

T. HUGHES & C. J. WALSH.

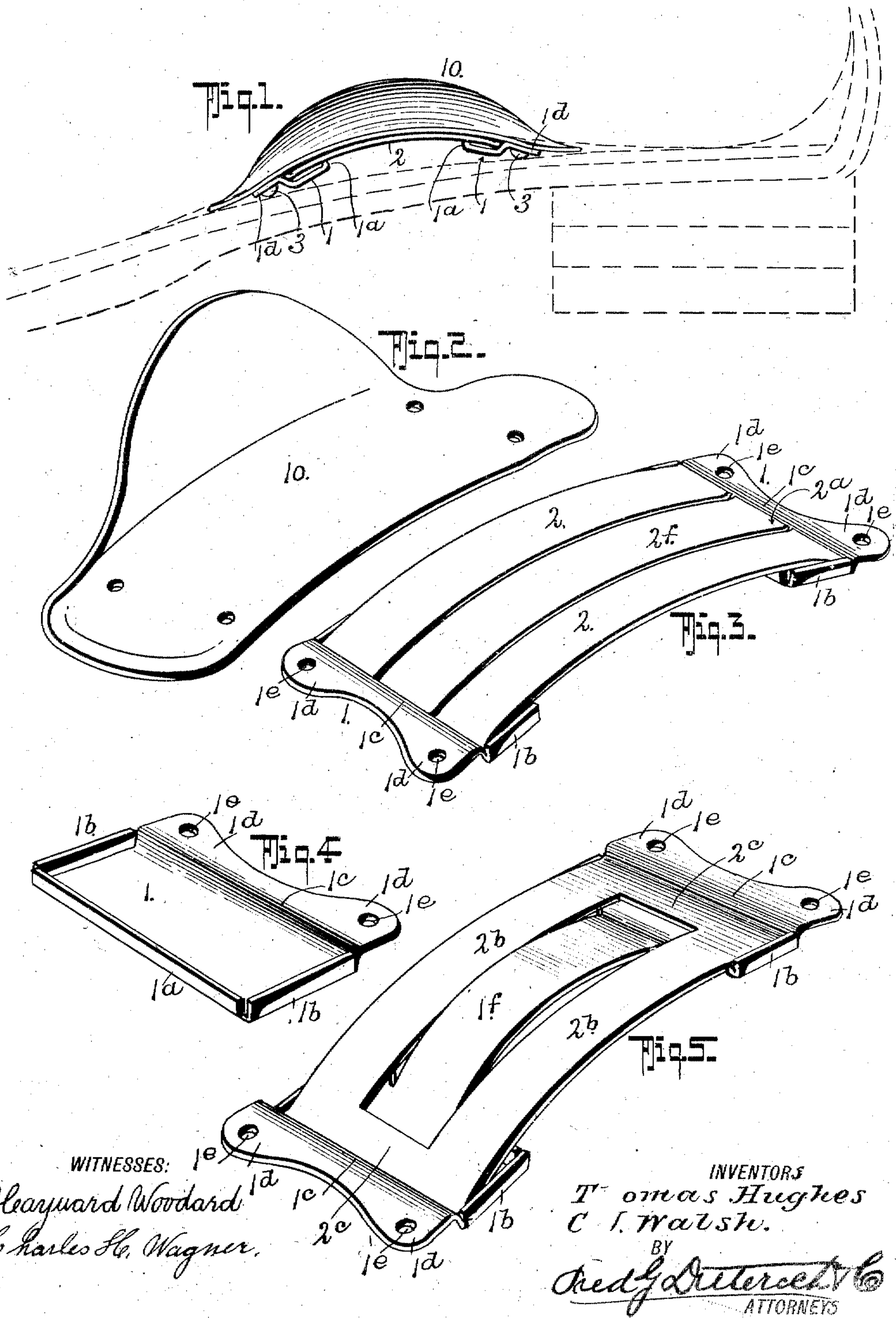
ARCH SUPPORTER.

APPLICATION FILED JUNE 7, 1910.

984,140.

Patented Feb. 14, 1911.

2 SHEETS—SHEET 1.



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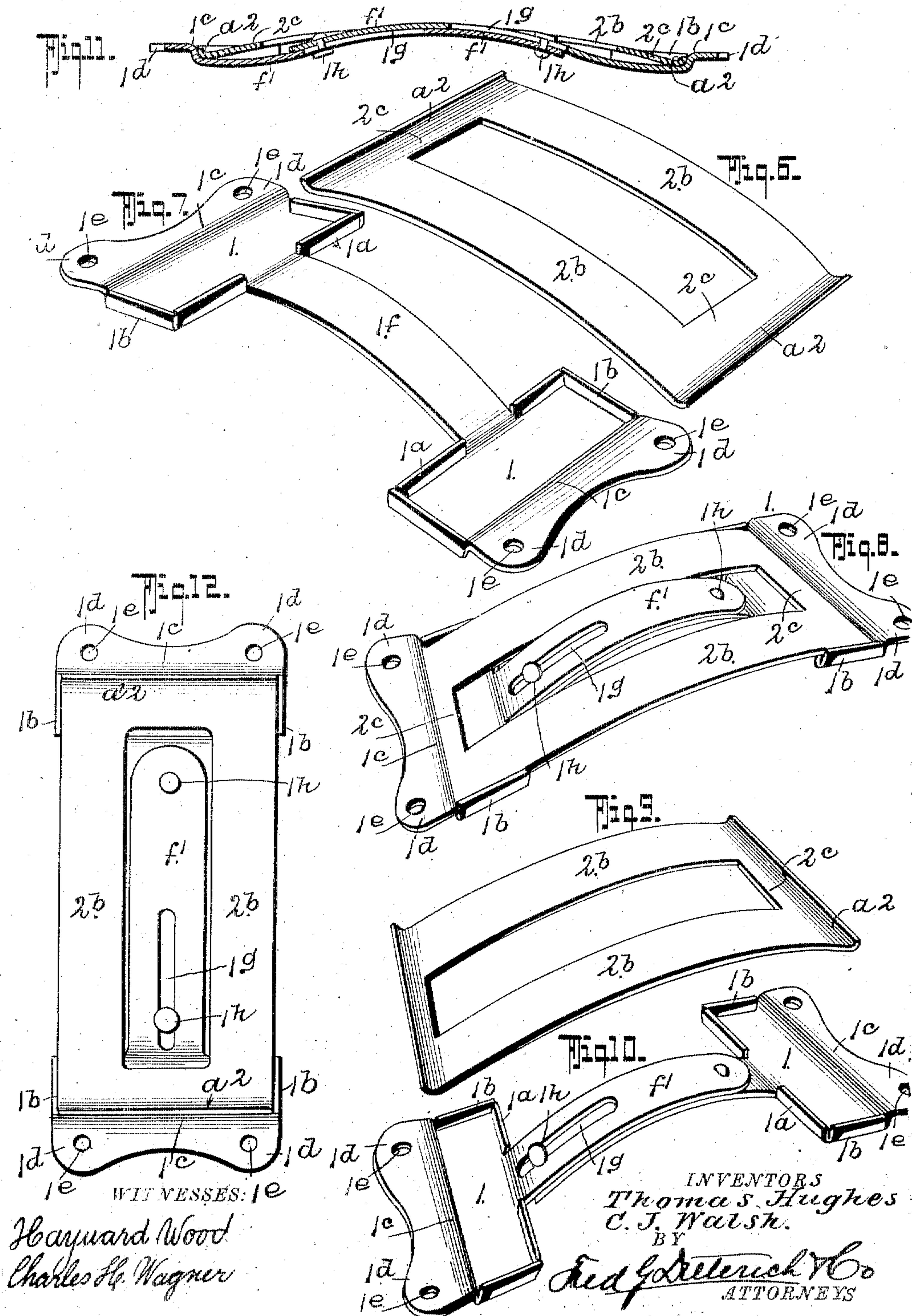
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UNITED STATES PATENT OFFICE.

THOMAS HUGHES AND CHARLES J. WALSH, OF BOSTON, MASSACHUSETTS.

ARCH-SUPPORTER.

984,140.

Specification of Letters Patent.

Patented Feb. 14, 1911.

Application filed June 7, 1910. Serial No. 565,536.

To all whom it may concern:

Be it known that we, THOMAS HUGHES, residing at Somerville, Boston, Massachusetts, and CHARLES J. WALSH, residing at Cambridge, Boston, Massachusetts, have invented certain new and useful Improvements in Arch-Supporters, of which the following is a specification.

Our invention is an improved arch supporter for use in boots and shoes to support the arch of the foot, thereby assisting in reducing flat-footedness, or any tendency thereto in the wearer, and the invention is an improvement and modification of the device disclosed in the patent granted to Thomas Hughes, #940,022, on November 16, 1909. In the patent referred to it will be observed two elongated plates are provided, one end of each of which overlaps the other and such ends are adjustably connected together at such overlapping plates, the other end of each of the plates having a groove or depression to form a stop. Between the stops of the plates flat spring plates are held. The elongated plates have their free ends secured to a body of leather, or some other suitable material, which conforms to the shape of the foot and the arch thereof. In the patent referred to hereinbefore also the elongated plates are each flat from the groove to the overlapping ends and such overlapping ends are rigidly secured together by a bolt or nut after the regular adjustment has been made.

Our present invention differs from that of the patent stated in that in lieu of the flat plate having rigidly held overlapping ends, we provide two transversely elongated cup or cup-like bodies which are secured to the leather body at a definite distance apart, by rivets that pass through ears on the outer edges of the cup, and one or more leaf spring plates are held between the cup and the leather body with their ends in the cup, the leaf springs being placed side by side to lie in the same plane or surface.

In the modified form of the present invention the cups may be joined together by an integral narrow bridge which conforms as nearly as may be to the curvature of the spring or the cups may be joined by a bridge formed by a tongue on each cup that of one cup lapping over the other, the tongues being slidably secured together. When this latter form of the invention is used, a double spring member having a cen-

tral cut away portion to receive the bridge, may be employed.

Again, the invention also resides in those novel details of construction, combination and arrangement of parts, all of which will be first fully described, and then be specifically pointed out in the appended claims, reference being had to the accompanying drawings, in which:

Figure 1, is a side elevation showing the application of the invention. Fig. 2, is a perspective view of the semi-flexible or flexible body. Fig. 3, is a perspective view of the cup and spring, showing one form of the invention. Fig. 4, is a perspective view of one of the cups alone. Fig. 5, is a perspective view of a modified construction showing the "integral" bridge between the cups. Figs. 6 and 7 are perspective views of the parts shown in Fig. 5 separated. Fig. 8, is a perspective view of another modification showing the "slidable section" bridge form of the device. Figs. 9 and 10, are detail perspective views of the parts shown in Fig. 8, separated. Fig. 11, is a vertical longitudinal section of the parts shown in Fig. 8. Fig. 12, is a top plan view of a slightly modified construction shown in Figs. 8 to 11 inclusive.

Referring now to the accompanying drawings, in which like letters and numerals of reference indicate like parts in all of the figures, and referring particularly to the form shown in Fig. 1, it will be observed that we provide a pair of cups 1 each consisting of a flat body having upturned peripheral portions 1^a, 1^b, 1^c, to form a cup, the peripheral portion 1^c being bent outwardly parallel to the body 1 to form ears 1^d which are apertured at 1^e to receive the rivets 3 which secure the cup 1 to the flexible or semi-flexible leather or other body 10 that conforms to the shape of the foot.

In the form shown in Fig. 1 it will be noticed that leaf springs 2 of arch-form in side elevation are provided and held between the cups 1 and the body 10, the ends of the springs 2 being curved at 2^a to rest in the cup 1 and to have movement therein.

When the form shown in Fig. 1 is employed, we prefer to use three springs, the outer ones 2—2 and the inner one 2^c.

In the form of the invention shown in Fig. 5, it will be observed that the cups 1 are joined by an integral arch bridge 1^f which takes the place of the spring 2^c in the form

shown in Fig. 1, and also serves to unite the cups 1—1 by an integral connection.

When the form shown in Fig. 5 is employed, we connect the outer spring sections 2^b—2^b by a connection 2^c, so that the members 2^b—2^b form, as it were, a single spring plate having a central cutaway portion to receive the bridge 1^f, it being understood that the curvature of the plate formed by the members 2^b—2^b and that of the bridge 1^f are as nearly as practicable the same.

In the form shown in Fig. 8, instead of making the bridge that connects the cup 1, as an integral bridge, it is made by two tongues *f'*—*f'*, one carried by each cup and slidable on one another the tongues *f'* being joined by rivets 1^h which pass through slots 1^g, as clearly indicated in Fig. 10, of the drawings, so that the distances between the cups 1—1 may be varied to suit the requirements met with in practice. In this form also the single spring formed by the members 2^b—2^b, 2^c—2^c may be employed. The spring formed by the members 2^b—2^c has its ends curled as at *a*² similarly to the end 2^a of the spring 2, and for the same purpose.

In the modification shown in Fig. 12, it will be observed that the cups 1—1 lie parallel to one another, as they do also in the form shown in Fig. 1 of the drawings. In the form shown in Fig. 8, the cups 1—1 lie at an angle to one another so that they converge toward one another.

In either of the forms of the invention the cups 1—1 may be made parallel to one another or at an angle to one another as conditions may make necessary in practice.

From the foregoing it will be noticed that each of the forms of our invention disclose in their generic nature a pair of cups secured to the body member and adapted to receive the ends of leaf springs which are bowed in side elevation. When one of the springs in the middle is omitted its place may be taken by a bridge portion that connects the cups 1—1 together, the essential principle of construction running through all the forms.

From the foregoing description taken in connection with the accompanying drawings, it is thought the complete construction and advantages of our invention will be readily understood by those skilled in the art to which the invention appertains.

What we claim is:—

1. A body member, a pair of separate and independent cups secured to said body member and spaced apart, and a leaf spring removably held with its ends resting in said cups and curved to engage said body between said cups.

2. A body member, a pair of cups secured to said member and spaced apart, and a plurality of leaf springs held with their ends resting in said cups and curved to engage said body between said cups all of said leaf springs being held in substantially the same plane side by side.

3. A body member, a pair of cups secured to said member and spaced apart, and a plurality of leaf springs removably held with their ends resting in said cups and curved to engage said body between said cups, said springs being spaced apart and connected together at their cup ends.

4. A body member, a pair of cups secured to said member and spaced apart, a plurality of leaf springs removably held with their ends resting in said cups and curved to engage said body between said cups, said springs being spaced apart and connected together at their cup ends, and a bridge connecting said cups together and lying in the space between said springs.

5. A body member, a pair of cups secured to said member and spaced apart, a plurality of leaf springs removably held with their ends resting in said cups and curved to engage said body between said cups, said springs being spaced apart and connected together at their cup ends, and an extensible bridge connecting said cups together.

6. A body member, a pair of cups secured to said member and spaced apart, a plurality of leaf springs removably held with their ends resting in said cups and curved to engage said body between said cups, said springs being spaced apart and connected together at their cup ends, and an extensible bridge connecting said cups together, said bridge lying in the space between said springs.

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Witnesses:

MAE E. LEWIS,
OLMORE C. FRANCIS.