

J. C. WIGHTMAN.

Improvement in Lasting-Jacks.

No. 132,510.

Patented Oct. 22, 1872.

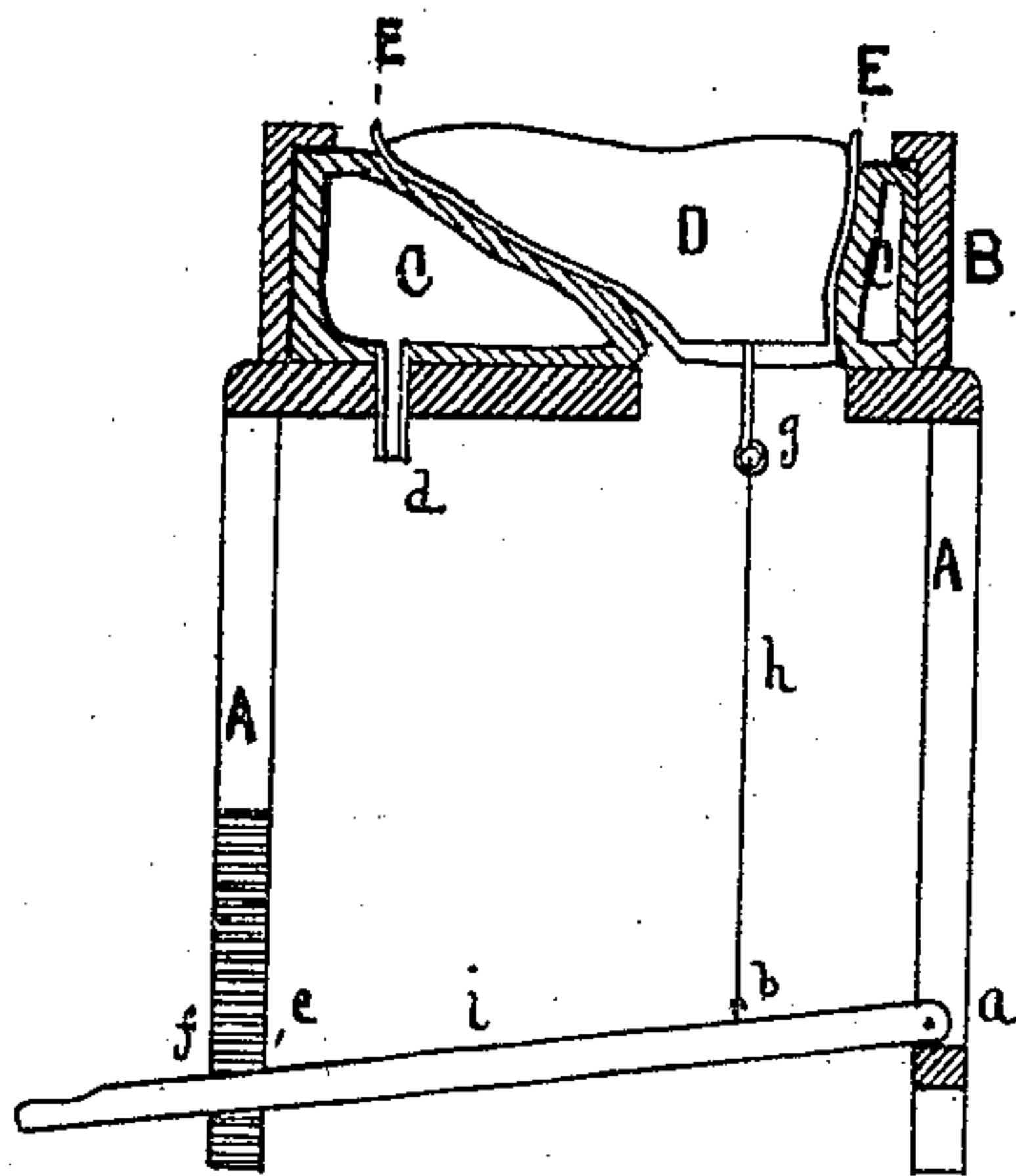


Fig. 2.

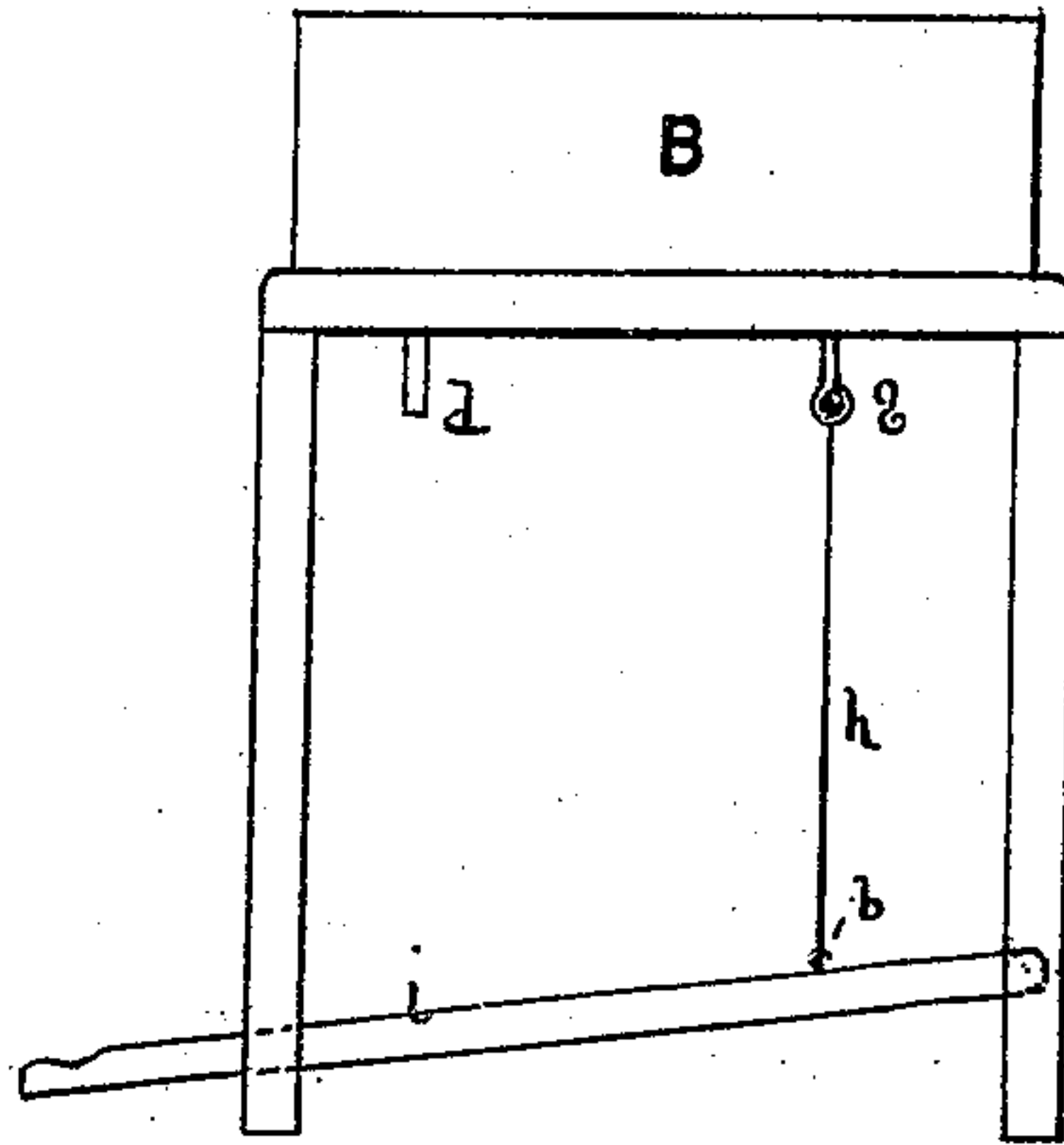


Fig. 1.

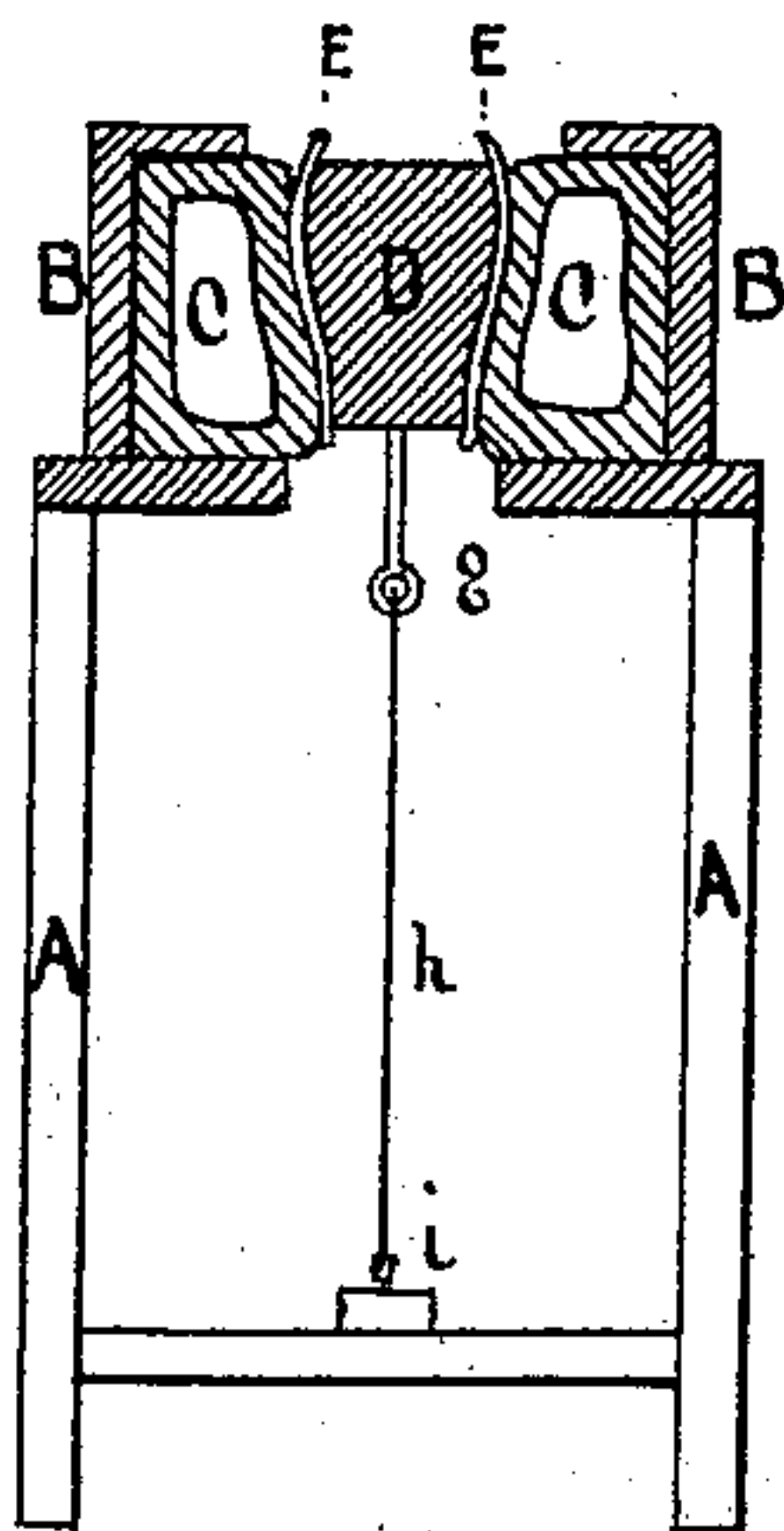


Fig. 3.

WITNESSES

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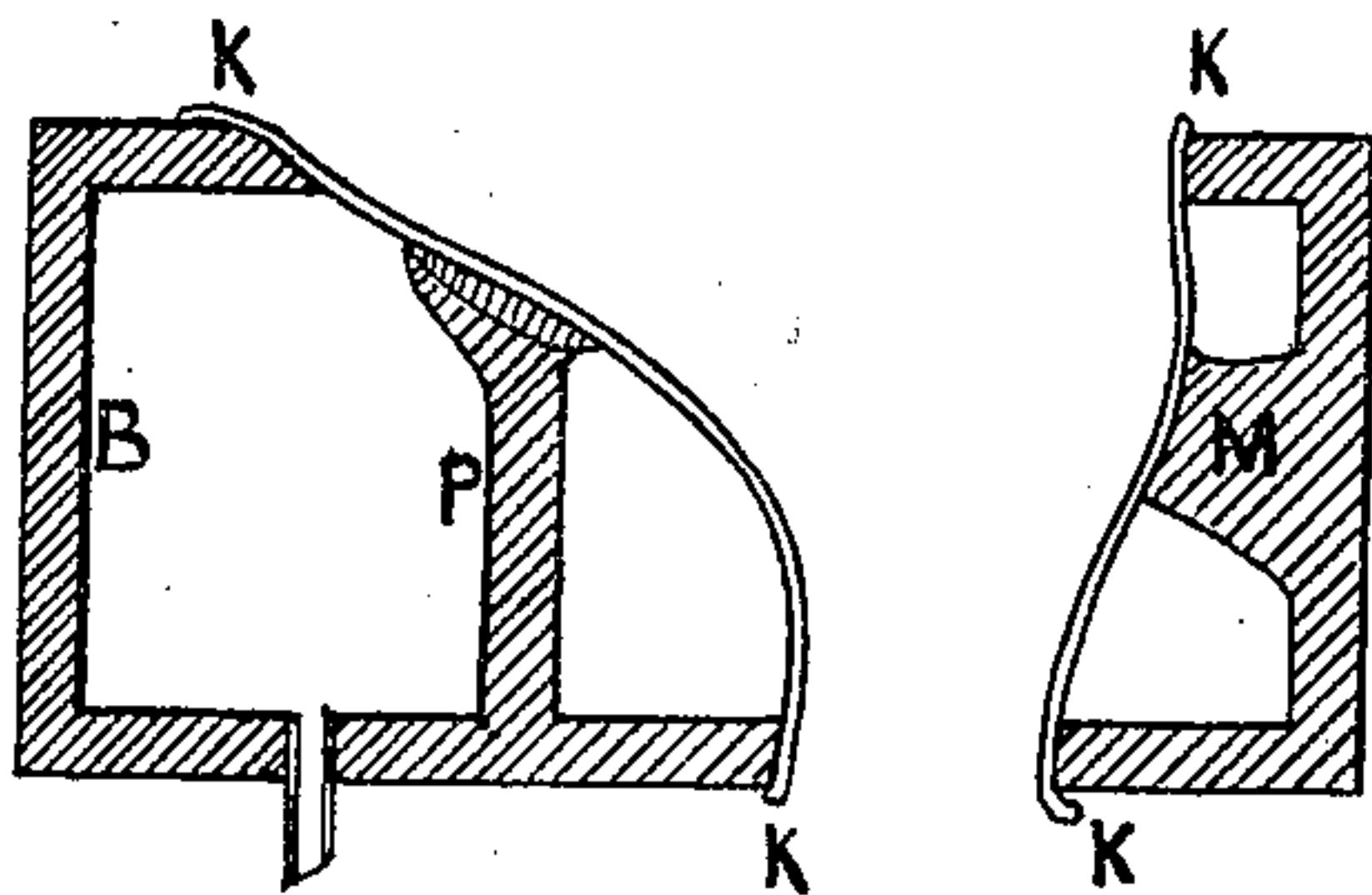


Fig. 4.

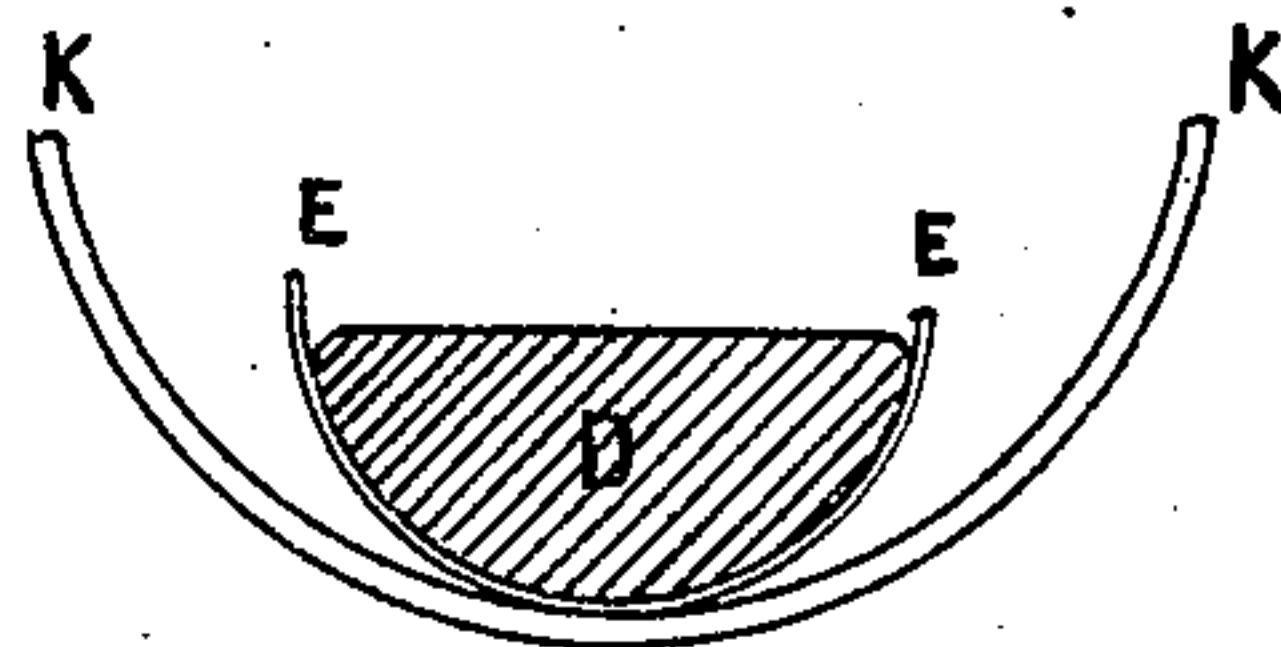


Fig. 5.

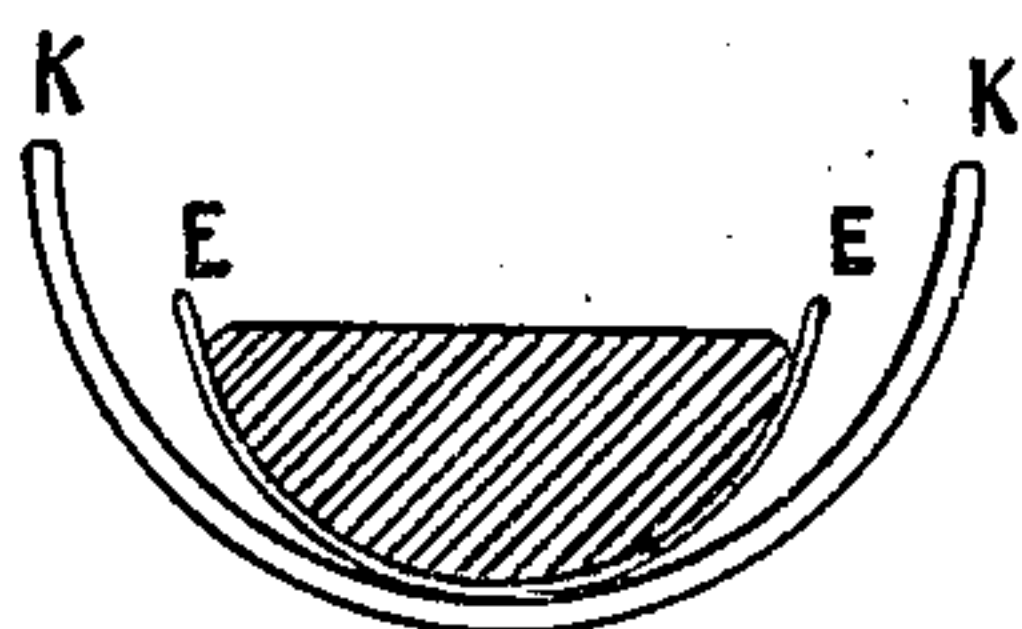


Fig. 6.

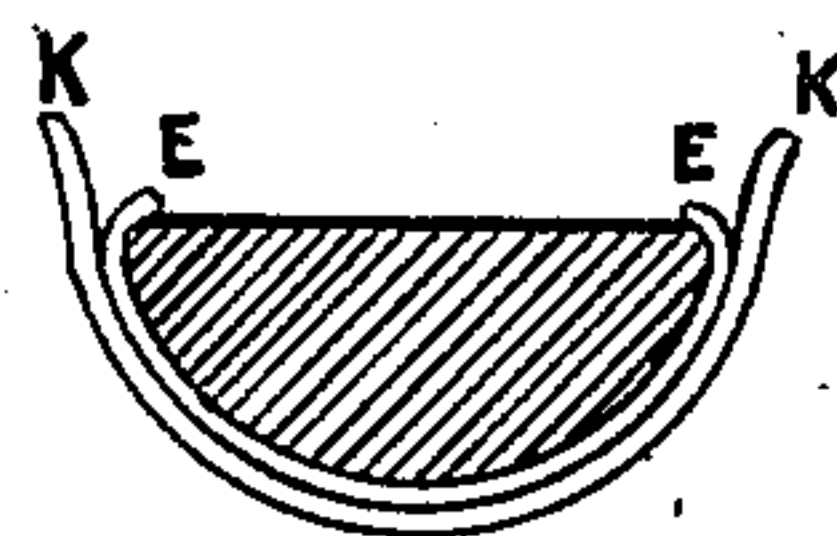


Fig. 7.

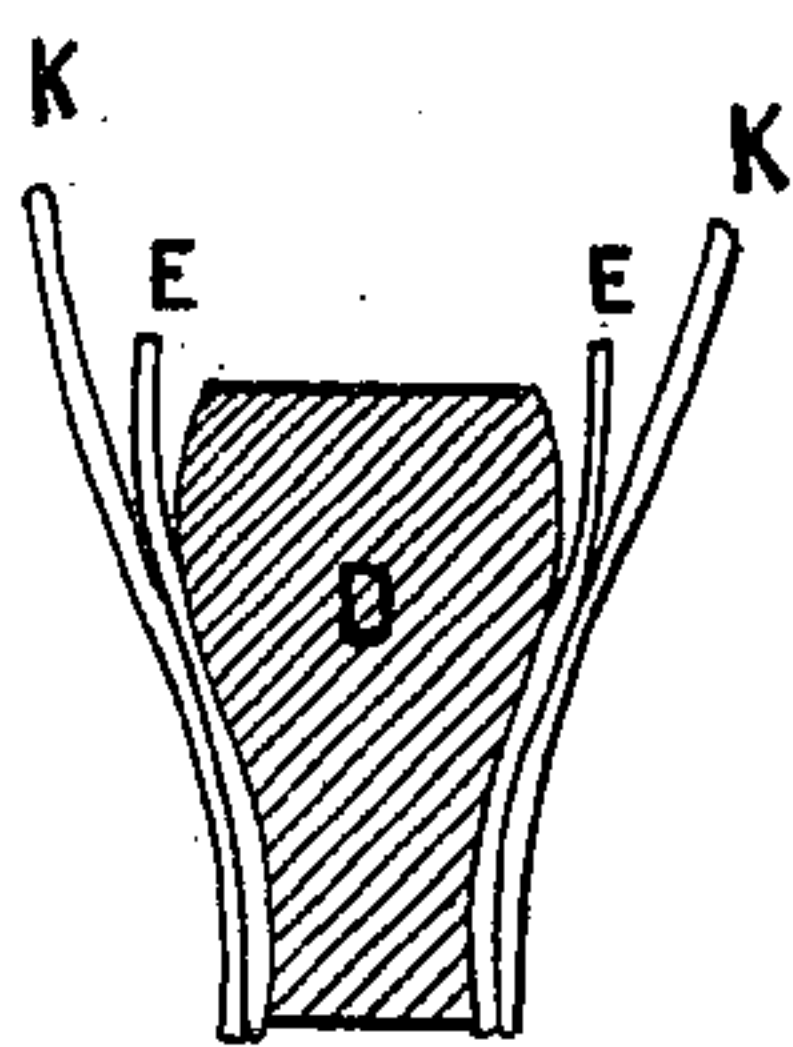


Fig. 8.

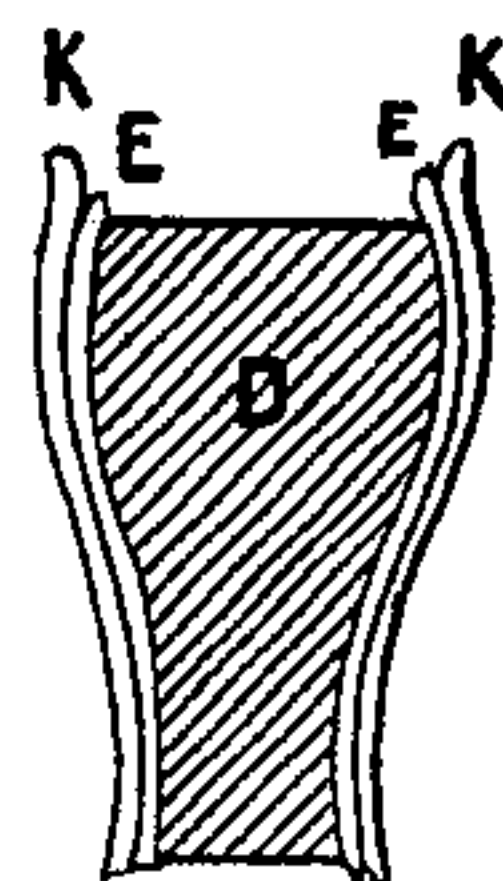


Fig. 9.

WITNESSES.

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# UNITED STATES PATENT OFFICE.

JOSEPH C. WIGHTMAN, OF NEWTON, MASSACHUSETTS.

## IMPROVEMENT IN LASTING-JACKS.

Specification forming part of Letters Patent No. 132,510, dated October 22, 1872.

*To all whom it may concern:*

Be it known that I, JOSEPH C. WIGHTMAN, of Newton, Middlesex county, Massachusetts, have invented an Improvement in Lasting Boots and Shoes, of which the following is a specification:

My invention has for its object the lasting of boots and shoes by machinery in place of hand-labor, and differs not only from other machines employed for the purpose, but also from the method heretofore employed by hand-labor, inasmuch as where both hand-labor and such machinery as has been employed for the purpose strain the upper leather to the last from or near the edge, my invention, aside from the device for accomplishing it, presses the upper or vamp to the last, commencing at or near the line on the last that would be made by a horizontal plane passing through the center, and working the upper from said line by equal pressure on all its parts to the sole of the last, holding the upper firmly to the last while it is being fastened to the inner sole. The nature of my invention consists in the use of a matrix the acting surface of which is forced against the vamps by means of some intermobile agent like fluid vapor-gas or some finely-pulverized material. This matrix may be a double bag, or, better, a fixed casing inclosing a flexible lining, the flexible lining being united air-tight to the casing, so that by forcing any fluid or intermobile agent into the space between the casing and the flexible lining which forms the matrix the said lining will be forced inwardly—that is, against the vamp—and, as the pressure is equal, the lining forming the matrix will hold the vamp against the last and cause the same to be drawn tightly over it.

The accompanying drawing is designed not only to illustrate the machine, but also the relative action upon the upper at different stages of the lasting, although the operation of lasting is produced instantaneously.

### *Description of the Drawing.*

Figure 1 is side view of the machine. Fig. 2 is a sectional longitudinal view of the same. Fig. 3 is a sectional transverse view, with the last shown at the shank. Fig. 4 represents a longitudinal section of a device of an elastic matrix and metal box or casing combined.

Figs. 5, 6, and 7 represent the action of the elastic matrix progressively in the operation of lasting through the ball of the last. Figs. 8 and 9 represent the action of the elastic matrix on the shank, as shown in section.

### *General Description.*

The machine consists of a suitable frame, A, fastened to the top of which or forming part of the frame is a metal box or frame, B, made with firm and inflexible sides, and having openings through both top and bottom of unequal size. Into this box is placed a rubber box, C, or box of other material, having an elastic face toward the last D. This rubber box is a matrix or form, into which the last D with the upper E is placed. Into the last D is a ring, *g*, and a hook and rod, *h*, is caught into it and into the lever at *b* and operated by the lever *i*, the lever *i* being held in place at one end by a pin, *a*, to draw the last into place. An opening, *d*, into the elastic box C, is designed to connect a tube conveying pressure, which may be by a hydraulic press, compressed air, or steam, as will hereafter be explained.

The operation of lasting by this invention is as follows: The last D with the inner sole attached is adjusted into the upper E and both trued to position. The last D with the upper E upon it is then dropped into position in the matrix or hollow box C, and the rod and hook *h* is hooked into the ring *g* in the last D. The lever *i* is then forced down and fastened in position by the projections on the lever *i* at *f*, catching onto the ratchet on the frame A at *e*. This portion of the operation will bring the last and upper into the positions on the matrix as indicated in Figs. 5 and 6. Pressure is then applied to the interior of the elastic box C through the aperture *d*, and as the box C is held firmly on the outside face by the metal box B the whole pressure will be exerted to close up such portions of the upper E onto the last D as do not fit. The analysis of such action is illustrated in Figs. 5, 6, 7, 8, and 9. The upper or vamp is held to the last and there fastened to the inner sole by suitable means and the pressure let off from the elastic box C. Upon unhooking the rod *h* from the ring *g* the last can be removed, ready to receive the outer sole for sewing or for pegging.

For purposes of pressure I prefer hydraulic



pressure applied either by machinery or hand as being the most positive, certain, and inelastic; but I do not confine myself to such means, as compressed air or steam may be used to advantage under favorable circumstances.

Fig. 4 represents another method of making the flexible matrix. B is a metal box or case, and K is a rubber form or matrix fastened to the top and bottom of the box B. In this case the pressure is applied through the aperture *d*, exerting its force on the flexible matrix K, which, being held in place at the upper and lower edges, expands against the upper on the last. A support for the last and upper may be inserted in the box B, as shown in Fig. 4, to receive the blow given in fastening the upper to the inner sole by pegging or by nailing, as shown at letter P for the forward part of the last, and at letter M at the heel. As vulcanized rubber contains free sulphur, which

may soil the upper, especially in serge or cloth shoes, a thin lining of sheep-skin or other proper material may be used between the flexible matrix C and the upper E. The result may also be produced by distending outward the flexible matrix C by fixed pressure of elastic material, like air, and drawing the last D with the upper E attached downward by the movement of the lever *i* and rod *h*.

What I claim for my invention is—

In a machine for lasting boots and shoes, a matrix, flexible, and made to conform to the last by inclosing within its walls contents under pressure capable of molecular slip, substantially as described, and for the purpose set forth.

JOSEPH C. WIGHTMAN.

Witnesses:

J. R. FOLSOM,  
WILLIAM EDSON.