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F. HUTTLESTON

2,123,730

ARCH SUPPORTER

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Fig. 1

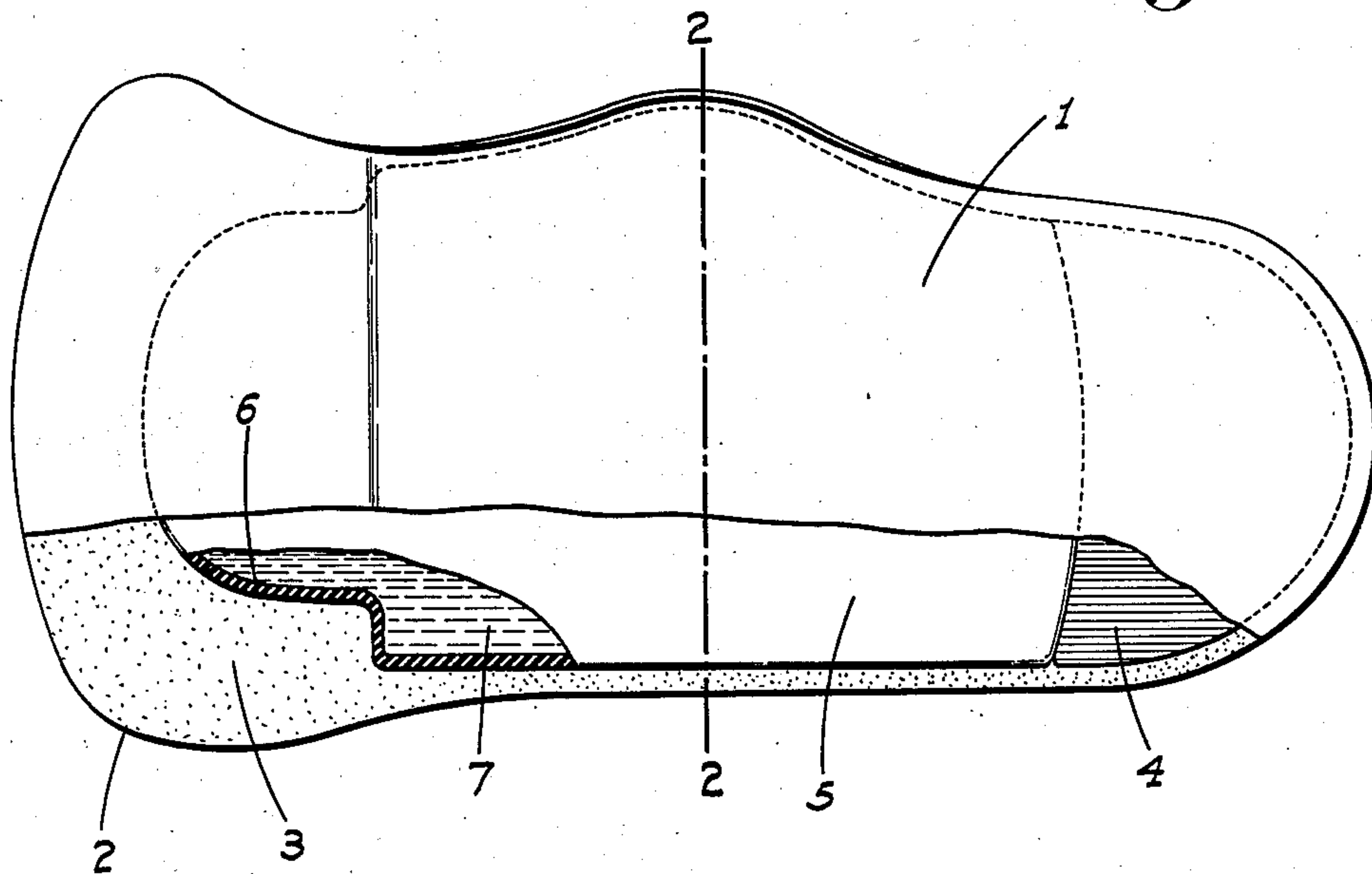


Fig. 2

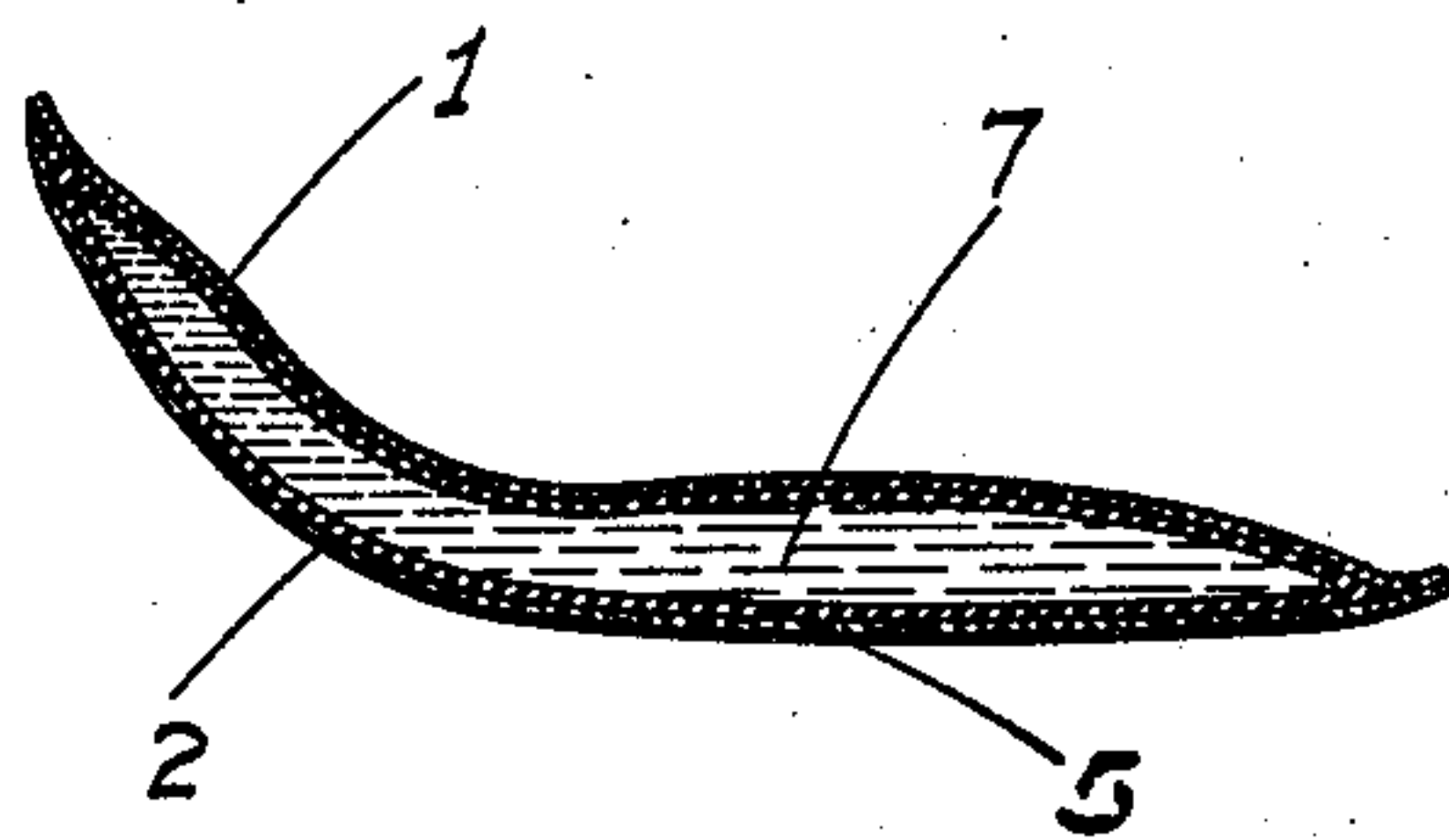
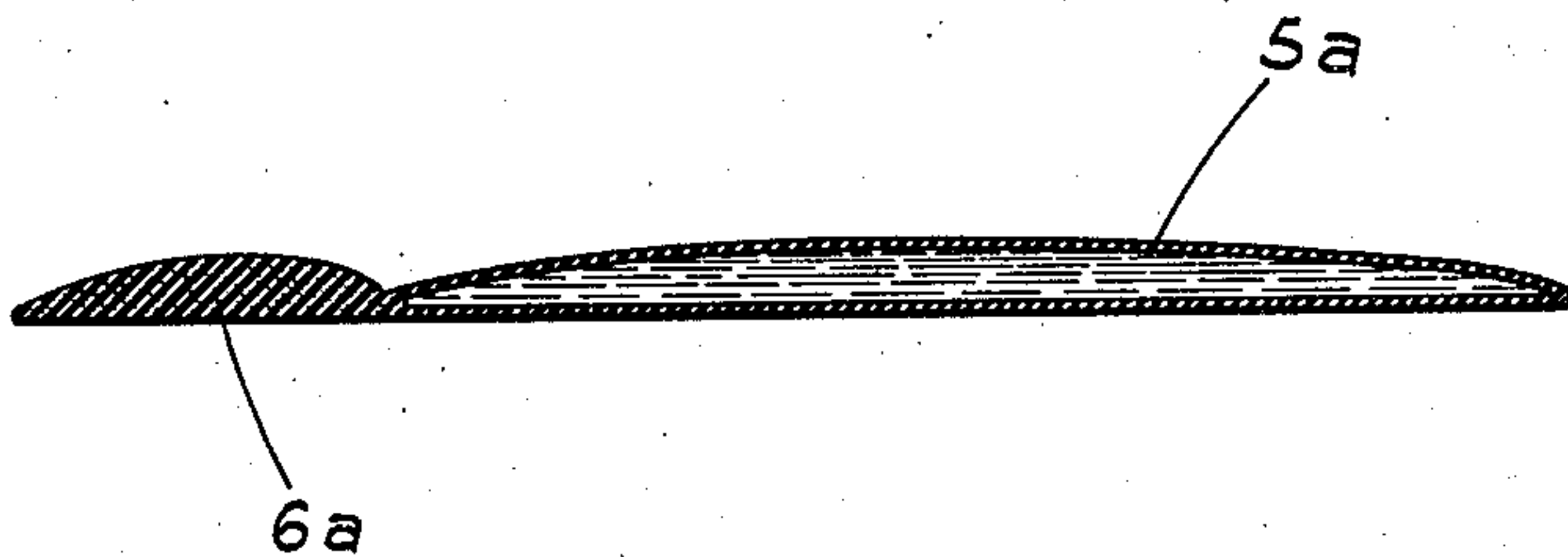


Fig. 3



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ARCH SUPPORTER

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2 Claims. (Cl. 36—71)

This invention relates to arch supporters for shoes, my principal object being to provide a device of this character which while adapted to be made in a relatively few standard sizes, may be easily and quickly fitted or adjusted to particular needs or shape of the arches of individual feet. Firm and proper support for any arch is thus provided, regardless of differences in the height or other configuration of an arch, as may be found in feet of different people.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawing similar characters of reference indicate corresponding parts in the several views:

Figure 1 is a plan view of my improved arch supporter partly broken out and in section.

Figure 2 is a cross section on the line 2—2 of Fig. 1.

Figure 3 is a longitudinal section of the interior sack of the supporter, showing a modified form of metatarsal arch support or pad.

Referring now more particularly to the characters of reference on the drawing, and particularly at present to Figs. 1 and 2, the support comprises upper and lower sheets 1 and 2 of flexible leather, cut to the conventional size and configuration to fit in a shoe and to extend forwardly a certain distance from the heel. The leather sheets are adhered to each other by cement or the like all around the peripheral portions only, so as to form an enclosed casing or envelope.

Secured in the envelope and extending forwardly a short distance from the back end thereof is a stiff relatively thin heel piece 4, to prevent bending of the adjacent portion of the envelope and possible crawling of the same up the back of the shoe. Also disposed within the envelope and extending forwardly from the heel piece 4 and following the general configuration of the envelope is a thin soft elastic rubber sack 5, the forward portion 6 of which is somewhat reduced in size and is shaped to form a suitable supporting pad for the metatarsal arch of the foot, which is ahead of the longitudinal arch which it is the main purpose of this device to support.

The sack is adapted to contain a suitable non-compressible liquid 7, preferably of a self-sealing nature such as rubber vulcanizing cement. The liquid in the supporter is the secret of its success, since being fluid it can accommodate itself in the sack to foot pressure on the supporter and

will naturally fill to the greatest extent that portion of the sack on which is the least pressure (the arch), thus causing the flexible leather envelope to rise under and support the arch.

When being fitted to a customer a certain amount of the liquid is first injected into the sack, before the supporter is placed in the shoe and tried out. If the person does not feel any support under the arch, the supporter is removed and more liquid injected. If the arch then feels to be excessively raised some of the liquid is withdrawn from the sack, the means preferably used for injecting or withdrawing the liquid being a reversible action or two-way hypodermic needle. After a few trials at most, a perfect fit with the arch of any particular individual will be attained, which of course will be retained for the life of the supporter in as much as there are no springs to lose resiliency as in the ordinary form of supporter, but only a confined, non-compressible liquid which cannot evaporate. The use of a self-sealing vulcanizing fluid as the sack filling medium, and a hypodermic needle to inject the fluid, avoids the need of a permanent passage into the sack and a valve in the passage, since the small puncture made by the needle is instantly sealed by the liquid as the needle is withdrawn.

The liquid containing sack 5a shown in Fig. 3 is the same in size and general configuration as that described above. The front metatarsal arch supporting portion 6a however is of solid sponge or cushion rubber, the hollow liquid receiving area of the sack terminating at the back end of said portion 6a instead of extending into the same as in the first described type.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described my invention, what I claim as new and useful and desire to secure by Letters Patent is:

1. An arch supporter comprising an enclosed envelope shaped to fit in a shoe and the upper face of which is flexible, a liquid-tight flexible rubber sack in the envelope and a self sealing liquid in the sack whereby said liquid may be injected into the sack with a hypodermic needle.

2. An arch supporter including a liquid-tight puncturable and flexible sack, and a self-sealing liquid in the sack whereby said liquid may be injected into the sack with a hypodermic needle.

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