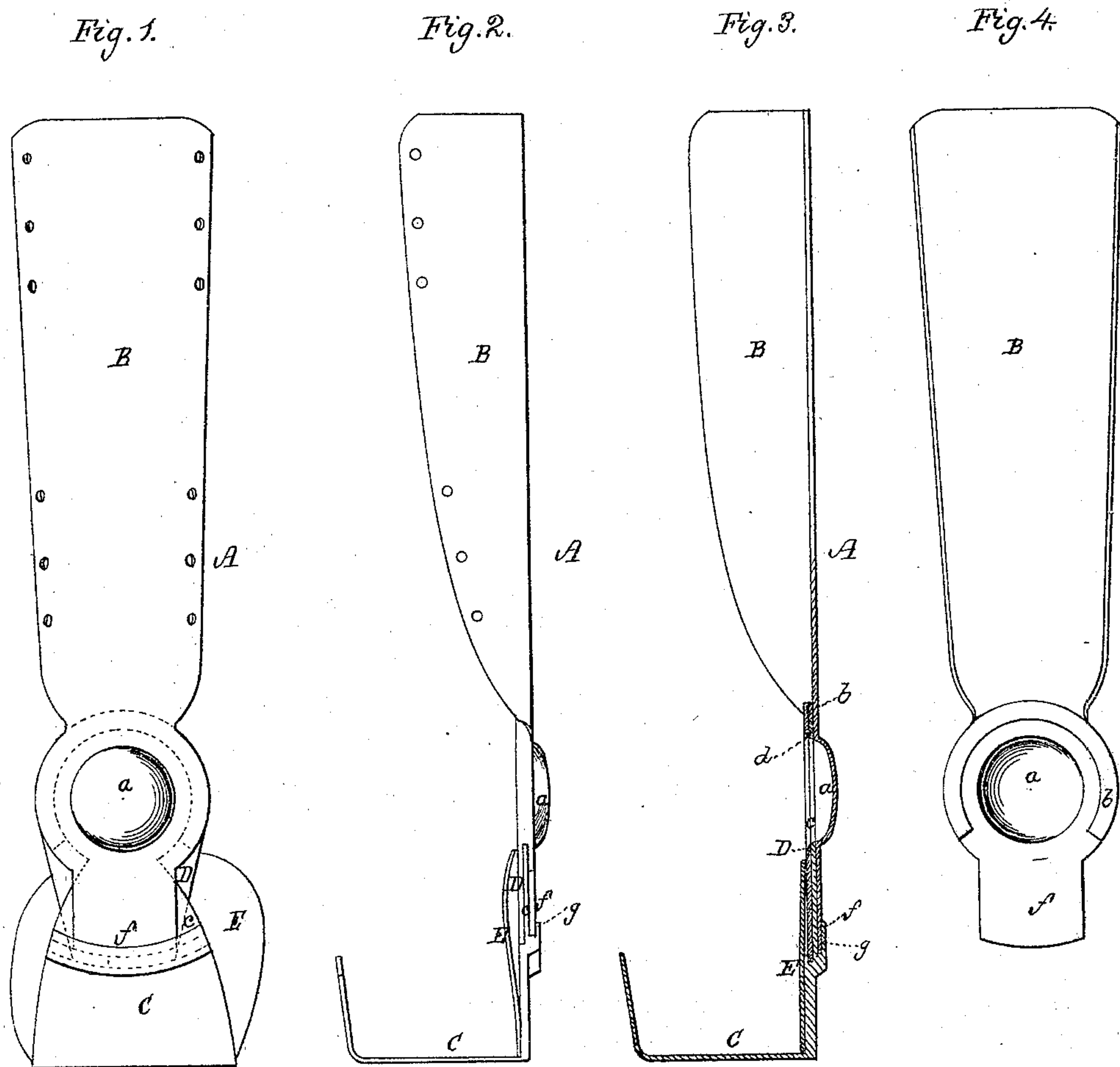


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Improvement in Joints for Ankle-Braces.

No. 130,639.

Patented Aug 20, 1872.



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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN JOINTS FOR ANKLE-BRACES.

Specification forming part of Letters Patent No. 130,639, dated August 20, 1872.

Specification describing an Improved Joint for Braces or Supporters for Ankles, &c., or for other purposes, invented by EDWARD E. HOWE, of Boston, Suffolk county, Massachusetts.

This invention relates to a brace or supporter for various joints of the human body; and it consists, first, in the employment of an intervening stationary plate, applied to the lower portion of the inner side of the supporter and covering the hinge which unites its two parts, this plate serving to protect the person from the friction resulting from the motions of the hinge; and, secondly, the invention consists, in detail, in the construction of the hinge which joins the two portions of the supporter, as hereinafter described.

The drawing accompanying this specification represents in side elevation in Figure 1, in edge view in Fig. 2, and in vertical section in Fig. 3, at A, an ankle brace or supporter, the upper semi-cylindrical portion thereof, which has a bearing upon and is strapped to the leg, being shown at B, and the lower portion or stirrup, which receives the foot, at C; such parts, as well as the entire instrument, being composed, preferably, of fine steel, in order to obtain lightness and strength, with the requisite lateral flexibility.

The joint between the two portions B and C is constructed as follows: The lower part of the plate B is fashioned into a circular bowl or shallow socket, *a*, as shown in Fig. 4 of the drawing, which is a side elevation of such plate B, while surrounding this socket and affixed to the inner side of the plate is a segmental ring or lip, *b*, of a somewhat larger diameter, also shown in said Fig. 4. The stirrup or foot-rest C—if the supporter is designed for the ankle—is formed of a flat plate, bent into the desired form, its inner leaf or lip *c* terminating in a ring or tongue, *d*, which is received within the lip *b*, before named, and rests upon the plate B, said ring surrounding the socket *a*, and having its opening of a diameter equal to that of such socket. The upper portion of the leaf *c*, which constitutes the support of the ring or tongue *d*, is received within the opening of the lip *b*, and is of a width considerably less than such opening, in order to permit of play of the two por-

tions of the supporter, the ends of the lip serving as stops to determine the extent of this play. D represents an additional plate, which overlaps the ring or tongue *d*, and is securely attached to the plate B or its lip *b*, this latter plate and the lower part of the plate B thus constituting the outer portions of the hinge, while the plate C constitutes the intervening or tongue portion thereof. The lower portion of the plate B terminates below its socket in a tongue, *f*, and this tongue extends into a segmental channel, *g*, formed in the outside of the stirrup, as represented, such tongue and channel constituting a valuable portion of the supporter, as they impart strength and stiffness to it without materially increasing its bulk or weight.

The supporter, constructed as above described, may be worn inside or outside of the wearer's boot, according to taste or circumstances; and, in order to protect the flesh on the one hand or the boot on the other from abrasion and injury, I affix to the inner side of the plate C a thin shield, E, which overlaps the plate D, as shown in Fig. 3 of the drawing.

By my construction of a hinge I obtain a light and graceful form of supporter, and one so thin that it may be worn under a stocking and concealed from sight, while at the same time it is very strong and durable and yet sufficiently elastic.

Although the joint herein shown, which is the prominent feature in this invention, is represented as making part of a supporter for the ankle-joint of the human body, I do not restrict its application to such purpose, as it is available for many other uses.

For certain purposes the bowl of the hinge, as herein shown, may be dispensed with, and in lieu of it a circular hole be punched through the plate B, which would lessen, to a considerable extent, the cost of the hinge, and in some instances would be more valuable.

What I claim, and desire to secure by Letters Patent, is—

1. In combination with the one part of the supporter provided with segment *b*, partially surrounding cavity *a*, the shank *c* of the other part of the supporter provided with ring

d fitting within segment *b*, and the covering-plate *D*, substantially as shown and described.

2. In combination with the parts named in the preceding clause, the tongue *f* and channel *g*, under the arrangement shown and set forth.

3. I claim, in combination with the two parts *B* and *C*, the projecting shield or plate *E*, for purposes set forth herein.

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