

M. W. HALL.
ARCH SUPPORT.
APPLICATION FILED JUNE 30, 1911.

1,064,902.

Patented June 17, 1913.

2 SHEETS—SHEET 1.

Fig. 1.

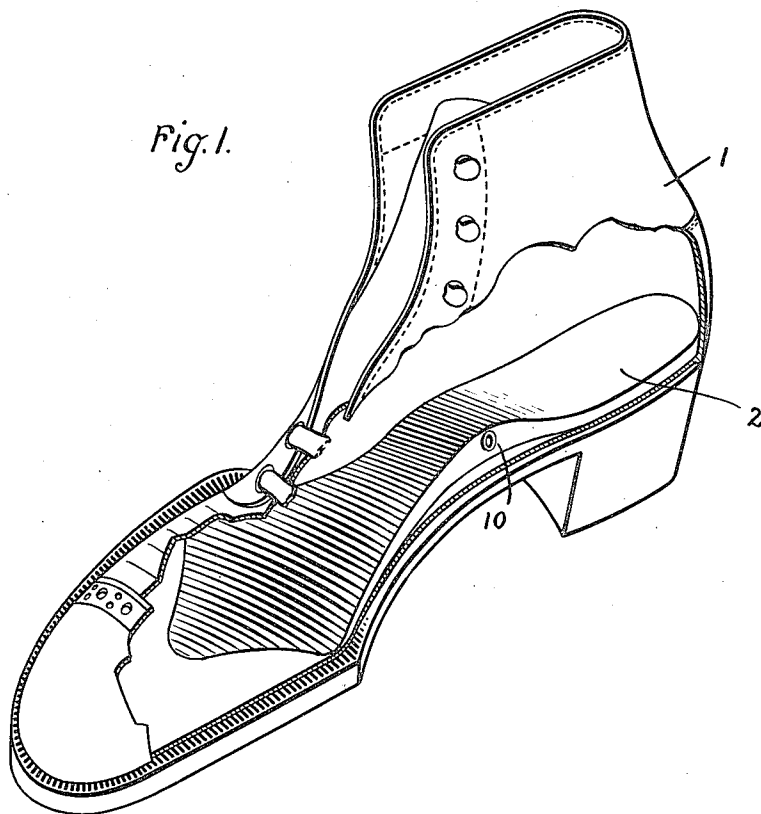
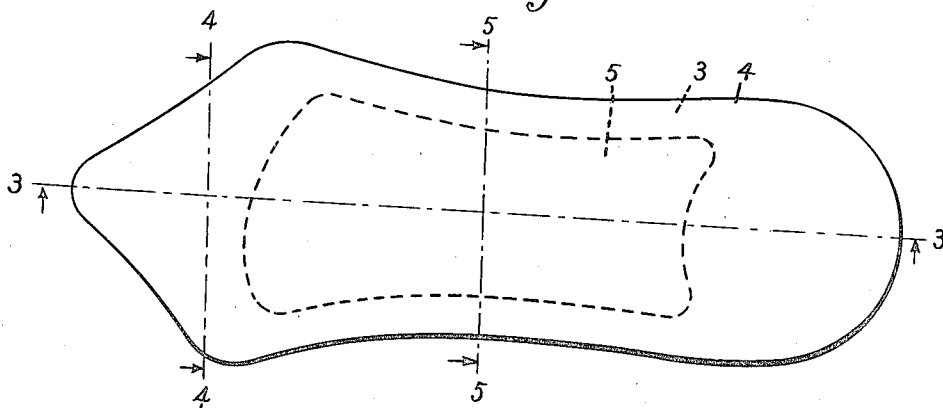


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

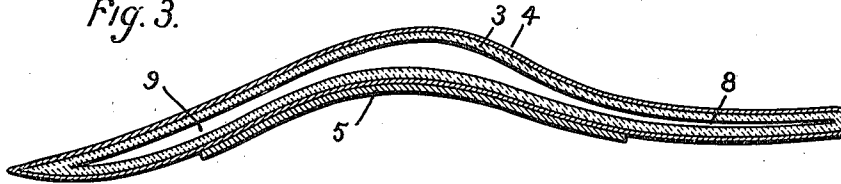


Fig. 4.

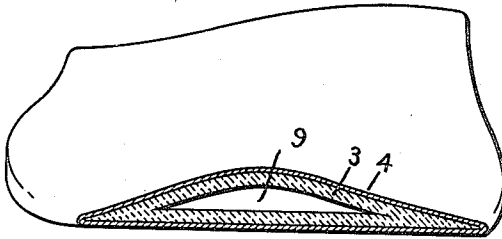


Fig. 5.

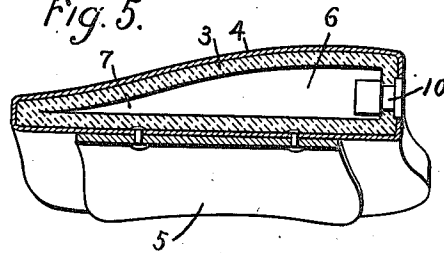


Fig. 6.

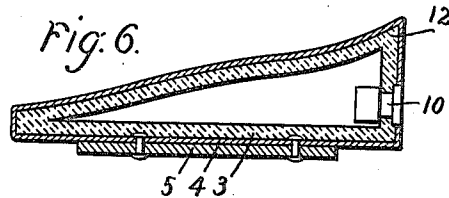


Fig. 7.

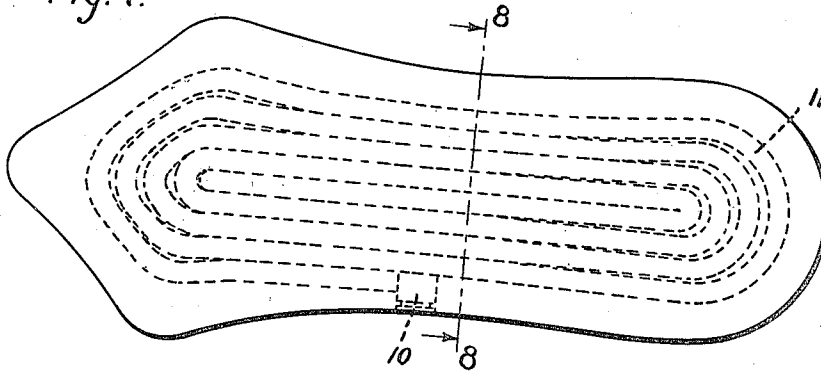
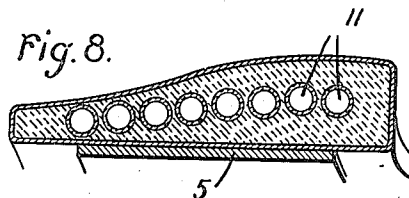


Fig. 8.



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UNITED STATES PATENT OFFICE.

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ARCH-SUPPORT.

1,064,902.

Specification of Letters Patent.

Patented June 17, 1913.

Application filed June 30, 1911. Serial No. 636,206.

To all whom it may concern:

Be it known that I, MASON W. HALL, a citizen of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Arch-Supports, of which the following is a specification.

My invention has reference to a support for the foot, and particularly, a support for the arch of the foot.

It is well known that the arch of the foot frequently breaks down causing great discomfort and even permanent injury. It has hitherto been proposed to counteract this tendency by providing an arch of metal or other rigid material which is placed within the shoe and adapted to support the arch of the foot. Such arches, however, are harsh upon the foot and do not conform closely to the configuration thereof with the consequence that they cause discomfort. It has also been proposed to use an arch support made of flexible material which rests directly against the insole of the shoe. Such arch supports, however, do not furnish the firm support for the arch of the foot that is furnished by a rigid support; moreover, as such supports rest directly upon the shank of the shoe, the shank is frequently broken down thereby ruining the shoe.

My novel form of arch support is so made that it preserves the arch of the foot, and at the same time conforms perfectly to its configuration and forms a firm yet yielding support therefor, thereby avoiding the jarring and consequent fatigue which results from treading upon materials which are unyielding in their nature.

More specifically, my invention comprises a rigid support together with a yielding support formed of an inflated envelop.

For a fuller understanding of my invention reference is had to the accompanying drawings in which—

Figure 1 is a perspective view of a shoe which is broken away to show my novel form of arch support therein; Fig. 2 is a plan view; Fig. 3 is a longitudinal section on the line 3—3 of Fig. 2; Fig. 4 is a section on the line 4—4 of Fig. 2; Fig. 5 is a section on the line 5—5 of Fig. 2; Fig. 6 is a section corresponding to Fig. 5 showing a modified form of arch support; Fig.

7 is a plan view of a modified form of my invention; and Fig. 8 is a section on the line 8—8 of Fig. 7.

Referring first to Figs. 1 to 6, in which I have shown the preferred form of my invention, 1 is a shoe within which is shown my novel form of arch support 2. The support is composed of an envelop 3 which is covered by a protective material 4, and a rigid support 5. The envelop 3 is preferably made of rubber and is so shaped as to naturally conform to the shape of the foot. For this purpose, the space 6 between the upper and lower walls of the envelop which lies beneath the arch of the foot and on the inner side of the foot is usually thicker than the remainder, from which portion the space within the envelop gradually tapers to the other side of the foot as best shown at 7 in Fig. 5 and toward the heel as shown at 8 in Fig. 3. From the arch the envelop tapers toward the toe with the exception that a relatively thick portion is formed at 9 which lies beneath and supports the transverse arch of the foot, that is, the arch formed by the bones between the ball of the foot and the little toe. The protective layer 4 is formed of canvas or other tough material which serves to protect the rubber envelop and at the same time helps to preserve the general configuration of the envelop.

An arch 5 which is made of steel or other rigid material is located beneath the envelop and the protective coating and is secured to the protective coating by rivets as shown, or in any suitable manner. This rigid arch is so placed relatively to the other portions of the arch support that when placed in the shoe it lies beneath the arch of the foot. The envelop is provided with a suitable valve 10 by which it may be inflated.

In Fig. 6 I have shown in section the preferred form of my arch support in which the inner edge of the envelop 3 and protective covering 4 are elevated at 12 so that the section is nearly triangular in form. In this form the inner raised edge of the support holds the flesh beneath the arch of the foot in position and prevents it from protruding over the edge of the arch support.

In Figs. 7 and 8 I have shown a modifi-

cation of my invention in which the inflated portion of the arch support consists of a rubber tube 11, one end of which is suitably closed, while the other end is provided with a valve 10 by which the tube may be inflated. The tube is so coiled that it substantially conforms to the outline of the foot as shown in Fig. 7. The tube after inflation may be surrounded, if desired, by rubber which is cast about the tube and beneath which the rigid support is placed so that the general form of the completed support is substantially the same as that shown in Figs. 1 to 5.

It will be understood that my arch support is inflated before it is placed in the boot or shoe and is easily removable therefrom which is a great advantage in case the life of the arch support is longer than that of the shoe, or in case it is desired to replace the same before the shoe is worn out.

While I have shown my cushion support extending from the heel to a point a little in advance of the transverse arch, it will be understood that under some conditions it would extend throughout the bottom of the shoe while under other conditions it would be made shorter than the one shown and described.

While in accordance with the patent statutes, I have shown what I consider to be the preferred form of my invention, it will be understood that numerous changes could be made without departing from the spirit

thereof, and that my invention covers all such changes and equivalents.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. In an arch support, an elongated flexible pneumatic envelop shaped to conform to the arch of the foot, and a rigid arch-shaped support located immediately beneath the envelop and extending longitudinally thereof to which the envelop closely conforms.

2. In an arch support, an elongated flexible pneumatic envelop shaped to conform to the arch of the foot and provided with a valve by which the envelop may be inflated, and a rigid metallic arch-shaped support located immediately beneath the envelop and extending longitudinally thereof to which the envelop closely conforms.

3. In an arch support, an elongated flexible pneumatic envelop shaped to conform to the arch of the foot and provided with a valve by which the envelop may be inflated, a protective covering for said envelop, and a rigid arch-shaped support located immediately beneath the envelop to which the envelop closely conforms.

In witness whereof, I have hereunto set my hand this 23 day of June 1911.

MASON W. HALL.

Witnesses:

CHARLES WILLIS MERRIAM,
FLORENCE V. PAYNE.