

(No Model.)

E. O. & G. A. KRENTLER.

LAST.

No. 603,790.

Patented May 10, 1898.

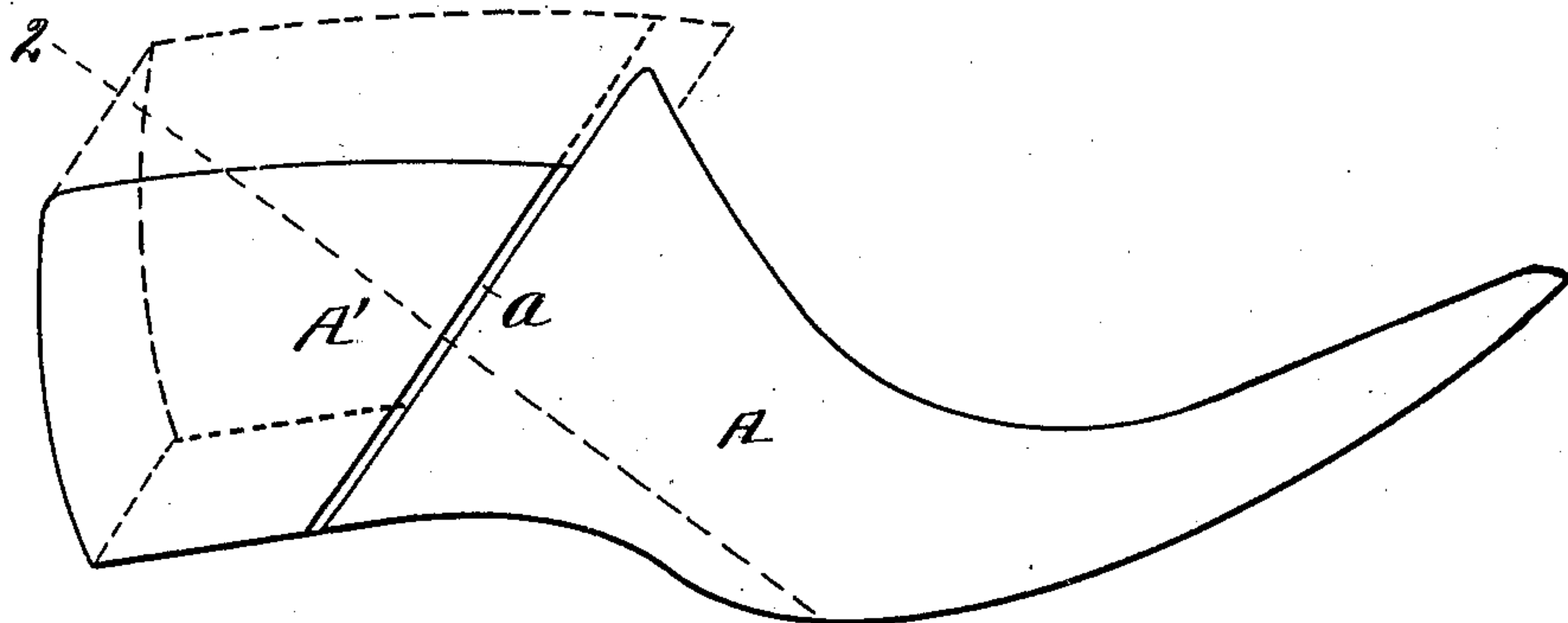


Fig. 1.

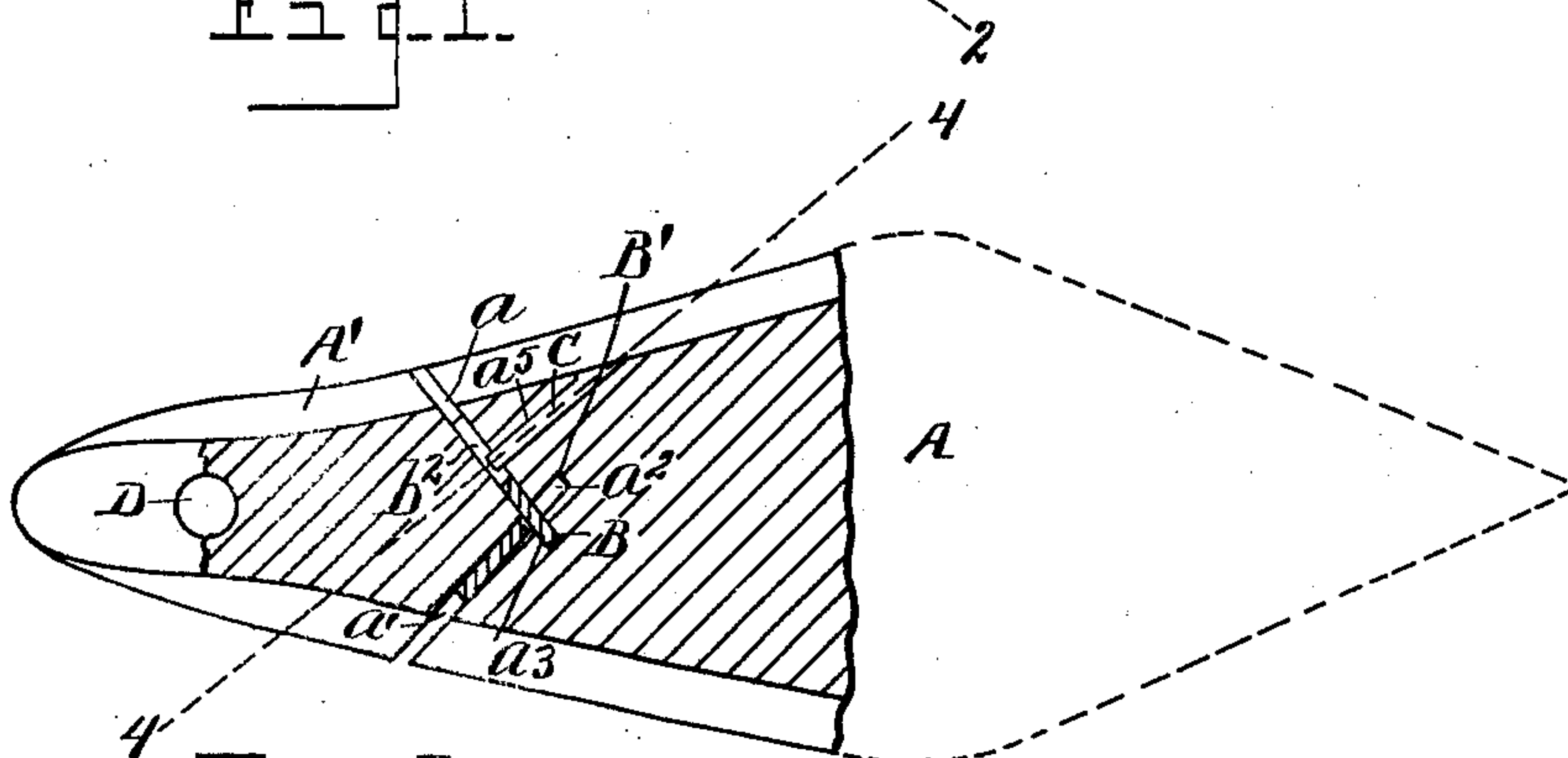


Fig. 2.

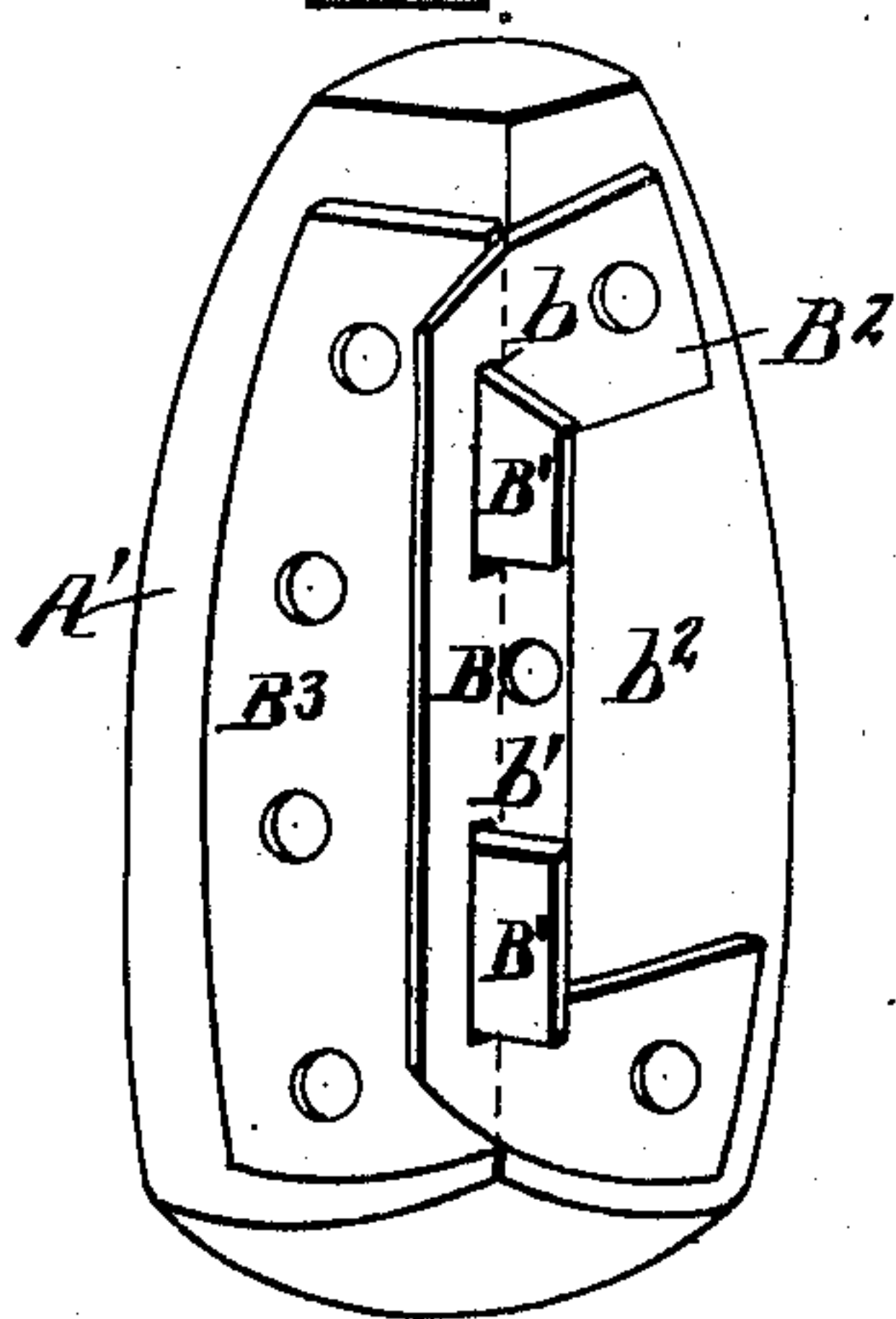


Fig. 3.

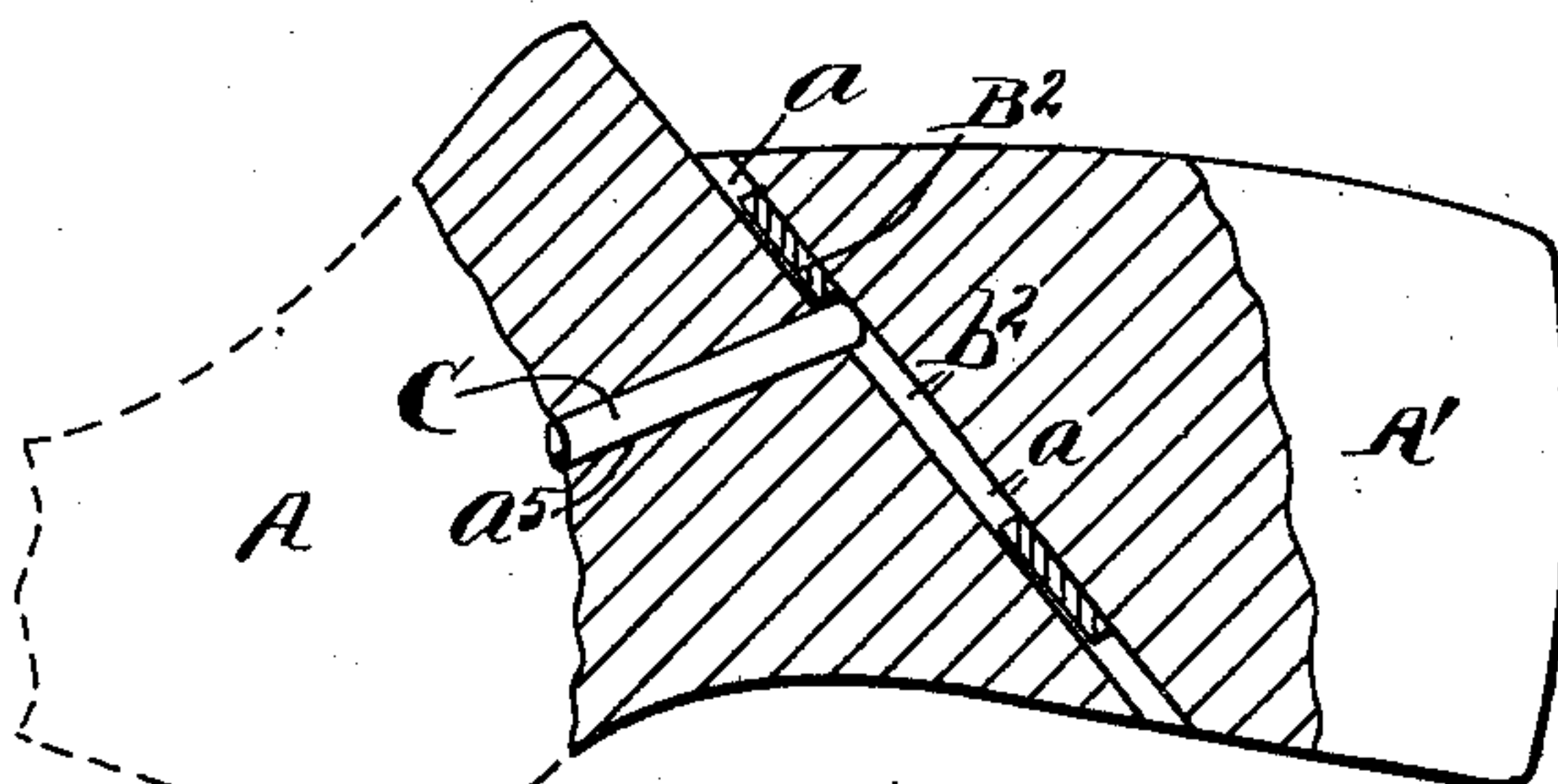


Fig. 4.

WITNESSES.

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# UNITED STATES PATENT OFFICE.

EDWIN O. KRENTLER AND GEORGE A. KRENTLER, OF DETROIT, MICHIGAN.

## LAST.

SPECIFICATION forming part of Letters Patent No. 603,790, dated May 10, 1898.

Application filed September 21, 1896. Serial No. 606,504. (No model.)

*To all whom it may concern:*

Be it known that we, EDWIN O. KRENTLER and GEORGE A. KRENTLER, citizens of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Lasts; and we declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

Our invention has for its object certain new and useful improvements in lasts; and it consists in the construction, combination, and arrangement of parts hereinafter described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a view in side elevation embodying our invention. Fig. 2 is a view in plan and in section, the section being on the line 2 2, Fig. 1. Fig. 3 is a view in perspective, showing the plates on the front of the rear portion of the last. Fig. 4 is a view in section on the line 4 4, Fig. 2.

Heretofore as lasts have commonly been constructed there has been a liability of breaking the shank of the shoe in pulling out the last. Our invention is intended to provide a last which shall thoroughly overcome this liability and provide a last also more convenient in its operation and more rapid in its application in relasting.

We carry out our invention as follows:

Our improved last is made of two parts—viz., of a front portion A and a rear portion A'—severed the one from the other and attached one to the other, so that the rear portion has a sliding movement, whereby when it is lifted the entire length of the last is shortened, and vice versa. The meeting edges of the front and rear portions of the last are upon an upward incline or bevel, permitting the rear portion of the last as it rises to have a forward sliding movement as well, thereby shortening the entire last and permitting its ready removal. The last may be made complete at the outset, with the front and rear portions integral, after which a kerf at the line *a* is sawed into one side of the last on a bevel forwardly inclined, said kerf also sawed, preferably, at an acute angle longitudinally of

the forward part of the last, said kerf being cut past the longitudinal center of the last. An additional kerf *a'* is also cut of a corresponding nature from the opposite side of the last, also at an acute angle, longitudinally of the forward portion of the last and past the longitudinal center of the last. These two kerfs will sever the rear portion A' from the front portion A, leaving the rear edge or end of the front portion of the last of angular form in cross-section and the front edge or end of the rear portion of the last of a corresponding angle in cross-section. These two kerfs *aa'*, being each sawed past the longitudinal center of the last, form two diverging grooves *a<sup>2</sup> a<sup>3</sup>*, running vertically through the forward portion of the last. Upon the front end or edge of the rear portion of the last we engage suitable tongues B B' to engage in the grooves *a<sup>2</sup> a<sup>3</sup>*, respectively, said tongues having a sliding engagement or being movable in said grooves. We do not limit ourselves solely to any specific construction of these tongues; but we find it convenient to construct two plates B<sup>2</sup> B<sup>3</sup>, integrally provided with said tongues, said plates being fastened to the front of the rear portion of the last in any suitable manner. The plate B<sup>2</sup>, formed with the projecting tongue B, may also be formed with elongated orifices *b b'*, through which the tongue or tongues B', projecting from the plate B<sup>3</sup>, extend. It will be obvious that the said tongues may readily be inserted into said grooves either from the top or bottom of the last.

Our invention contemplates as another feature thereof the permanent holding of the two portions A A' of the last together, so that they may never be accidentally displaced or detached, the two parts always being held in sliding engagement the one with the other, but not detachable. This may be done in any suitable manner within the scope of our invention—as, for example, the plate B<sup>2</sup> may be cut away to form a recess *b<sup>2</sup>* of suitable length. A pin C is then inserted through an orifice *a<sup>5</sup>* in one side of the front portion of the last, so that its inner end shall project into said recess *b<sup>2</sup>* to limit the movement of the rear portion A' of the last upon the front portion. This pin is located so as to prevent the rear portion dropping lower than the lower surface of the adjacent portion of the forward end of



the last, but permitting the rear portion A' to rise a desired distance. For example, the recess  $b^2$  may be of such length as to permit the rear portion of the last to rise so as to shorten the entire last, say, a size and a half or otherwise, as may be desired. The rear portion of the last is provided with the customary orifice D, whereby a lasting-jack may be engaged therewith. It will be apparent that the instant the operator starts to pull upon his last in the effort to remove it the strain coming upon the rear portion A' at once raises the rear portion of the last to the limit of its upward movement before the front portion is lifted, so that the very act of pulling out the last first raises the rear portion and so shortens the entire last as to permit its further removal in a very ready and convenient manner. So, also, it is obvious that in inserting the last the last may be entered with the rear portion raised, said rear portion being then forced downward to the limit of its movement, thereby wedging itself into place instead of scraping its way in, thereby preventing any liability of injury to the shoe either in removing the last or in inserting it into place.

The angular form of the meeting edges in cross-section of the front and rear portions of the last holds the two parts laterally in a firm and strong manner.

What we claim as our invention is—

1. A last constructed of a front and rear portion having a movable engagement the one with the other, the meeting edge of one of said portions formed with diverging kerfs cut into the body of said portion toward the opposite end of said portion, and the meeting edge of the other portion provided with corresponding tongues having a movable engagement in said kerfs, and means to limit the movement of the front and rear portions the one with the other and to prevent their disengagement, substantially as described.

2. A last formed of a front and a rear portion, having a movable engagement the one with the other, one of said portions formed with laterally-diverging grooves, and the other portion with laterally-diverging tongues

having a movable engagement in said grooves, substantially as described.

3. A last constructed with front and rear portions having a movable connection one with the other, one of said portions formed with diverging grooves, and the other portion provided with plates  $B^2$ ,  $B^3$ , formed with diverging tongues to enter said grooves, and one of said plates formed with a recess  $b^2$ , for the purpose set forth.

4. A last constructed with front and rear portions having a movable connection one with the other, one of said portions formed with grooves and the other portion provided with plates  $B^2$ ,  $B^3$ , one of said plates formed with an orifice, and with a recess  $b^2$ , the other of said portions formed with a tongue projecting through said orifice, for the purpose set forth.

5. A last consisting of front and rear portions, constructed with corresponding V-shaped meeting faces in cross-section, the meeting faces of one of said portions provided with plates having projecting tongues, and the meeting faces of the other of said portions having grooves to receive said tongues, substantially as described.

6. A last consisting of front and rear portions, having corresponding angular meeting faces in cross-section, the meeting faces of one of said portions provided with plates having projecting tongues, and the meeting faces of the other of said portions having grooves to receive said tongues, said grooves being formed in line with the plane of said meeting faces, substantially as described.

7. A last severed into front and rear portions by intersecting kerfs extending past the point of their intersection to form grooves in one of said portions, the opposite portion being provided with tongues movably engaged in said grooves, substantially as described.

In testimony whereof we sign this specification in the presence of two witnesses.

EDWIN O. KRENTLER.

GEORGE A. KRENTLER.

Witnesses:

N. S. WRIGHT,

JOHN F. MILLER.