(No Model.)

S. H. HOWLAND.

HEEL GOUGING MACHINE.

No. 433,468. Patented Aug. 5, 1890.

Fig. 1.

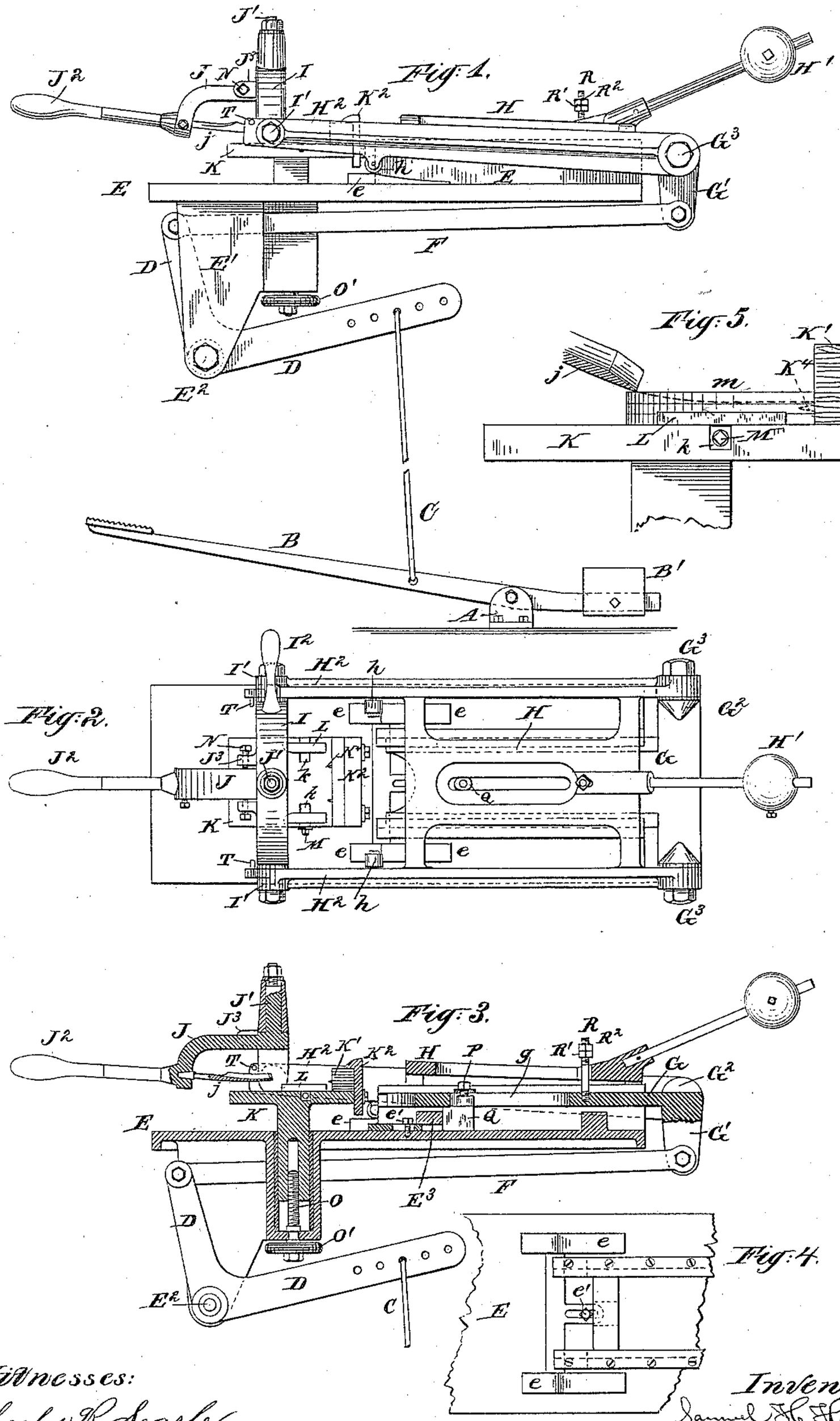

Fig. 5.

Fig. 2.

Fig. 3.

Fig. 4.

Witnesses:
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by his attorney
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UNITED STATES PATENT OFFICE.

SAMUEL H. HOWLAND, OF NEW YORK, N. Y.

HEEL-GOUGING MACHINE.

SPECIFICATION forming part of Letters Patent No. 433,468, dated August 5, 1890.

Application filed March 17, 1890. Serial No. 344,093. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL H. HOWLAND, of New York city, in the county and State of New York, have invented a certain new and useful Improvement in Machines for Gouging Heels of Shoes and Boots; and I do hereby declare that the following is a full and exact description thereof.

It is common to secure together the several lifts or pieces to constitute a heel of proper thickness, and then to gouge or excavate a concave on the side which is to apply against the sole. Various machines have been planned and tried for effecting this gouging mechanically; but it is found to be important to allow a control of the gouging action while it proceeds, because the varieties in the thickness and condition of the leather require corresponding variations in the gouging action. The general practice is to force forward by the pressure of the chest or stomach a sufficiently-wide and properly-curved gouge and to cause it to take hold deeper by raising the handle or to skim along more shallow by depressing the handle, as the varying conditions shall require. This effects good work, but is hard on the workman and liable to induce serious, and under some conditions fatal, injury to the chest and trunk. I have devised a machine which gives the same control of the depth of the gouging action, allowing a just sufficient quantity of the leather to be gouged out and removed, while the chest and viscera are entirely relieved from pressure. The work of urging forward the gouge is done by the foot of the attendant acting on a treadle.

The accompanying drawings form a part of this specification and represent what I consider the best means of carrying out the invention.

Figure 1 is a side elevation of the metal parts, the supporting-bench being omitted for greater clearness. Fig. 2 is a corresponding plan view, and Fig. 3 is a longitudinal vertical section on the central line. Fig. 4 is a top view of a portion of the bed detached. Fig. 5 is on a larger scale. It is a side elevation of a portion detached.

Similar letters of reference indicate like parts in all the figures.

A is a stand on the floor. B is a treadle carrying a counter-weight B′, and C a link connecting the treadle to a bell-crank lever D, turning on a fixed center E^2, carried in arms E′, extending downward from a bed-casting E, which constitutes the main frame of the machine, and is bolted upon a bench or table. (Not shown.)

F is a nearly-horizontal link with forked ends connecting the upper arm of the bell-crank D to the rear edge of a long sliding carriage G, which is capable of being moved longitudinally in grooves in the bed E. Its rear end is equipped with an arm G′, extending downward, through which it is connected to the link F, and is caused to slide to and fro as the treadle B is worked by the foot of the attendant. It is also equipped with two lugs G^2 G^2, which serve by the aid of short bolts G^3 G^3 as pivots for a frame H, which performs important functions. This frame spreads over a large portion of the top of the machine. It is partly or entirely balanced by a counter-weight H′. Its front end is formed in two parallel arms H^2 H^2, which support the horizontal trunnions I′ of a yoke or rocking piece I, which bridges across the space, somewhat arching, and carries in its center a vertical or nearly-vertical pivot J′ of a hand-lever J, which extends forward and is held in the hand of the attendant when the machine is being worked. There is another handle on the rocking piece I, as indicated at I^2, which may be grasped by the other hand and serves to facilitate the raising and lowering of the entire front end of the frame H and its connections. The gouge is marked *j*, and is stiffly and strongly set in the lever J, with its edge in or near the axial line on which the piece I rocks. It rises and sinks with the front end of the frame H and moves forward and backward with such frame as the treadle is operated, and it also oscillates or rocks with the rocking piece I at the will of the attendant. It can also be swung or turned a little horizontally, being vibrated on the pivot J′, according as the attendant inclines the handle J^2, first to the right and then to the left, as the gouge makes its cut.

The previously-formed heel, complete except in requiring to be gouged, is marked *m*. It is placed on a flat support K, with its straight edge bearing fair against a wood

abutment K′, fixed on the table K and held by a clamp K^2, secured by bolts K^3. Spurs K^4, set in the wood K, aid to keep the heel from becoming displaced under the considerable force impressed by the gouge.

The base of the table or support K is tapped to receive a vertical screw O, which is supported at a fixed level by collars and is turned at will by a hand-wheel O′. By turning this hand-wheel the table K is raised and lowered at will through a sufficient range to allow for all ordinary variations in the thickness of the heels being treated, and also to modify the action of the gouge, as required.

The correct placing of each heel in succession upon this support K is insured by the use of two gage-pieces L L, adjustable apart and together on the upper face of K by a right-and-left screw M, mounted below and tapped through arms which reach down from the gages, respectively, into the slots K. (Shown in Fig. 2.) The correct holding of the handle J^2 is promoted by limiting the extent to which it may be vibrated laterally. This is done to an adjustable degree by the use of screws N N, tapped through short arms extending forward from J, as shown at J^3, Fig. 2. It is desirable to allow the gouge to be inclined to the right or left to guide it and to allow it to be vibrated actively sometimes to cause it to cut easily and smoothly through hard leather. These screws N N allow such play to be limited or increased at will.

The under side of the frame H is equipped with rollers *h*. These travel on ways *e*, formed separately from the bed E and held adjustably by a bolt *e′*, inserted in a slot in a cross-bar which connects them. These ways are inclined (see Fig. 1) and allow the frame H, and consequently the gouge *j*, to be depressed along an approximately-corresponding line as the heel is gouged.

In the operation of the machine the attendant works the treadle B with one foot and the lever I with one hand, the other hand applying and removing the heel, and, if desired, grasping the handle I^2 more or less completely to raise and lower. The support K, being set at variable heights and the ways *e* being adjustable forward and back, gives two ways of mechanically controlling the depth to which the gouge shall cut. Under all conditions the attendant by skillfully inclining the handle J upward and downward, and to the right or left while the treadle is forcing the gouge strongly forward, modifies its action, as required, for all the different thicknesses and conditions of the heels and produces uniformly-gouged surfaces.

Skillfully operating with my invention can avoid the necessity for a separate operation to "breast" the heel. To do this, it is simply necessary to practice holding the handle J^2 down to make a uniform cut from the rounded back nearly to the front, and then just before the square part of the heel, which constitutes the front, is reached he raises the lever J^2, causing the gouge to dig suddenly deeper.

P is a screw inserted through a slot *g* in the sliding carriage G into a block or cross-bar Q, which latter is thus made an adjustable stop on the carriage. At each movement of the gouge and the other parts backward or toward the operator this stop strikes a cross-bar E^3 on the bed E and gages how far it can be thus moved. This aids the operator in sticking the gouge into the heel at the right point. It is especially important when the attendant is inexperienced.

R is a screw set in the carriage G and extending up loosely through a larger aperture in the frame H. It carries a nut R′ and jam-nut R^2, which are set at any required height and determine how high the frame H can ever lift.

T T are pins set in the positions shown in the frame H and serving to limit the extent to which the rocking piece I may be rocked in one direction.

Modifications may be made by any good mechanic without departing from the principle or sacrificing the advantages of the invention. I can vary the form of the frame H.

Parts of the invention can be used without the whole. I can dispense with the gage-pieces L L and can set the heels with sufficient accuracy by more care. I can dispense with the limiting-screws N N and can allow the gouge to be oscillated laterally as much as the attendant shall desire or allow.

I claim as my invention—

1. In a heel-gouging machine, the combination of a gouge and means, as the lever J and handle J^2, for changing its inclination so as to vary the depth of the cut in any required part of the stroke while the work proceeds, with independent means, as the reciprocating carriage G and hinged frame H, for driving such gouge, arranged for joint operation, as herein specified.

2. In a heel-gouging machine, the hand-lever J, capable of being turned laterally on the pivot J′ and equipped with the handle J^2 and gouge *j*, the arched yoke I, capable of being rocked on the trunnions I′ and carrying the said pivot J′, and the frame H, carrying the trunnions I′, in combination with each other and with the links F, bell-crank D, link C, and treadle B, all arranged for joint operation, substantially as herein specified.

3. In a heel-gouging machine, the ways *e*, presenting inclined surfaces, in combination with provisions, as the bolt *e′*, engaging in a slot, for setting them forward and backward at will, and with the frame H and means for moving it forward and backward to give the required power for the cutting, and with the gouge *j* and means for guiding it and changing its inclination, all substantially as herein specified.

4. The heel-gouging mechanism described, having, in combination, the gouge *j*, lever J,

pivot J′, rocking piece or yoke I, trunnions I′, frame H, carriage G, and means, as the treadle and its connections, for moving the latter strongly forward and backward, and also having means, as the screw R, nuts R′ R^2, and screw P and block Q, and screws N N, for limiting the several motions, all arranged for joint operation, substantially as herein specified.

In testimony whereof I have hereunto set my hand, at New York, N. Y., this 15th day of March, 1890, in the presence of two subscribing witnesses.

SAMUEL H. HOWLAND.

Witnesses:

CHARLES R. SEARLE,

CHAS. S. BARBER.