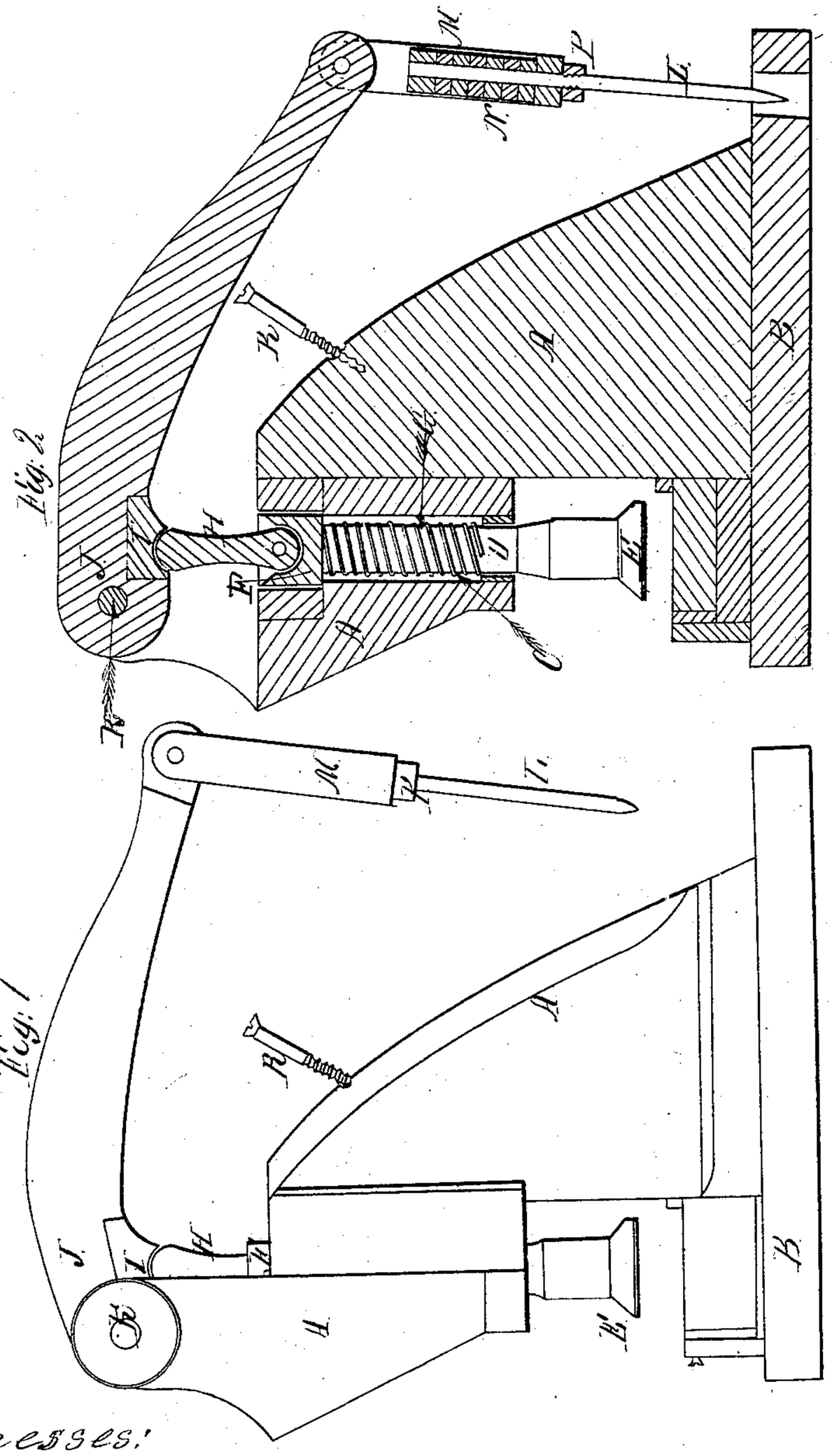
C. H. Helms.

Heel Machine,

No. 67,650. Patented Aug. 13, 1867



Witnesses:
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UNITED STATES PATENT OFFICE.

CHARLES H. HELMS, OF POUGHKEEPSIE, NEW YORK.

IMPROVED HEEL-PRESS FOR BOOTS.

Specification forming part of Letters Patent No. **67,650,** dated August 13, 1866; antedated April 1, 1867.

To all whom it may concern:

Be it known that I, CHARLES H. HELMS, of Poughkeepsie, Dutchess county, State of New York, have invented certain new and useful improvements in presses for compressing the blanks or pieces of leather for forming the heels of boots and shoes, and for other purposes; and I do hereby declare that the following is a full description of the same.

The nature of my invention consists, first, in combining with a lever and piston or compressor an intermediate articulating joint or increasing-lever in such a manner as to make the press direct-acting without the intervention of other working parts, as would be the case with the use of the ordinary toggle-jointed lever; second, in combining with the piston or compressor and articulating joint a reacting spring for elevating the piston when liberated from doing its work; third, in combining with the main lever an elastic compensating-rod, whereby the dead-point of the compressed leather will be absorbed by the rod, and thus prevent the breaking of the lever or articulating joint, as would be the case if the rod were a rigid bar of metal and operated by any powerful engine.

To describe my invention more particularly, I will refer to the accompanying drawings, forming a part of this specification, the same letters of reference, wherever they occur, referring to like parts.

Figure 1 is a side elevation of the apparatus or machine. Fig. 2 is a vertical cut section of the same.

Letter A is the frame of the machine, which is intended to be set on a bench or table of such height as to bring the bed B of the press about on a level with the breast of the workmen. This bed is made in two parts and wedge-shaped, so that by contracting or expanding them they will accommodate themselves to the different thicknesses of leather in the press. In the center of the frame is a mortise, C, into which is adjusted a piston or plunger, D, having on its lower end a stamper, E, and on its upper end a socket, F, and made self-elevating by means of a spiral spring, G, on it working in the mortise. In the socket is secured by pins (or may be worked loosely, if thought best) the lower end of an articulating joint or increasing-lever H, the upper end of which projects upward and outward, so as to engage in a notch or step, *i*, in the lower side of the power-lever J, secured in the head of the frame of the machine by a center pin, K. The position of the step with reference to the pin on which the lever is centered is such that when the outer end of it is depressed it carries the articulating joint directly under the center pin, and thus not only continues the downward motion of the plunger, but at the same time keeps increasing its power by shortening the leverage of it.

The length and shape of the lever are not material. To operate it a compensating-rod, L, is attached to its outer end, and at its lower end connects with any suitable propelling power.

The construction of the compensating-rod is designed to prevent breaking of the lever J or articulating joint H when the dead-point of the heel has been gained and the power of the lever not exhausted. To absorb this excess of power the upper end of the rod is secured in a box, M, (forming the immediate connection with the lever,) and then, by means of washers, of rubber, N, or equivalents thereto, pack the rod in the box and compress them almost solidly by a screw-nut, P, to give rigidity to the rod. By this means a sufficient amount of elongating properties is still reserved in the rod to compensate the unexhausted powers of the lever, and thus save the machine from a calamitous break down.

Letter R is a gage-screw secured in the frame A just under the lever J. The object of this is to limit the action of the compressor on the heel by stopping the lever before completing its full stroke. This is especially important when the machine is used for cutting out blanks of leather for the heel by substituting a cutter for the stamper E, and thus save the edges of the cutter from direct contact with the bed, as would be the case if no such gage were used.

Having now described my invention, I will proceed to set forth what I claim and desire to secure by Letters Patent of the United States:

1. The combination of the articulating joint H with the plunger D and lever J, arranged

and operating as hereinbefore set forth, for compressing the heels of boots and shoes.

2. In combination with the plunger D and articulating joint H, a reacting spring, G, for the purposes hereinbefore set forth.

3. The compensating-rod made and operating substantially as hereinbefore set forth, in combination with the lever J, for the purposes described.

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Witnesses:
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