

No. 636,348.

Patented Nov. 7, 1899.

E. S. MORTON.  
HINGED LAST.

(Application filed Aug. 17, 1897.)

(No Model.)

FIG. 1.

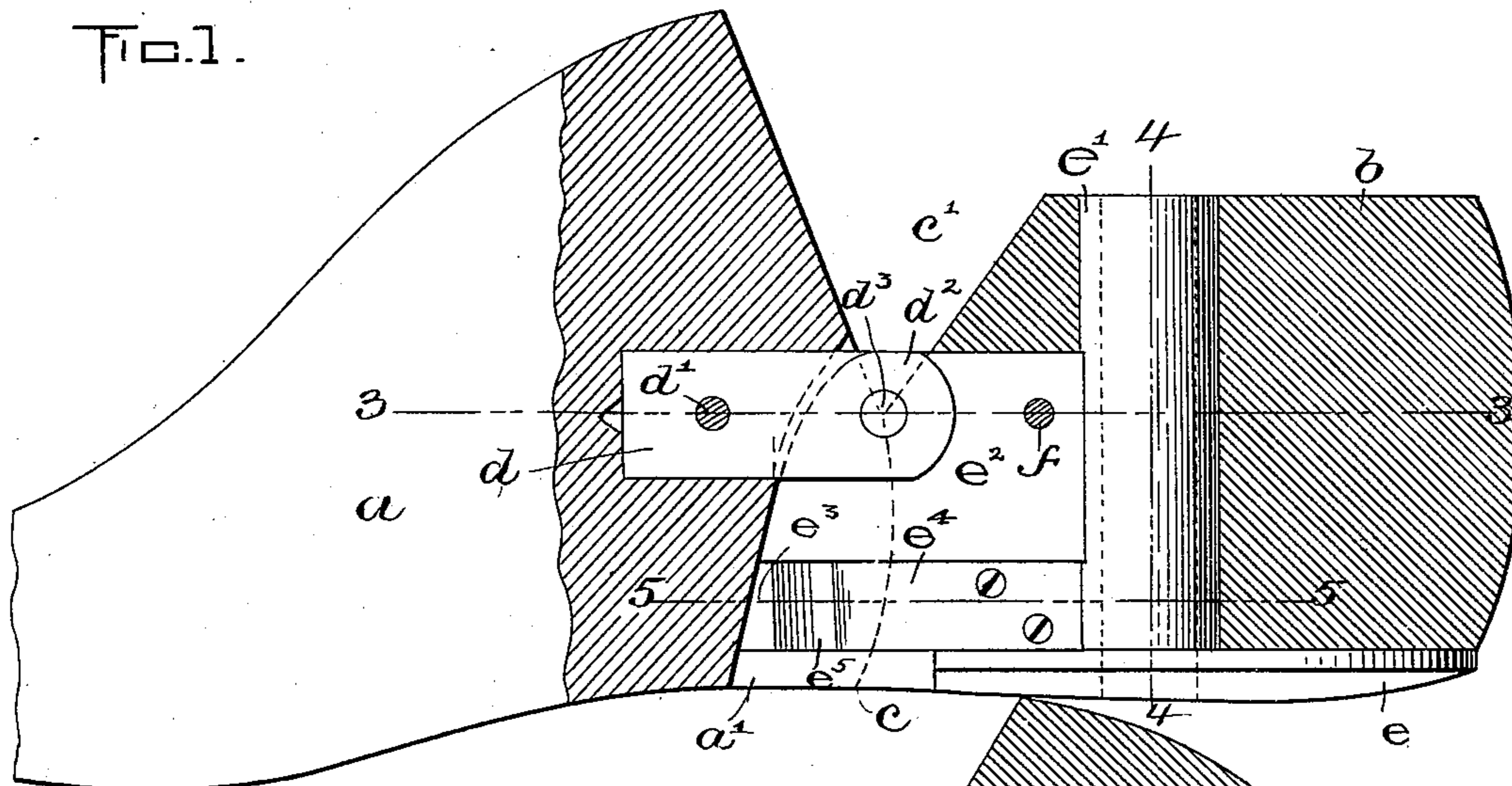


FIG. 2.

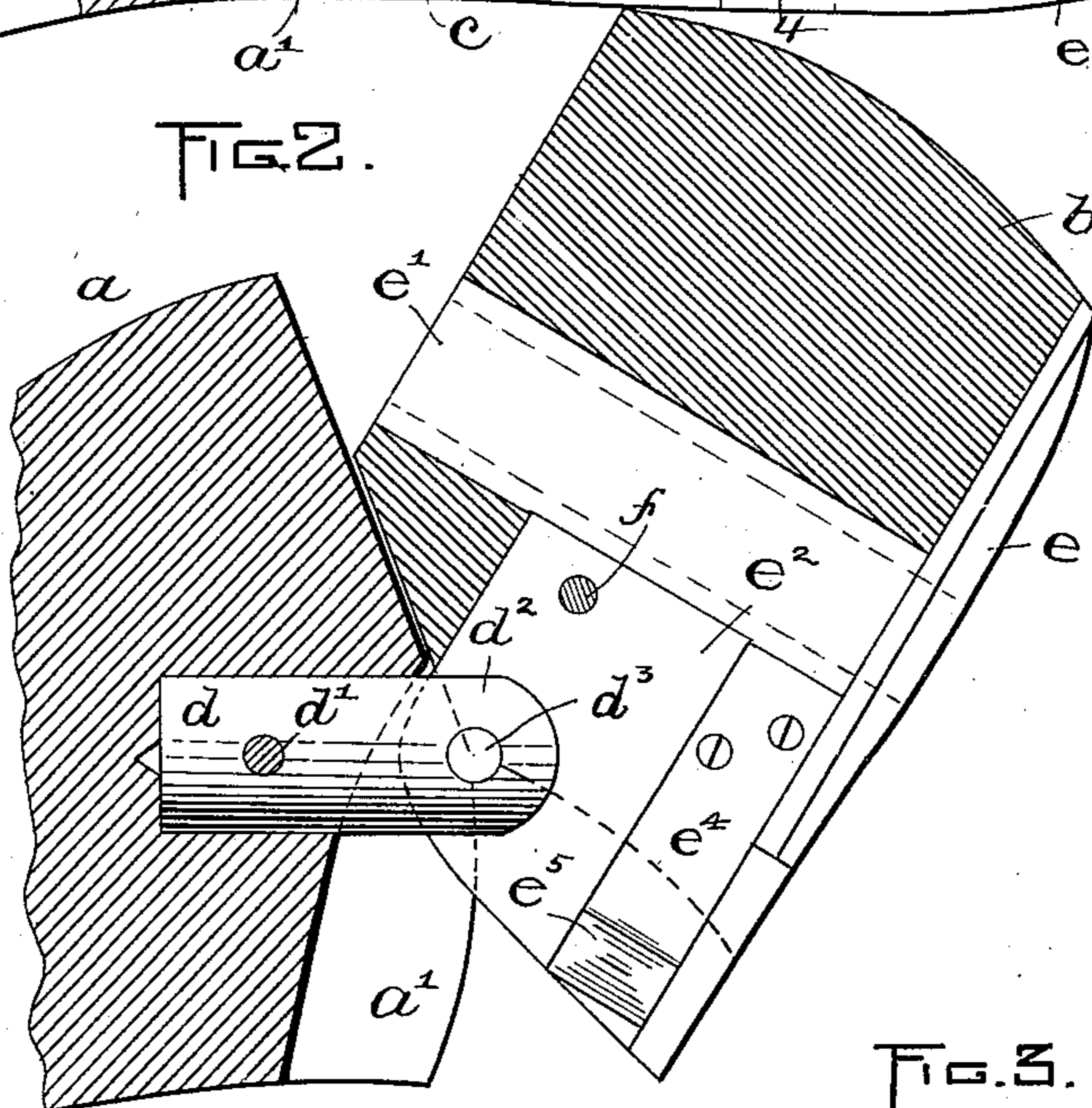


FIG. 4.

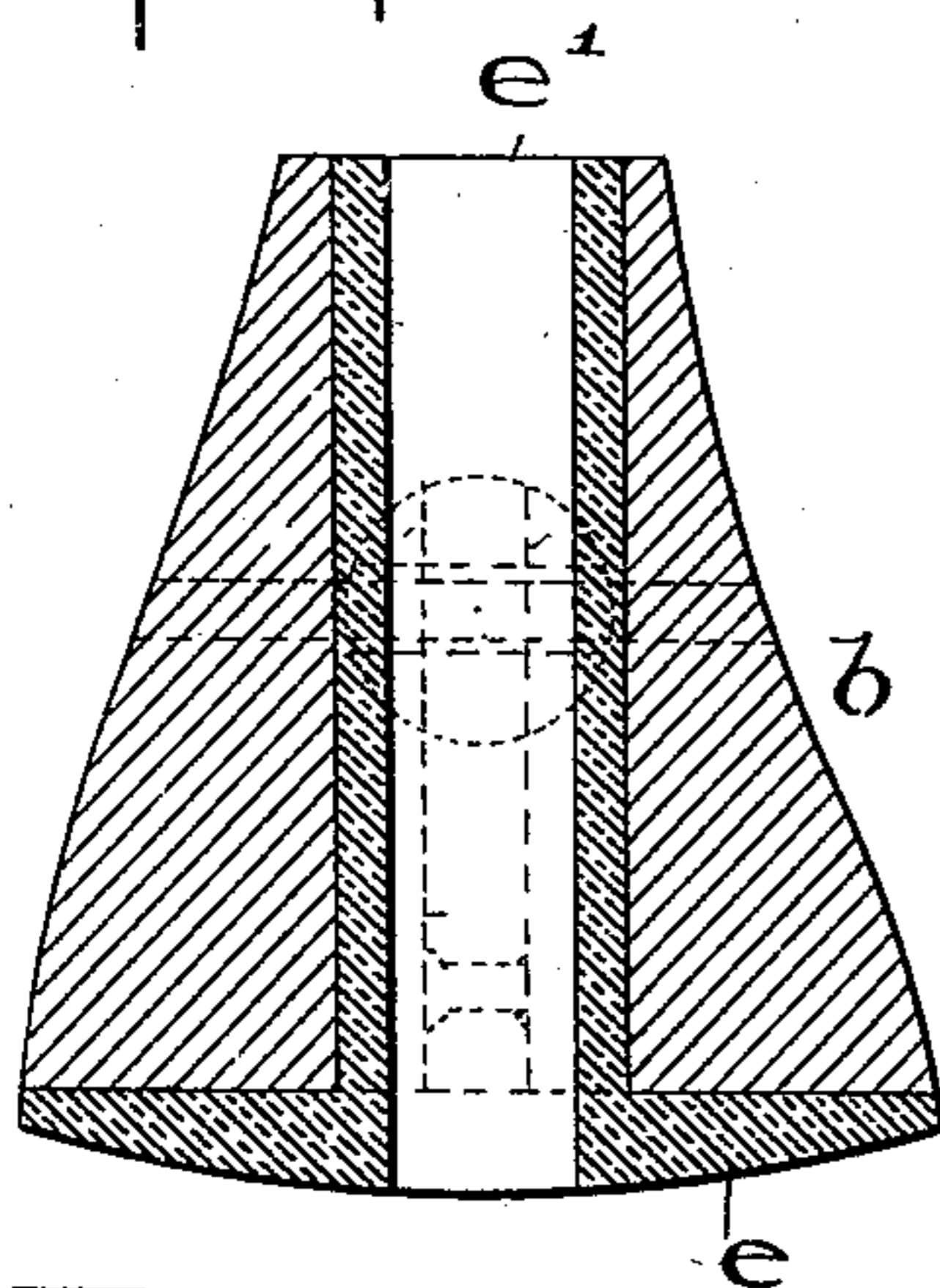


FIG. 5.

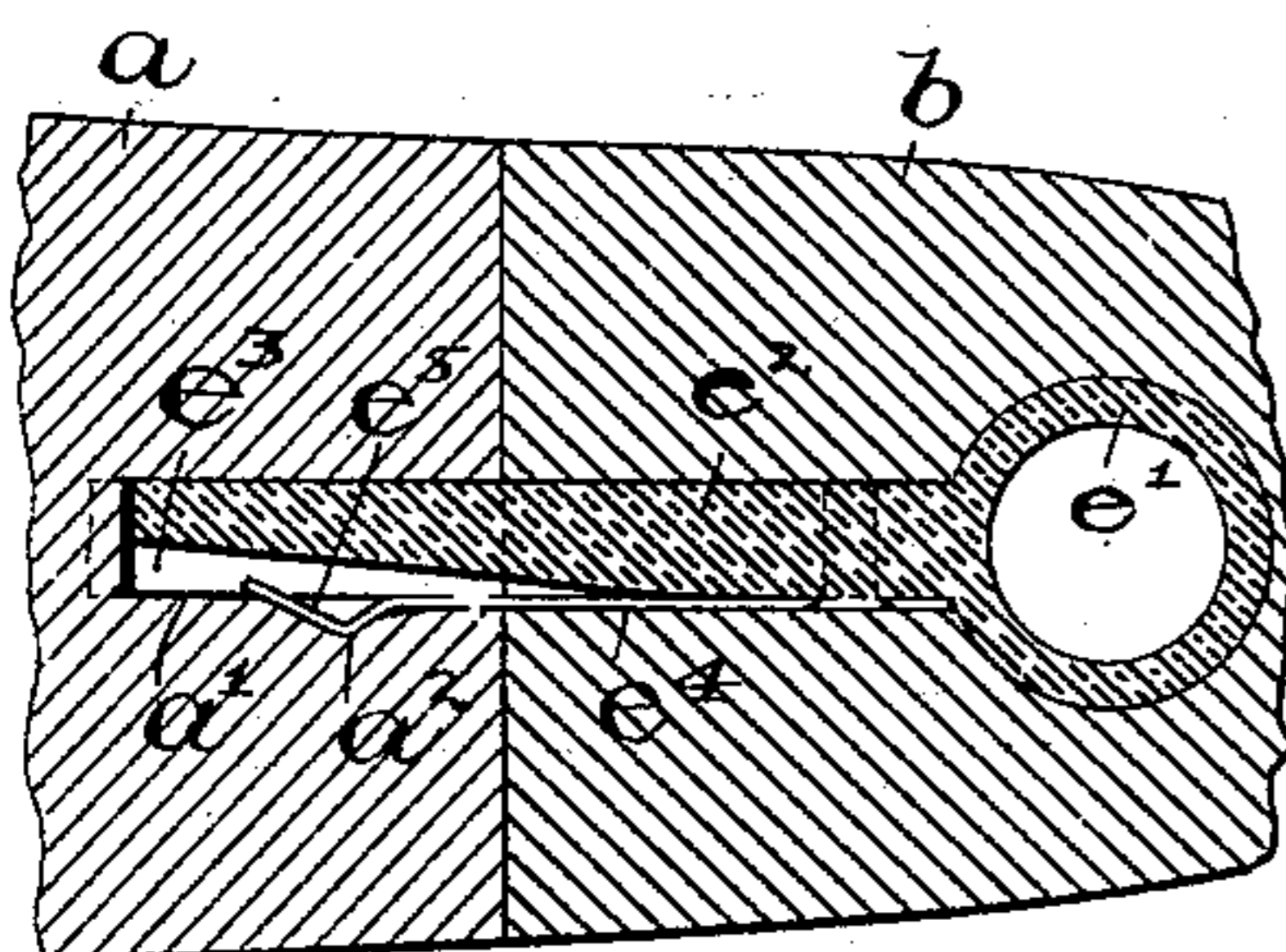
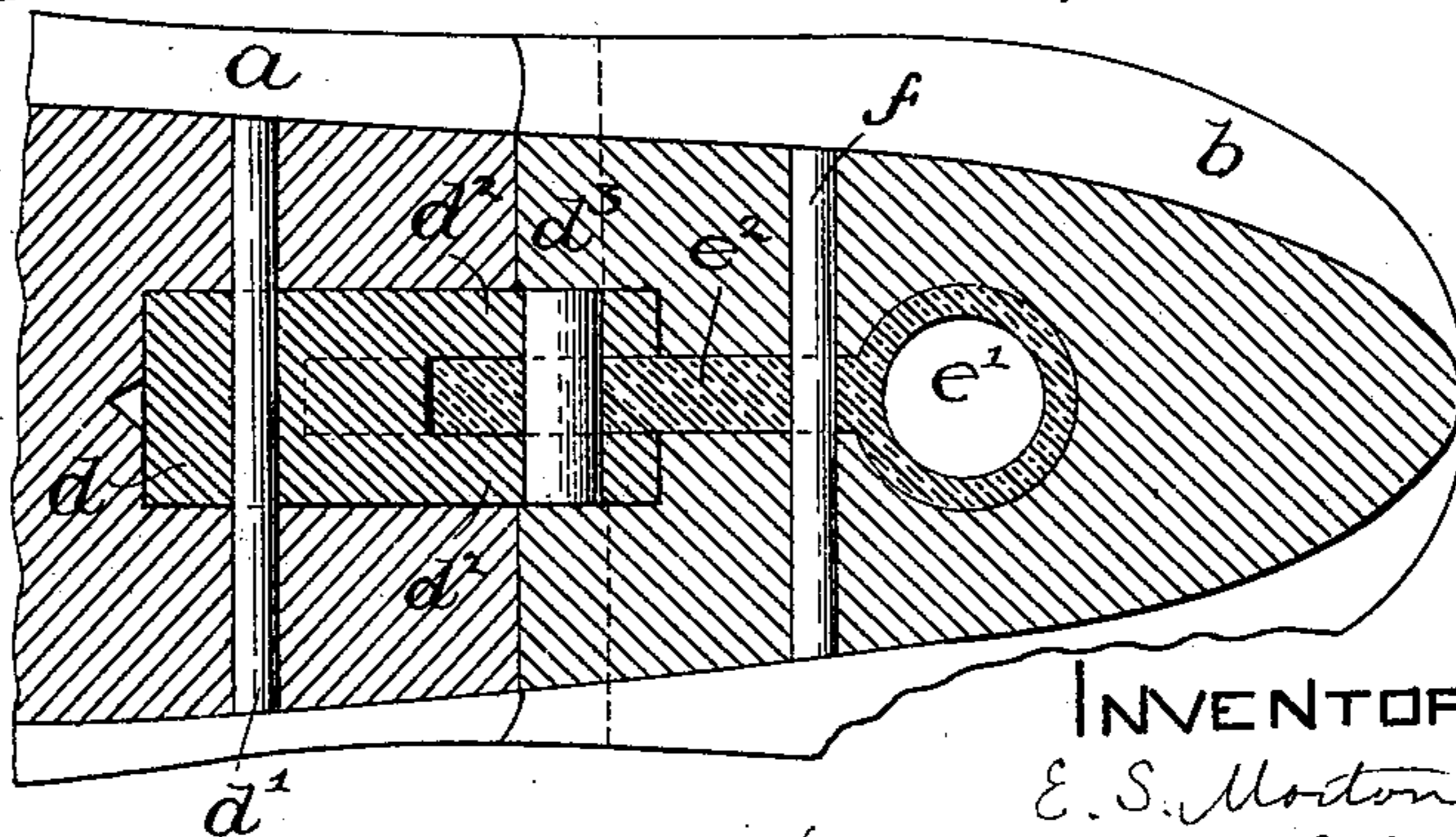


FIG. 3.



WITNESSES:

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INVENTOR:

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# UNITED STATES PATENT OFFICE.

EPHRAIM S. MORTON, OF BROCKTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO W. H. CARY, OF SAME PLACE.

## HINGED LAST.

SPECIFICATION forming part of Letters Patent No. 636,348, dated November 7, 1899.

Application filed August 17, 1897. Serial No. 648,548. (No model.)

*To all whom it may concern:*

Be it known that I, EPHRAIM S. MORTON, of Brockton, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Hinged Lasts, of which the following is a specification.

This invention has relation to hinged lasts, and is designed to overcome several difficulties encountered in the use of lasts of this character and to provide certain features of novelty which enhance the desirable qualities thereof to a marked degree.

One of the principal objections to the employment of a hinged last is because of the liability of the portions thereof to move laterally relatively to each other when a shoe is being constructed thereon, whereby the toe is apt to be at an angle to the heel and the shoes thereon to be of different shape.

Hence the object of the invention may be stated more particularly to be to provide a hinged last having its parts so joined together as to remain true and in alinement at all times, although capable of swinging on a transverse axis to permit the last to be easily removed.

To these ends the invention consists of a last having the improvements clearly illustrated upon the drawings, now to be described in detail, and then particularly pointed out in the claims hereto appended.

Reference is to be had to the accompanying drawings, and to the letters marked thereon, the same letters designating the same parts or features, as the case may be, wherever they occur.

Of the drawings, Figure 1 represents in side elevation, partially in section, a hinged last embodying my invention. Fig. 2 represents a vertical longitudinal section through the same, showing the heel portion as swung up relatively to the toe portion. Fig. 3 represents a horizontal section on the line 3 3 of Fig. 1. Fig. 4 represents a transverse vertical section on the line 4 4 of Fig. 1. Fig. 5 represents a horizontal section on the line 5 5 of Fig. 1.

Referring to the drawings, the toe portion of the last is indicated by *a* and the heel portion by *b*. They are separated by a curved section *c* and a wedge-shaped recess *c'*, whereby

the heel portion may be swung vertically at an angle relatively to the toe portion.

For the purpose of hinging the two portions together the last is recessed on the inner end of the toe portion to receive a hinge member *d*, which is preferably cylindrical, so that it can fit a bored recess, and is secured in place by a transverse pin *d'*, and is thus held in place in the toe portion independently of its connection with the hinged member of the heel portion. In the heel portion is placed a metallic structure comprising a heel iron or plate *e*, a horn-receiving sleeve or bushing *e'*, and an inwardly-projecting web *e<sup>2</sup>*, which constitutes a member of the hinge and which extends between the two ears *d<sup>2</sup>* *d<sup>2</sup>* of the cylindrical hinge member *d*. Said parts *e*, *e'*, and *e<sup>2</sup>* are preferably cast or otherwise formed in one piece. A pintle *d<sup>3</sup>* connects the two hinge members, and the axis thereof is in the apex of the wedge-shaped groove *c'* and substantially in line with the meeting faces of the two portions, heel and toe, of the last. The surface of the heel-iron *e* is flush with the surface of the toe portion at the shank and constitutes a continuation of the same, and the bushing *e'*, which is integral with the said heel-iron, extends entirely through the heel portion *b*, and its end is flush with the top surface of the heel portion. The casting *e e' e<sup>2</sup>* is inserted in apertures formed in the heel portion to receive it, and the web *e<sup>2</sup>* projects forward beyond the inner end of the heel portion into a groove *a'*, formed in the inner end of the toe portion. A groove *e<sup>3</sup>* is formed in the web *e<sup>2</sup>*, and a leaf-spring *e<sup>4</sup>* is secured therein, its free projecting end being bent, as at *e<sup>5</sup>*, to constitute a catch to engage a socket *a<sup>2</sup>*, formed in the wall of the recess *a'*. Thus the spring forms a spring-catch to yieldingly hold the two portions of the last in their normal working positions, as shown in Fig. 1, although it permits the heel portion to be swung up at an angle, as shown in Fig. 2. The casting is secured in place in the heel portion by a pin *f*.

By reason of the heel-iron and the bushing *e'* being formed integrally with the web *e<sup>2</sup>* and the cylindrical hinge member in the toe being connected thereto by a pintle the two portions of the last are held against lateral

movement at all times, and, moreover, the web  $e^2$  projects into a groove or socket in the toe portion, and this also assists in preventing the two portions of the last from being worked out of alinement with each other and from becoming loose, so as to distort the shoe thereon.

The cylindrical hinge member may be easily inserted in the toe portion of the last by merely forming a socket with a boring-tool, and hence the last is not weakened by much cutting.

Having thus explained the nature of the invention and described a way of constructing and using the same, though without attempting to set forth all of the forms in which it may be made or all the modes of its use, I declare that what I claim is—

1. A hinged last having the heel portion thereof provided with a bushing to receive the spindle, said bushing constituting a hinge member, and a second hinge member independently secured in the toe portion and connected by a pintle to the first said member, said pintle being substantially in line with the meeting faces of the heel and toe portions of the last.

2. A hinged last having the heel portion thereof provided with a metallic bushing inserted therein, said bushing being formed with an inwardly-projecting web, and the toe portion having a hinge member connected by a pintle to the said web, said pintle being substantially in line with the meeting faces of the heel and toe portions of the last, said toe portion also having a groove or socket to receive the said web.

3. A hinged last having the heel portion provided with a casting constituting a heel-iron, a bushing, and an inwardly-projecting web, and a toe portion provided with a hinge member secured therein, and connected by a pintle with said web.

4. A hinged last having the toe portion formed with a cylindrical socket, and having a cylindrical hinge member secured therein, and the heel portion formed with a socket, and having a plate or web thereon constituting a hinge member, said web or plate being connected by a pintle to the cylindrical hinge member, and means for preventing movement of one portion of the last relatively to the other on the axis of the said cylindrical hinged member.

5. A hinged last comprising heel and toe portions one of said portions having a vertical web hingedly connected to the other portion, said web being provided with a groove in one side, and a leaf-spring secured to the said web and having its outer end formed with a catch adapted to engage a socket in the other portion of the last, said outer end of the spring extending over said groove and being adapted to be pressed therein during the operation of engaging or disengaging the said socket.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 16th day of August, A. D. 1897.

EPHRAIM S. MORTON.

Witnesses:

C. F. BROWN,  
A. D. HARRISON.