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LAST.

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914,376.

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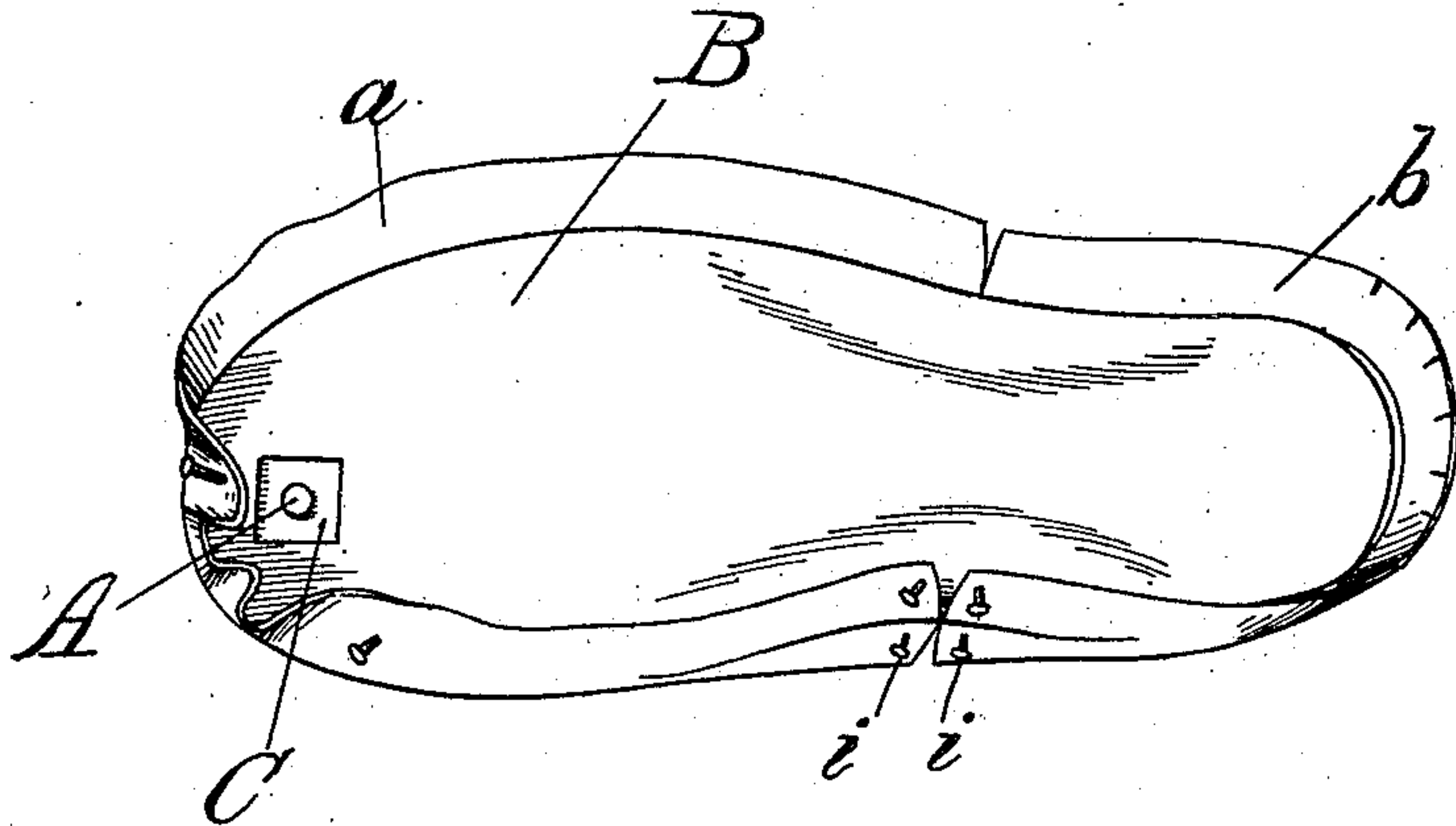


Fig. 1.

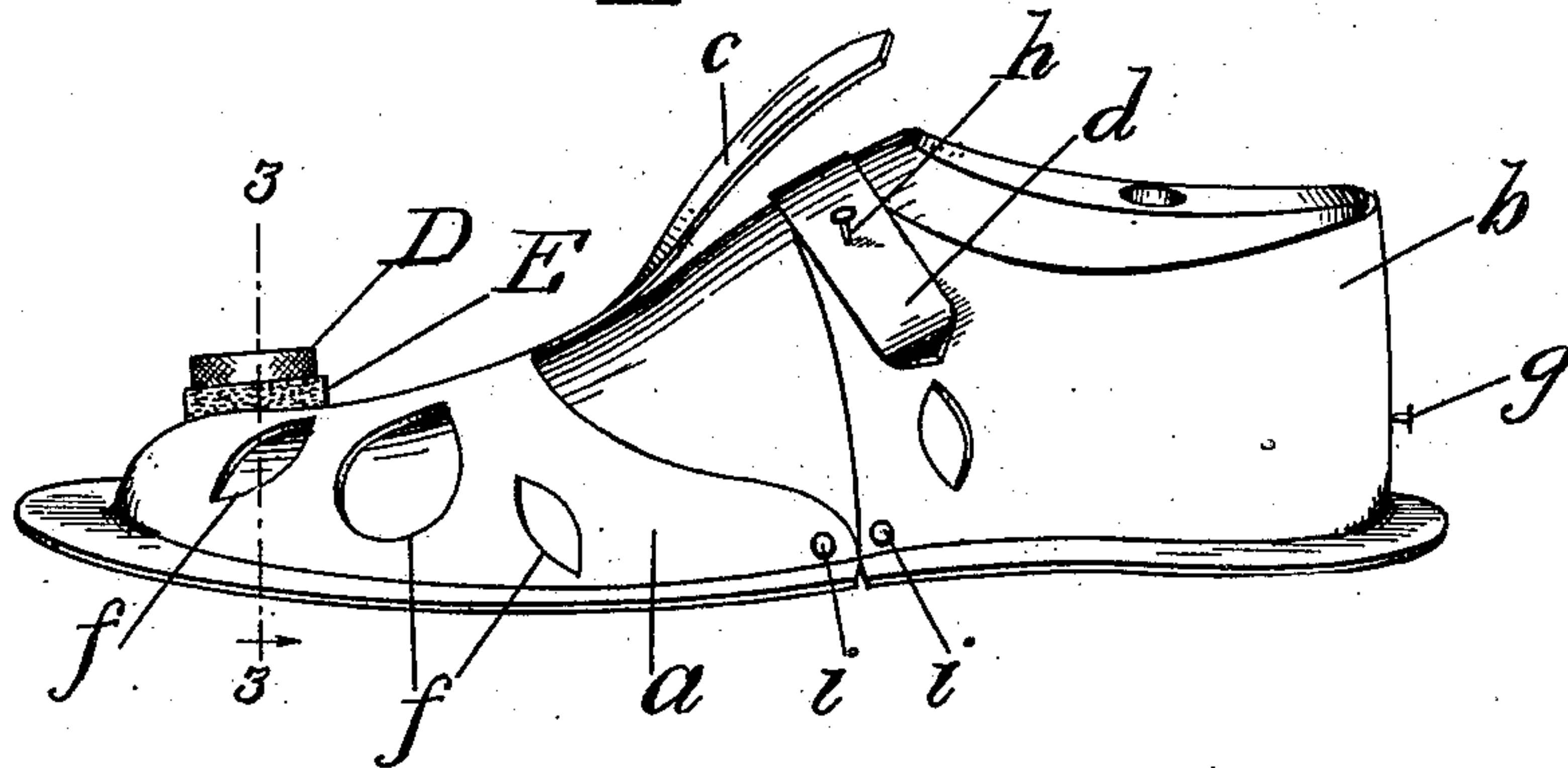


Fig. 2.

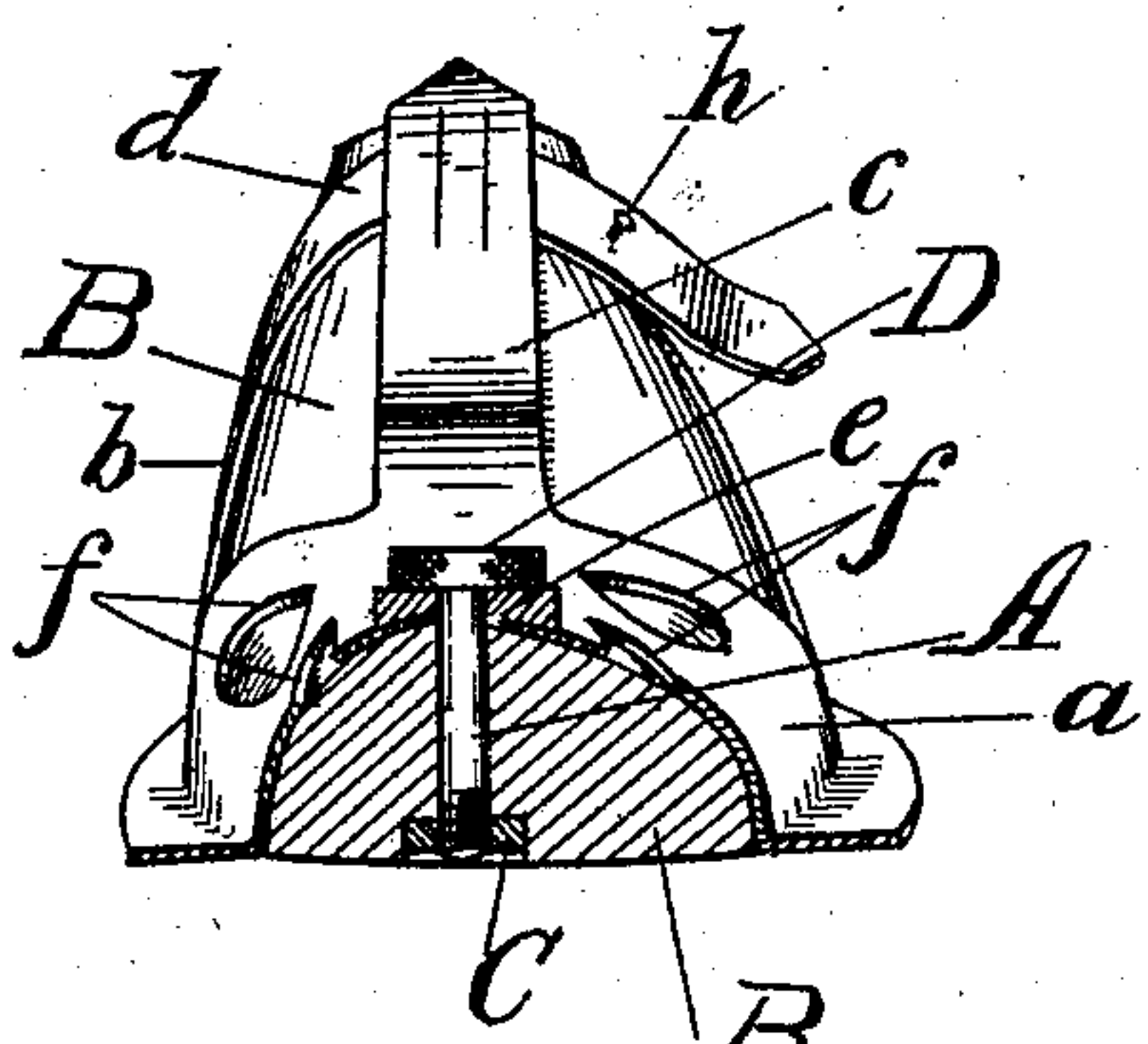


Fig. 3.

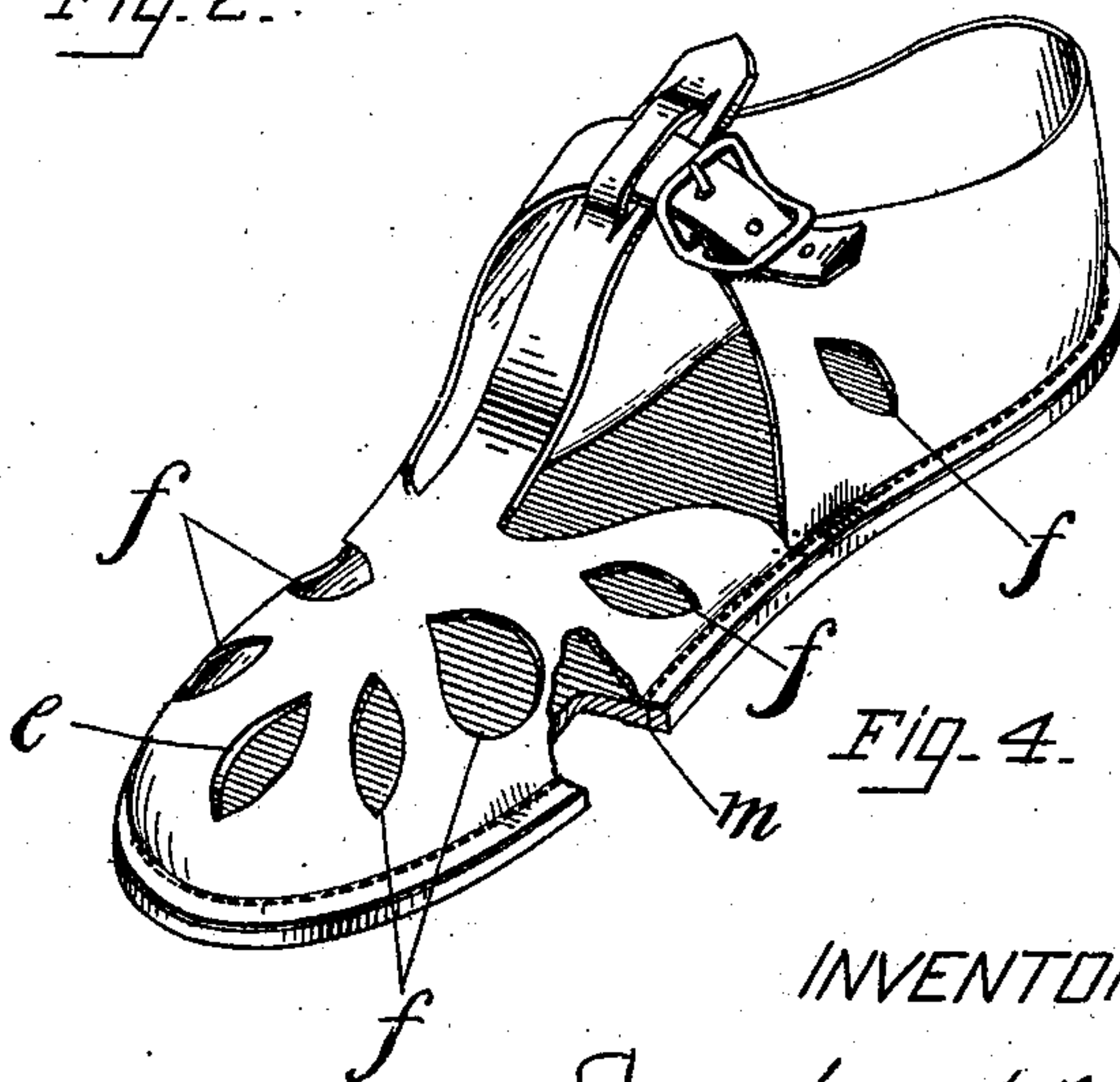


Fig. 4.

WITNESSES.

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# UNITED STATES PATENT OFFICE.

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LAST.

No. 914,376.

Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that I, SANFORD A. BAKER, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented certain Improvements in Lasts, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to lasts upon which shoe uppers are held during the operations of shaping the uppers preparatory to attaching soles thereto.

More particularly the invention pertains to the combination of a last with fastening means for holding an upper on the last.

Prior to this invention it has been a common practice to secure an upper to a last by driving tacks, or the like, through the upper into the lateral surface of the last, with the usual result that conspicuous parts of the upper were seriously blemished. This is particularly undesirable in the forepart of the vamp which is a conspicuous part of the shoe when it is worn. The shank-portions of the upper, which immediately overlie the shank of the shoe on opposite sides, are less conspicuous than the vamp forepart and consequently the same objection cannot be urged so strongly against the use of blemishing fasteners at said shank-portions. This is also true of the extreme rear of the heel-portion of an upper.

It is an object of this invention to provide means for holding an upper on a last without blemishing conspicuous parts of the upper; and to this end an important feature of the invention consists in the combination of a last with fastening means arranged for holding an upper in position on the last preparatory to the sole-attaching operation by pressing a conspicuous portion of the upper against the last without blemishing the upper.

If an upper be attached to a last by fasteners positioned near the bottom edge of the last, the fasteners so arranged are likely, unless previously removed, to interfere with the sole-attaching operation, as by obstructing the action of the needle when a sole is being stitched to the upper; and consequently, it is the usual custom to remove such fasteners before a sole is attached.

Thereupon the upper is left comparatively loose without adequate provision for centering it on the last.

An object of this invention is to provide means for securing an upper on the last so as to center the former effectively on the latter without interfering with the sole-attaching operation. In this connection the invention comprises the combination of a last with fastening means arranged for pressing an upper against the last at a point remote from the bottom of the last and thereby centering the upper on the last for the sole-attaching operation.

It may be important to fasten some parts of an upper to the last near its bottom edge; for example, the concavity of the shank-portion of a last may demand that the adjacent portion of the upper be secured thereto near the bottom edge of the last in order to preserve a concave form of the upper in this vicinity. When the upper is thus attached at the shank-portion it is expedient that the fastening means, above referred to, be positioned as far as convenient from said shank-portion in order that the action of said fastening means and the shank-attaching means may be most effectually distributed; that is to say, it is desirable that the fastening means act to press the upper against the last at a point which is remote from the shank-portions of the upper. To this end, a feature of this invention consists in the combination of a last with means for fastening a portion of the upper against the last, said means being arranged to act on the upper at a point remote from the shank-portions of the upper and also remote from the bottom of the last.

It is preferable that fastening means embodying certain features of this invention be attached, or capable of attachment, to a last, so that said fastening means and last, collectively, shall constitute a substantially unitary contrivance which may be conveniently handled. It is also preferable that the point of attachment of the fastening means to the last be located near to the place at which the fastening means are intended to press the upper against the last, in order that the pressure of said fastening means may be most effectively applied to the upper by reason of having a more direct purchase thereon. To this end a feature of the in-



vention consists in the combination of a last and fastening means constructed and arranged to be attached to the last at a point near where said means is intended to act on an upper, and to press an upper against the last without blemishing the upper. Such an arrangement of the last and fastening means results in the transmission of the counter-pressure from the pressing action of the fastening means directly to the last without any effect upon other portions of an upper. The pressure upon one portion of an upper can thus be made independent of that upon any other portion.

Obviously, if it is preferred that the fastening means be attachable to the last at a point near to the place at which the fastening means press the upper, it is also preferable in some cases that a portion of the fastening means be arranged to project through a normal aperture in the upper, as though a vamp-aperture of an open-work barefoot sandal. In this connection the invention comprises the combination of a last with fastening means arranged to project through a normal aperture of an upper. In this manner the fastening means may be arranged to act effectively upon the upper in the vicinity of the normal aperture without demanding that the upper be blemished especially to accommodate the fastening means.

The expression "normal aperture" used herein is employed to designate an opening in a shoe upper which serves purposes of ornamentation or utility which are distinct from the mere purpose of providing for the reception of fastening means. A vamp-aperture of an open-work barefoot sandal, and the opening between the flaps of a shoe fly are illustrations of normal apertures.

Other features of the invention will be described hereinafter and will be defined in the claims.

In the accompanying drawings: Figure 1 is a bottom view of a last showing a preferred device for attaching fastening means to the last; Fig. 2 is a side elevation of a last having an upper thereon, showing a preferred form of fastening means acting on the upper; Fig. 3 is a section of the line 3-3 of Fig. 2 showing the specific fastening means in elevation; Fig. 4 is a perspective view of an open-work barefoot sandal a portion of said sandal being shown in section to illustrate a convenient manner of attaching a sole while the upper is acted upon by the preferred fastening means.

A preferred form of fastening means embodying this invention comprises a screw A having a shank arranged to project through a normal aperture of a shoe vamp, and to be attached to a last B by means of a nut C secured in a recess in the last. The screw A has a head D which acts upon an underlying

cushion E (when the screw is turned down in its nut) to cause said cushion to press neighboring portions of a shoe vamp against the last B. As shown in Fig. 3, the shank of the screw A extends entirely through the toe portion of the last, and the recess for the nut C is located in the bottom of the last. Obviously this construction is not essential even in the preferred embodiment of the invention: the screw shank may enter the last only far enough to engage screw-threads supplied therein in any convenient manner, or some other means for holding the screw, or its equivalent, to the last may be employed. Although it is preferred to have the fastening means project through a normal aperture of the upper, it is by no means essential that said means project through an aperture in the extreme toe portion of the vamp.

The specific embodiment of the invention just described, for purposes of illustration, may be used advantageously in making an open-work barefoot sandal. Such a sandal usually comprises a circular vamp *a* and a heel-portion *b*. The vamp *a* has an integral tongue *c* intended to extend upwardly along the wearer's instep, and the heel-portion *b* has an integral strap *d*, consisting of an extension from one side of the heel-portion, arranged to pass through parallel slits near the end of the tongue *c* and to be fastened by a buckle attached to the other side of the heel-portion (see Fig. 4). The "open-work" of the sandal consists of various apertures *e, f, f* which may be of any desired size and arrangement. Also a considerable opening intervenes between the front extremities of the heel-portion *b* and the edges of the vamp throat. As shown in Fig. 4, the vamp and heel-portion are attached to a sole end to end without either overlapping the other. A shoe of this sort is not intended to fit the foot snugly but is rather desired to give the foot considerable freedom so as to contribute as nearly as possible the benefits of dispensing with ordinary shoes while at the same time giving the foot ample protection. Consequently it is permissible, in order to provide against the destructive wear to which such a sandal is subjected, to make the upper of comparatively thick and heavy leather, and this is commonly done.

The first step in making a sandal is to form the vamp and heel-portion. In order to soften the leather and render it pliable (when heavy leather is used) it may be soaked or otherwise moistened. Thereupon the vamp and heel-portion, which collectively may be termed the upper, are assembled on the last. The vamp *a* is preliminarily secured in place by projecting the shank of the screw A through a vamp-aperture *e* and turning said screw into its nut C until



the screw-head D firmly clamps the cushion E against those portions of the vamp which surround the aperture *e*. The heel-portion may be fastened to the last in any convenient manner as by a tack *g* driven into the extreme rear of the heel of the last (see Fig. 2). Also a tack *h* is preferably driven through the end of strap *d* and the underlying part of the heel-portion (see Fig. 2).  
 10 When the upper has been thus disposed on the last, it is stretched or lasted to give it the desired shape. This may be effected in any practicable manner; for example, the bottom edge of the upper may be drawn or stretched over the bottom of the last either by machine or hand pincers, and when properly positioned it may be temporarily secured in place by driving lasting tacks through the edge of the upper into the bottom of the last as illustrated in Fig. 1.  
 20 When lasted it is preferable to drive tacks *i i* through the shank-portions of the upper into the lateral surface of the last near its bottom edge (see Figs. 1 and 2). It may be desirable to permit the upper in this condition to remain fastened by the lasting tacks until it has dried out.

The lasting tacks are withdrawn a few at a time to free successive portions of the edge of the upper for the edge-turning operation, which is preferably performed by beating out the edge of the upper (as by using a welt beating machine) in a plane substantially flush with the bottom of the last. Fig. 2 shows an upper on a last with the edge turned out in this manner. Thereafter the under face of said out-turned edge may be coated with cement, if desired, and a sole may be attached thereto by stitching through the edge of the upper and the edge portion of the sole as shown at *m*, Fig. 4.

It will be noted in the above detailed description and in the drawings that preliminarily to, and during, the sole-attaching operation the upper is secured to the last by projecting fastening means (exemplified by the screw A) through a normal aperture in the upper and pressing a portion of the upper against the last, and preferably also by tacking the shank-portions of the upper to the last near its bottom edge. Evidently it is not essential to project the fastening means through an aperture in the upper, but, for reasons already elucidated, this is to be preferred. The drawings illustrate fastening means comprising a screw having a head which presses against the upper through the medium of the washer or cushion having a comparatively soft or yielding surface and this is highly desirable as a precaution against mutilating the upper, but nevertheless the washer might be eliminated and a screw-head, or its equivalent, might bear directly upon the upper.  
 65 The specific fastening means shown in the

drawings are particularly convenient for use in connection with making open-work sandals, but certain alterations in the specific form shown might be necessitated if it were desired to use an embodiment of this invention in connection with the manufacture of other types of shoes. Such alterations, however, would involve mere mechanical ingenuity and would in no way impair the scope of this invention as including such use.

While some features of this invention are capable of use in various connections, it is to be understood that the invention relates primarily to means for holding an upper on a last during the "lasting" of the upper (*i. e.* shaping the upper to the last) preparatory to the subsequent sole-attaching operation.

Having now described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:—

1. The combination of a last with fastening means arranged for holding an upper in position for the sole-attaching operation by pressing a conspicuous portion of the upper against the last, said means being constructed to transmit the counter-pressure directly to said last.

2. The combination of a last with fastening means arranged for pressing the upper against the last at a point remote from the bottom of the last, and thereby centering the upper on the last for the sole-attaching operation.

3. The combination of a last with means for fastening a portion of the upper against the last, said means being arranged to act on the upper at a point remote from the shank-portions of the upper and also remote from the bottom of the last.

4. The combination of a last and fastening means constructed and arranged to be attached to the last at a point near where said means is intended to act on an upper, and to press an upper against the last.

5. The combination of a last with fastening means constructed and arranged to project through a normal aperture of an upper and to be brought into clamping relation to said last to hold said upper against movement out of proper lasting position.

6. The combination of a last with fastening means arranged to project through a normal aperture in the upper part of a vamp.

7. The combination of a last and fastening means arranged to press a portion of an upper against the last, at a point remote from the bottom of the last, said fastening means comprising a relatively yielding clamping surface.

8. The combination with a last, of fastening means having provision for pressing a portion of an upper against the last at a



point remote from the bottom of the last; and a cushion arranged to be interposed between said fastening means and an upper.

9. The combination of a last with fasten-  
5 ing means arranged to project through a normal aperture in the upper and a relatively yielding surface intermediate the fastening means and upper.

In testimony whereof I have signed my name to this specification in the presence 10 of two subscribing witnesses.

SANFORD A. BAKER.

Witnesses:

THOMAS PIERCE,  
FRED A. COLLINS.