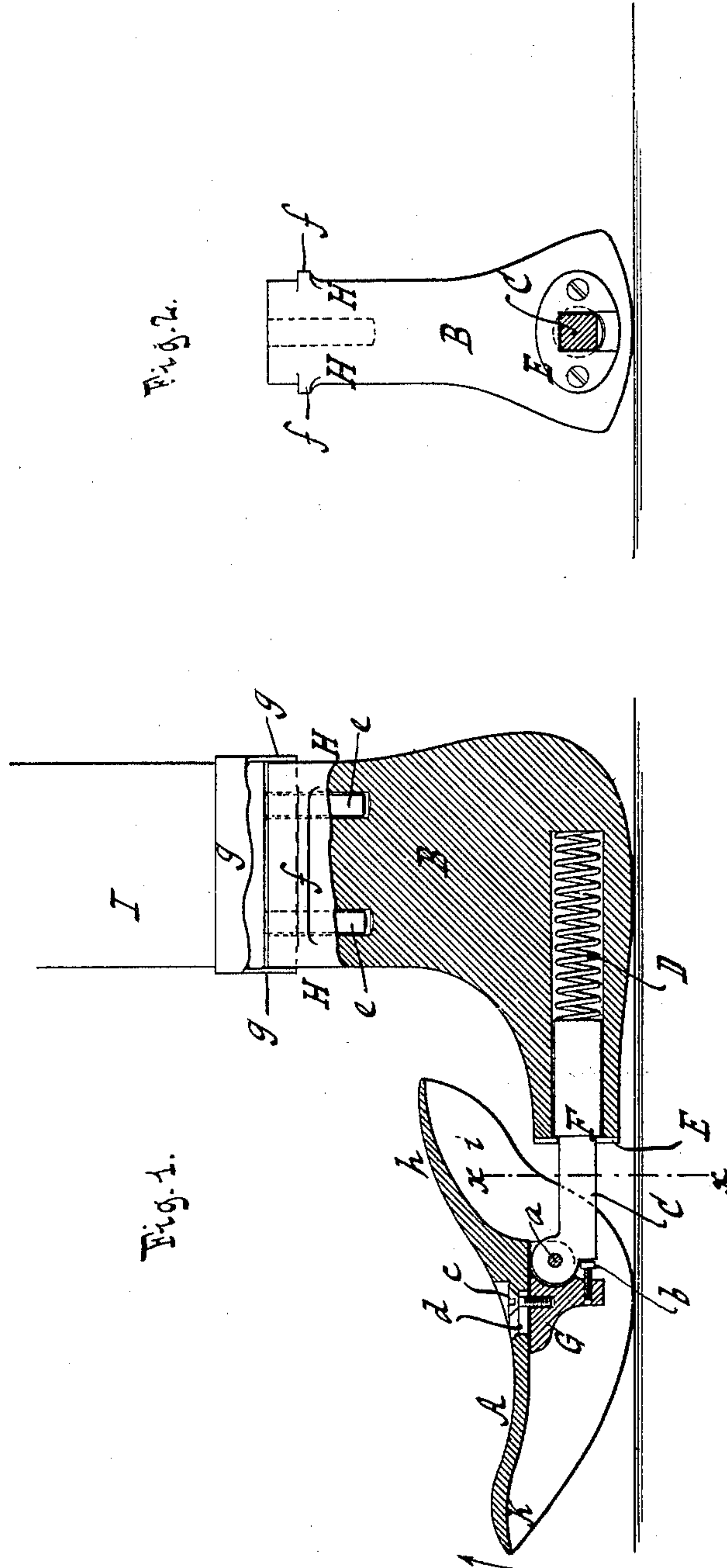


(No Model.)

L. GRAF.
LAST.

No. 327,789.

Patented Oct. 6, 1885.



WITNESSES:

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UNITED STATES PATENT OFFICE.

LEOPOLD GRAF, OF NEWARK, NEW JERSEY.

LAST.

SPECIFICATION forming part of Letters Patent No. 327,789, dated October 6, 1885.

Application filed July 23, 1885. Serial No 172,467, (No model.)

To all whom it may concern:

Be it known that I, LEOPOLD GRAF, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented new and useful Improvements in Lasts, of which the following is a specification.

This invention relates to improvements in lasts; and the nature and object of the invention are to provide a last suitable, among other things, for application to heeling-machines, and which is adapted to firmly support a boot or shoe while being operated upon. Means may also be provided for firmly attaching the last to a holder, substantially as hereinafter described.

This invention is illustrated in the accompanying drawings, in which Figure 1 is a vertical longitudinal section of a last. Fig. 2 is a section in the plane $x x$, Fig. 1.

Similar letters indicate corresponding parts.

As shown in Fig. 1, the last has an anterior portion, A, and a posterior portion or heel, B. A rod or arm, C, connects the anterior and posterior portions. The connecting rod or arm C is capable of a longitudinal motion. The heel B can be formed with a recess, in which the rod or arm C can move longitudinally. A spring, D, tends to force the rod or arm C out of the heel B. A stop can be provided to prevent the arm C passing entirely out of the heel B. As shown in the drawings, this stop may be formed by a shoulder or lugs, F, on the rod or arm C, which shoulder or lugs come into contact with a lug or lugs on the heel B. The lug or lugs on the heel B may be formed by screwing or attaching to the heel B a plate, E, of metal or other suitable material, which plate E has a perforation or passage large enough to allow the forward or smaller portion of the arm or rod C to move longitudinally, but which passage is not large enough to allow the shoulder or the enlarged part F of the rod or arm C to pass through the plate E. The arm C is thus prevented from being moved entirely out of engagement with the heel B.

The anterior portion, A, of the last is connected by a pivot, a , to the rod or arm C. This pivot a allows the anterior portion, A, to swing in the direction of arrow 1, Fig. 1, and to return until the stop b strikes against an

abutment which may be formed on the connecting rod or arm C; but said pivot a does not allow any side movement nor any turning about the longitudinal axis of the anterior portion, A, independently of the posterior portion, B. The rod or arm C, by being made of a square or angular shape in cross-section, and by being made to snugly fit the passage in the plate E, is prevented from turning about its longitudinal axis independently of the heel B. The anterior portion, A, and the heel or posterior portion, B, are thus free to move longitudinally with respect to one another, but they cannot revolve about the longitudinal axis of the last independently of one another.

The pivot a may have its bearings in a bracket, G. The bracket G can be tapped for the reception of a screw or fastening, c . The posterior portion, B, can be provided with a slot or elongated hole, d , so that when the screw c is loosened in its socket the anterior portion, A, can be set a certain distance forward or backward upon the bracket G, and then fixed at a desired point. The last can thus be made longer or shorter to fit different lengths of boots or shoes.

The anterior portion, A, is shaped so as to firmly support the toe, instep, and vamp of a boot or shoe. Thus the part h of the anterior portion, A, supports the instep, the parts i support the vamp, and the part k supports the toe. By thus having the boot or shoe firmly supported the boot or shoe is not liable to be wrinkled or spoiled by severe handling to which the boot or shoe is liable to be exposed while being operated upon.

The last can be supported on a holder, I. To connect the last and the holder I, the leg H of the last can be perforated to receive dowels or pins $e e$ rising from the holder I. Upon the holder I slides a sleeve or tube, g , of metal or other suitable material, and which snugly fits the holder, said holder I and leg H having the same or similar configuration in cross-section at the junction of the leg H and holder I. Upon the leg H is a rim or shoulder, f , (one or more.) When the holder I is placed in contact with the leg H, and the pins or dowels $e e$ inserted into the recesses or cavities for their reception, the sleeve or collar g is slid over the joint between the leg H and

the holder I until said sleeve *g* rests in contact with the shoulder *f*, as indicated in Fig. 1.

The joint between the holder I and the leg H is thus covered, and the material of the shoe or boot or the hands of the workman are not liable to be pinched or caught between the holder I and the leg H.

My device will be found very useful, for example, in the attaching of heels to boots or shoes. In such case an unfinished boot or shoe is slipped over the last, which can be very easily done, as the anterior portion, A, can be swung about the pivot *a* in the direction of arrow 1, and said anterior portion, A, can also be moved toward the posterior portion, B, thus allowing a boot or shoe to be easily slipped over the last. When a boot or shoe has been mounted upon the last, the anterior portion, A, is allowed to move away from the posterior portion or heel, B, thus filling the boot or shoe, and when the anterior portion, A, swings or moves about the pivot *a* into the position indicated in Fig. 1, with the stop *b* resting against its abutment, then the toe, instep, and vamp of the boot or shoe will all be firmly supported upon the toe *k*, the instep *h*, and the vamp or front *i* of the last.

The toe, instep, and vamp or front of a boot or shoe are sometimes formed of light or flexible material, which is apt to wrinkle or suffer from severe handling, to which the boot or shoe is sometimes subjected when being worked upon—as, for example, when a heel is being attached to the boot or shoe. By forming the anterior portion, A, so as to firmly support the toe, instep, and vamp of a boot or shoe, the material composing the toe, instep, and vamp will not be liable to wrinkle and will be enabled to submit to a considerable amount of severe handling without becoming injured.

In order to vary the range of motion of the anterior portion, A, about the pivot *a*, the stop *b* can be made adjustable. In the example shown in the drawings, the stop *b* consists of a screw, which enters into a suitable cavity

or recess in the bracket G. By inserting or screwing the stop or screw *b* more or less into the bracket G, the anterior portion, A, will swing a greater or less distance in the direction opposed to the arrow 1, Fig. 1, before the stop *b* comes into contact with its abutment or rest on the connection C. The anterior portion, A, can thus be adjusted for various positions, to fill out or support various heights of insteps or various shapes of boots or shoes.

The last A B and connecting rod or arm C can be formed of wood or any suitable material.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a last, of an anterior portion, A, a posterior portion, B, a rod, C, having a shoulder or abutment, and to which the anterior portion is pivoted to swing in a vertical plane, and a stop, *b*, movable with the anterior portion and adapted to strike the shoulder or abutment on the rod to limit the swinging movement of the said anterior portion, substantially as described.

2. The combination, in a last, of the posterior portion, B, the rod C, the slotted anterior portion, A, the bracket G, the screw *c*, passing through the slot in the anterior portion and engaging the bracket, and an adjustable stop, *b*, substantially as described.

3. The combination, in a last, of the posterior portion, B, the rod or arm C, the bracket G, pivoted to the latter, the anterior portion, A, adjustable lengthwise on the bracket, and the stop *b*, substantially as described.

4. The combination, with a last, of lugs or shoulders *ff'*, adapted to hold a fastening device, *g*, substantially as set forth.

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

LEOPOLD GRAF. [L. S.]

Witnesses:

ALFRED L. SCHMID,
A. FABER DU FAUR.