

No. 879,181.

PATENTED FEB. 18, 1908.

C. B. KOSTERS.
NON-DETACHABLE HINGED LAST.

APPLICATION FILED FEB. 25, 1903.

Fig. 1.

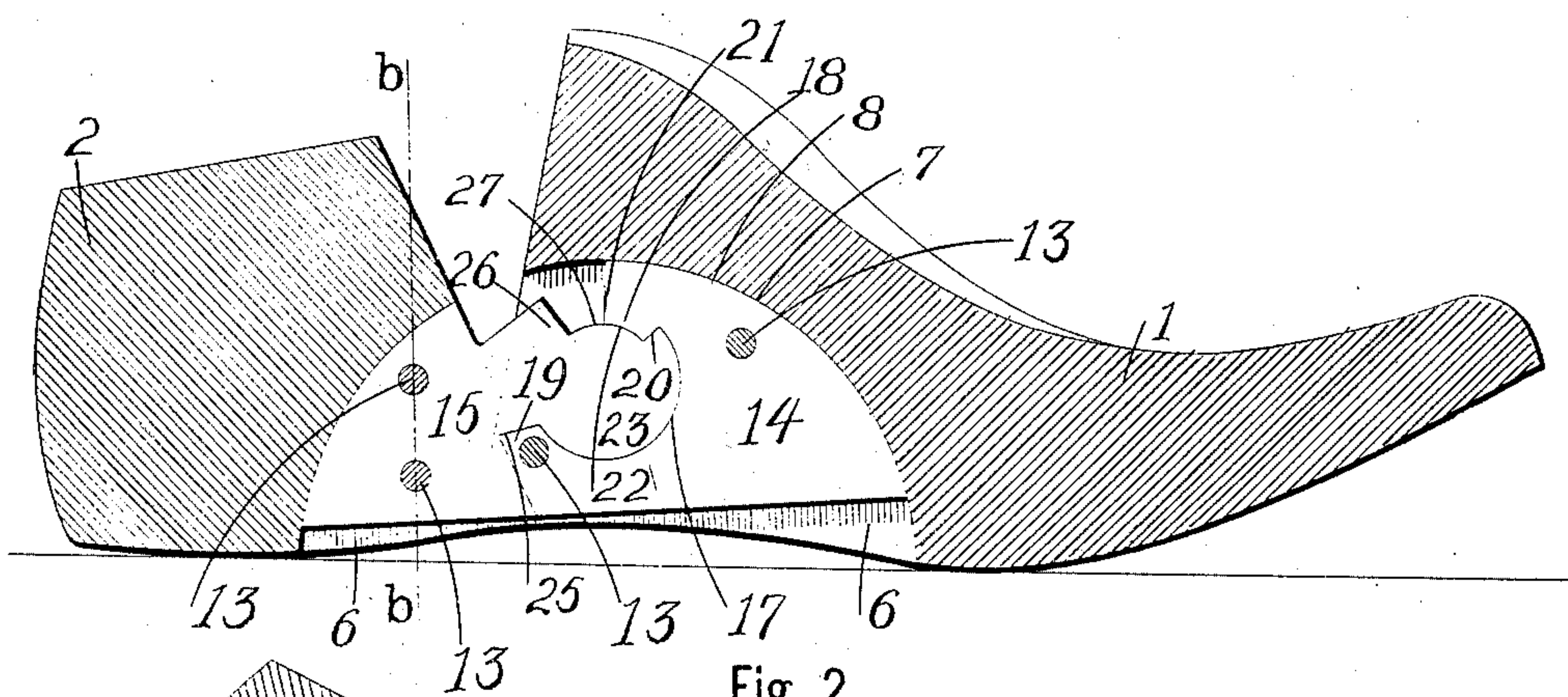


Fig. 2.

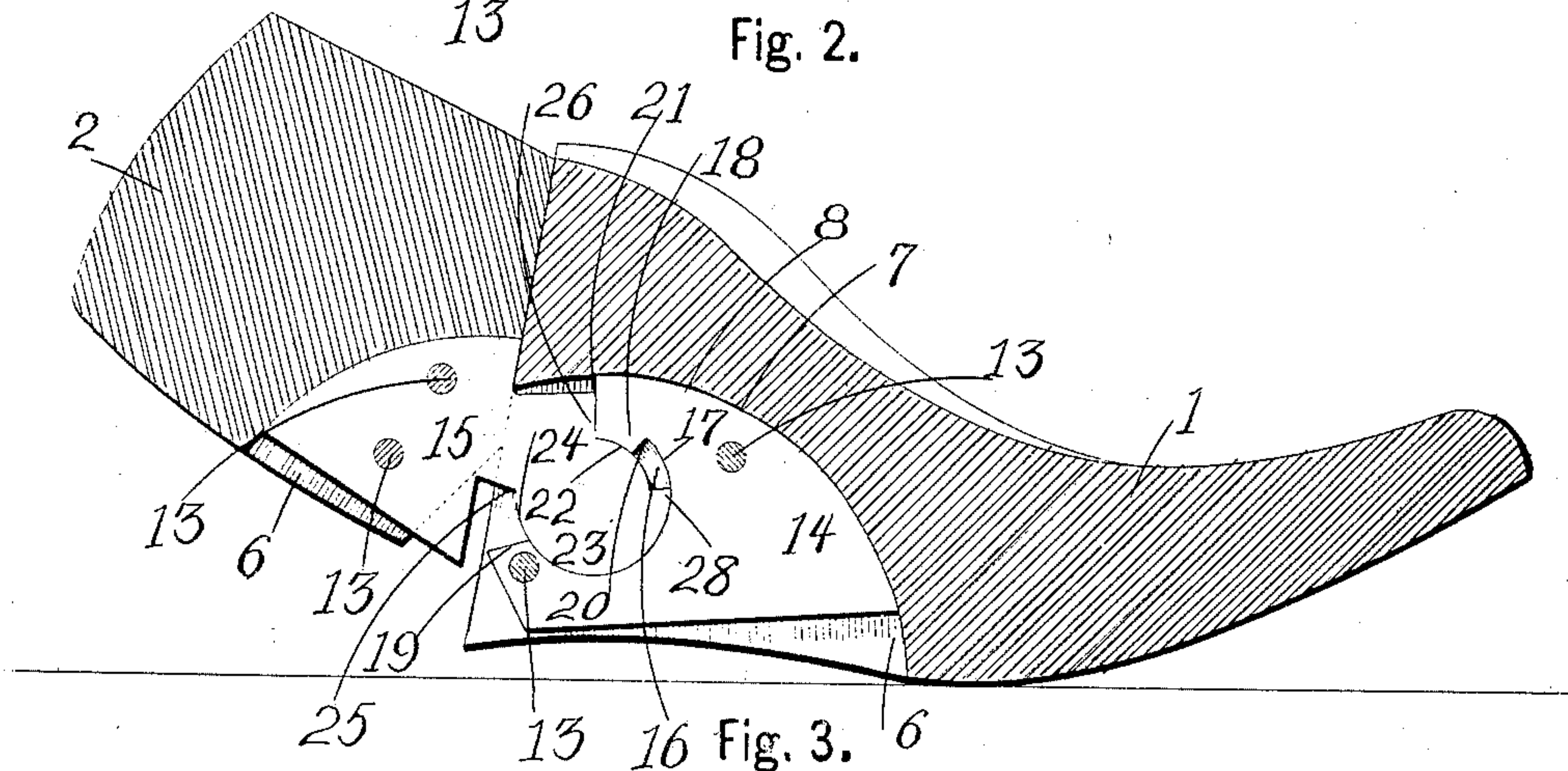
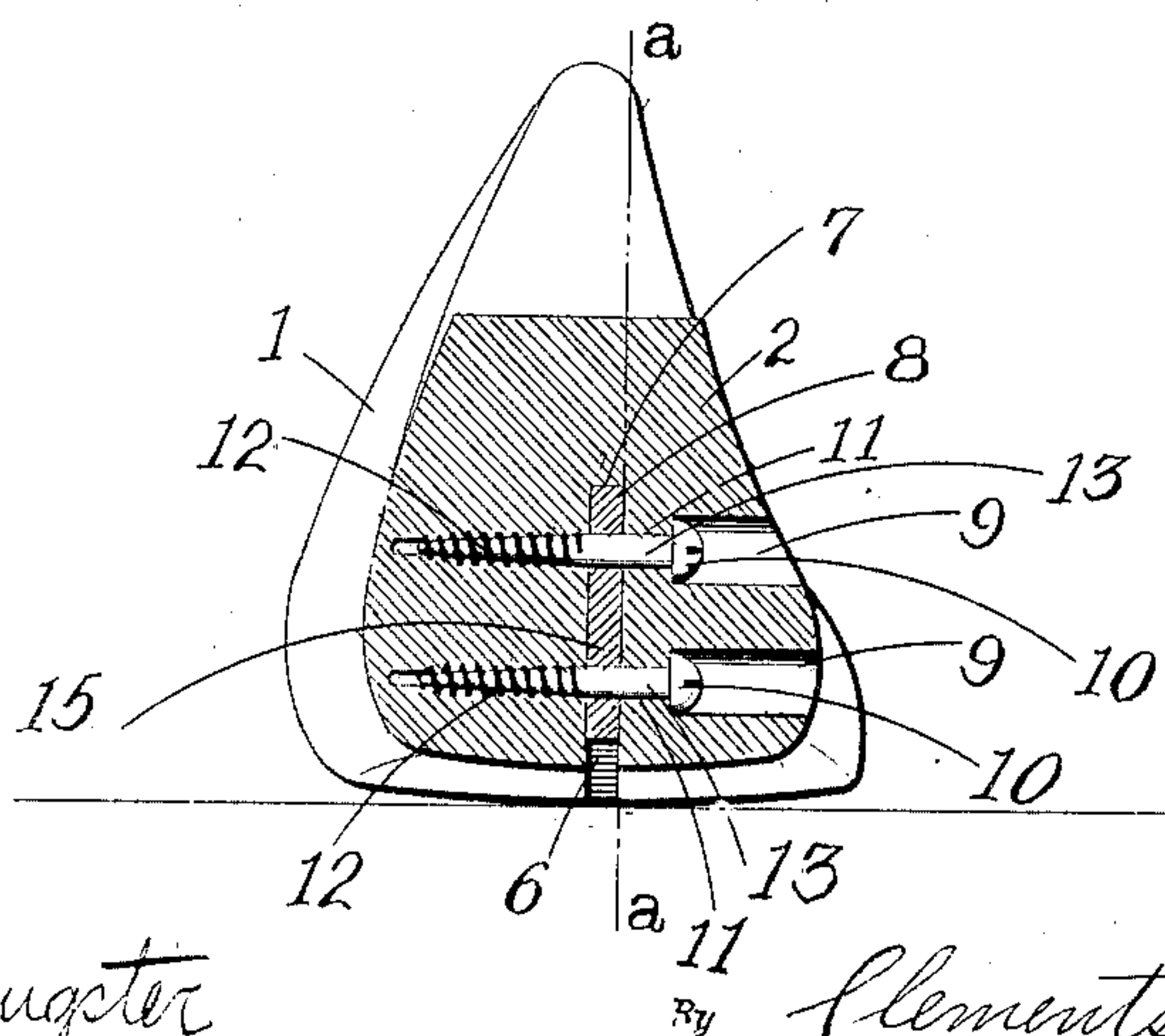


Fig. 3.



Witnesses.

L. M. Sangster
Geo. C. Neubauer.

Inventor.

Clements B. Kisters
A. J. Sangster Attorney.

UNITED STATES PATENT OFFICE.

CLEMENTS B. KOSTERS, OF BUFFALO, NEW YORK.

NON-DETACHABLE HINGED LAST.

No. 879,181.

Specification of Letters Patent.

Patented Feb. 18, 1908.

Application filed February 25, 1903, Serial No. 145,022.

To all whom it may concern:

Be it known that I, CLEMENTS B. KOSTERS, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a certain new and useful Improved Non - Detachable Hinged Last, of which the following is a specification.

This invention relates to an improved non-separable hinged last in which the members of the last are hinged together by means of two plates fitted in a slot in the last members, one of the hinge plates having a recess provided with a curved wall which forms the greater portion of a circle and the other hinge plate having an angular extension which fits in the recess and a curved edge which contacts throughout with the curved wall of the recess.

The principal object of the invention is to provide a simple and very strong non-separable hinge last of this character.

This invention also relates to the means for clamping the hinge plates in the slot in the last members so that the side walls of the slots are drawn firmly against the plates.

The invention also relates to certain details of construction, all of which will be fully and clearly hereinafter described and claimed, reference being had to the accompanying drawings, in which,—

Figure 1 is a longitudinal section through the improved last on line *a a*, Fig. 3, with the last members in extended position. Fig. 2 is a longitudinal section through the improved last on line *a a*, Fig. 3, with the last members in collapsed condition. Fig. 3 is a transverse section on line *b b*, Fig. 1.

In referring to the drawings in detail, like numerals designate like parts.

1 represents the toe or forward member of the last and 2, the heel or rear member. Each of the last members is provided with a deep longitudinal slot 6, in its bottom surface to receive the hinge plates, which is cut in the last by means of a wabble saw before the partially completed last is severed into two members.

The circular form of the wabble saw leaves a curved top edge or wall 7, to the slots which is substantially an arc of a circle, and the top edge 8, of the plates of the hinge is similarly curved so that when fitted in the slot, the curved top edge of the hinge plates fit snugly at all points against the top wall of the slots which thus forms a curved upper shoulder to hold the plates in place. The advantage of

this is that the top edge of the hinge plates contacts at each point with a different portion of the grain of the wood in the last body and thus distributes the strain upon all the different grain parts through which the slot is cut, thereby materially strengthening the same against splitting from the strain of operation of the last.

To retain the plates in place in the slot, a series of countersunk depressions 9, are bored in one side of the last to receive the heads of screws 10, and a series of openings 11, extend inwardly from the countersunk depressions 9, through the plates in which fastening screws engage.

In order to draw the walls of the slot 6, firmly and rigidly against the plates and thereby clamp the plates in the slots, the screw portions 12, of the screws terminate at a sufficient distance from the head 10, to leave a smooth surface portion 13, which fits into that portion of the openings 11, adjacent to the countersunk depressions 9, and that portion passing through the hinge plates the screw head 10, and plain surface portion 13, being upon one side of the hinge plates and extending through said hinge plates and the screw portion 12, upon the opposite side, so that rotation of the screws into place will draw the walls toward each other by screw pressure and rigidly grip and clamp the hinge plates in place, substantially as shown in Fig. 3.

The hinge plates are preferably stamped up in dies from sheet metal of suitable thickness, and comprise a recessed plate 14, and an extension plate 15. The recessed plate which is preferably fitted in the slot of the top member has the curved outer edge 8, heretofore referred to and a recess or depression 16, the edge wall 17, of said recess being curved to the greater portion of a circle and terminating at its upper end in an abrupt inwardly extending radial shoulder 18, and at its lower end in an abrupt outwardly extending shoulder 19. The radial shoulder 18, has its rear surface 20, and its forward surface 21, extending substantially radially from the center of the circle of which the wall 17, forms a part and that portion of the shoulder 18, between the inner extremes of its radial surfaces 20 and 21, has its inner surface 22, curved to an arc of a circle whose center is common with the center of the circle of the wall 17. The extension plate 15, is preferably fitted in the slot in the heel member and

has an extension 33, which fits and turns on its peripheral edge in the recess in the plate 14. The lower edge 24, of the extension is curved to the greater portion of a circle similar in size and curvature to the curved wall 17, of the recess, and has a rear outwardly extending shoulder 25, which forms the longer edge of that portion of the extension adjacent to the body portion of the plate 15, and a forward inwardly extending radial shoulder 26, which is adapted to fit and contact at all points with the surface 21, of the shoulder 18, when the last parts are in extended position as shown in Fig. 1.

The shoulder 26, extends inwardly for a short distance and terminates at the lower extremity of a curved edge 27, which forms an arc of a smaller circle than the circle of the curved edge 24, and having the same common center as the edge 24. The curved edge 24, terminates at its upper end in an outwardly extending radial shoulder 28, which is adapted to fit against the rear surface 20, of the shoulder 18, when the last members are in the collapsed condition shown in Fig. 2. The hinge parts are so formed that when the last is in the extended position shown in Fig. 1, all of the angular lower edges and a portion of the upper edge of the extension are in contact throughout with the irregular edge wall of the recess so that the parts are held very firmly in their hinge relation.

The chief advantage of the hinge of this invention resides in the fact that that portion of the curved peripheral edge of the extension within the recess is always in contact throughout with the curved wall of the recess which provides a very long bearing surface of even curvature, and forms a hinge of immense strength and practically no wear. This construction is permissible owing to the fact that the hinge parts in this last are not separable lengthwise at any point of their adjustment as the last members are non-detachable in contra-distinction to applicant's former patent in which the last parts were capable of being separated at one point of their adjustment.

While for some purposes the separable last is preferable and possesses distinct advantages, the majority of shoe manufacturers seem to prefer a non-separable hinged last as the members cannot be detached and lost. Other advantages reside in the curved top wall of the slot in which the hinge plates fit

and which constitutes a firm unyielding supporting shoulder for the curved top of the plates and the manner of gripping and clamping the plates in place in the slot between the opposed walls thereof by screw device.

I claim as my invention.

1. A non-separable hinged last having a plurality of members and a longitudinal slot, and hinged plates in said slot comprising a plate fitting in the slot of one member and having a recess with a portion of its edge wall curved continuously throughout to the greater portion of a circle and terminating at one end in an inwardly extending shoulder and at the other end in an outwardly extending shoulder and a plate fitting in the slot of another member and having an extension pivoting and locking in the recess with an edge conforming throughout in curve to curve of the recess and adapted to be in contact throughout with the under edge of the recess, and shoulders adapted to abut against the shoulders of the recess.

2. A hinged last having a longitudinal slot cut in its bottom surface and provided with a curved wall constituting a shoulder and hinge plates in the slot having a correspondingly curved top edge contacting with the shoulder, substantially as set forth.

3. A hinged last having a bottom longitudinal slot, the top wall of which is curved continuously throughout to an arc of a circle and a hinge fitting in the slot and having a corresponding continuously curved top edge adapted to abut at all points against the top wall of the slot and means for rigidly clamping said hinge in said slot, substantially as set forth.

4. A hinged last comprising a plurality of members and having a longitudinal bottom slot cut partly in each member, the top wall of said slot, being curved continuously throughout to an arc of a circle, and a hinge comprising a like plurality of hinge plates fitted in the slot and provided with a corresponding curved top edge fitting throughout against the top wall of the slot, whereby the top edge of the hinge at each point rests against a different portion of the grain of the wood in the last to strengthen the same against splitting, substantially as set forth.

CLEMENTS B. KOSTERS.

Witnesses:

L. M. SANGSTER,
CHAS. PANKOW.