No. 388,744, dated August 28, 1888.

Application filed September 3, 1887. Serial No. 248,766. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM THOMPSON, of Brockton, in the county of Plymouth and State of Massachusetts, have invented certain
5 new and useful Improvements in Anvil Heel-Shouldering Machines in the Manufacture of Lasts, of which the following is a full, clear, and exact description.

In the manufacture of lasts for boots and
10 shoes the last is cut away on the bottom at the heel for the attachment thereto of a plate or block of iron or other suitable metal which serves as an anvil in securing the heel to the sole, and where this cut-away portion of the
15 heel meets the body portion of the last it is left in a curved line or form, which, after the last has been finished by the machine, is cut away by hand to make a square shoulder for the closer and better fit of the anvil-iron;
20 and the invention consists of a machine for cutting away such curved portion of the bottom of a last of a boot or shoe at its heel, constructed and arranged for operation all substantially as hereinafter fully described, reference being had to the accompanying sheet
25 of drawings, in which—

Figures 1 and 2 are respectively front and side views of a machine constructed in accordance with this invention. Fig. 3 is a detail
30 front view. Fig. 4 is a detail plan view; Fig. 5, a section on line 5 5, Fig. 4; Fig. 6, a sectional view of the cutting-tool; and Fig. 7, a cross-section on line 7 7, Fig. 6. Fig. 8 represents views of the last to be hereinafter referred to.

In the drawings, A represents a standard, on which are supported and carried the working and operating parts of this invention.

Adapted to slide up and down in bearings
40 or guideways B in arms C of the standard is a bar or rod, D, which carries a horizontal plate, E, secured to it in any suitable manner, and on which is adapted to slide back and forth horizontally a bed or plate, F, by a dovetail joint, G.

On top of the bed or plate F is another bed or plate, H, which is arranged and adapted by a dovetail joint, J, to slide back and forth on the plate F horizontally, but at right angles
50 thereto or at right angles to the line of movements of the plate F.

In a recess, *a*, of the plate H is inserted a block, K, arranged to slide back and forth therein and to be removed therefrom, but which is held in place by a set-screw, *b*, screw-
55 ing into the portion *d* of the plate H, and holding the block K firmly in said recess and against the under bevel side, *e*, of the same.

The lower end of the bar or rod D is connected by pitman-rod L to one end of a lever
60 or treadle, M, pivoted at *f* to an upright, N, secured to the floor or suitable support for operation by its end *g* by the foot of the operator.

Projecting vertically from the block K are two round pins or studs, P Q, one, Q, smaller
65 in diameter than the other, P, which pins correspond to and are adapted to fit, respectively, in sockets R S in the heel of the last T, so that the last can be put over these studs or pins and held firmly in place on said block. These
70 holes or sockets R S in the last are the usual holes made therein in the manufacture of the last for the insertion of the studs or pins of the anvil-iron or plate when placed upon the last in securing the heel to the sole of the boot or
75 shoe. As one of the two pins or studs of this anvil-iron is of smaller diameter than the other and the sockets R S in the last correspond thereto, it is necessary, in order to firmly hold the last on the holder while operating on it,
80 that the pins P Q of the holder should be of corresponding diameter. Therefore the pin Q is smaller in diameter than the pin P, so that when the last is placed upon the holder its pins P Q will closely fit their respective sockets
85 S R in the last.

U is a horizontal shaft adapted to turn in suitable bearings, *h*, in the upper part of the standard A, and having on its outer end a pulley, V, for turning the same by belt from
90 any suitable driving-power.

On the other end of this shaft is secured a head or plate, W, which has two cutters or knives, Y, secured thereto in any suitable manner for their cutting-edges *m* to project a slight
95 distance beyond the periphery of the head, and also secured to the face of the head by a screw, *n*, is a saw-tooth cutter, A', secured by screw *n* to the face of the head.

Z is a ring secured to the head W back of
100 the cutters or knives Y for the purpose hereinafter specified.

In Fig. 8 are shown views of the last, Nos. 1 and 2 showing the last inside and bottom views, respectively, and No. 3 showing the last in longitudinal sections on line 3 3, Fig. 2; No. 1 showing the last as the usual last-machine finishes it, leaving the curved face portion *u* between the body portion *B'* and the heel *C'*, showing the last in longitudinal section, line 3 3; Nos. 2 and 3 showing the last with the square shoulder *v* after the curved portion *u* (shown in No. 1) has been cut away in the present machine, the views also showing the location of the holes or sockets *R S*, by which the anvil-iron is secured to the last, and by which the last is held in the present machine for operation thereon.

The operation of the machine is substantially as follows: The last is first placed upon the studs or pins *P Q* on the holder *K* bottom side up, as shown in dotted lines in Fig. 1, and then the plate *F* is moved along the plate *E* (toward the left in Fig. 1) to and under the cutters the required distance, where it is secured from movement by a set-screw, *t*, screwing into a portion of the plate *F* and against the plate *E*. The shaft *U* is then revolved, carrying the head *W* and cutters with it, and the lever pressed down, which raises the several plates and last, when the plate *F* with the last is moved along the plate *E* to and under the cutting-tool, which as it revolves cuts away the portion *u* (see No. 1, Fig. 8) of the last on the heel, making a square shoulder, *v*, (see No. 3, Fig. 8,) and when cut across the last the last and plates are moved back and allowed to drop down from the tool by the proper movement of the lever, when the last is removed and another placed on the machine for operation upon it, as before, and so on. The distance to be cut back from the back edge, *a'*, of the heel of the last is determined by the setting of the plate *F* upon the lower plate, *E*, and the thickness cut from the last at its portion *u* is determined by the diameter of the ring *Z*, which bears by its periphery upon the bottom surface of the heel of the last that has been cut away in the last-machine by which such surface will be uniform throughout its length.

Any suitable cutters can be used; but revolving cutters are preferable, and such as will cut the right-angular shoulder desired.

The ring *Z* can be made integral with the shaft or in any suitable manner, and when made separate can be attached thereto in any suitable manner.

The pins or studs *P Q* can be of any shape in cross-section—square, oval, triangular, or otherwise; but round is preferable, as they are easier to make and the sockets can be the easier made. They can also be of same diameter, if desired. Only one pin need to be used on the holder; but in such case at some place on the holder or block *K* a point or pin should be arranged to press into or bear upon some portion of the sole of the last to prevent the swiveling of the last; but it is preferable to use the two studs or pins at the heel.

By this invention the lasts are quickly and easily and uniformly finished for the attachment of the anvil-iron.

Having thus described my invention, what I claim is—

1. The combination, with a cutting-tool adapted to be operated in any suitable manner, of a holder, *K*, for a boot or shoe last provided with two pins or studs, *P Q*, one pin, *Q*, of larger diameter than the other, said holder being arranged to be moved toward and away from said cutting-tool, for the purpose specified.

2. The combination, with a cutting-tool adapted to be operated in any suitable manner, of a holder, *K*, for a boot or shoe last provided with two pins or studs, *P Q*, one of larger diameter than the other and arranged to be adjusted on a plate or bed, *H*, arranged to move back and forth on a plate, *F*, which plate *F* is arranged to move back and forth on a suitable holder at right angles to the line of movement of said plate *H*, for the purpose specified.

3. The combination, with a cutting-tool adapted to be operated in any suitable manner, of an adjustable holder, *K*, for a boot or shoe last provided with two pins or studs, *P Q*, one of larger diameter than the other, said holder being arranged to move back and forth on a plate or bed, *H*, which bed *H* is attached to a rod or bar, *D*, connected to and operated by a lever or treadle, for the purpose specified.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WILLIAM THOMPSON.

Witnesses:

EDWIN W. BROWN,
PERCY BRYANT.