L. W. V. WILMS.

COMBINED BUNION GUARD AND FOOT SUPPORT.

APPLICATION FILED NOV. 17, 1919. RENEWED JUNE 6, 1921.

**1,402,557.** **Patented Jan. 3, 1922.**

2 SHEETS—SHEET 1.

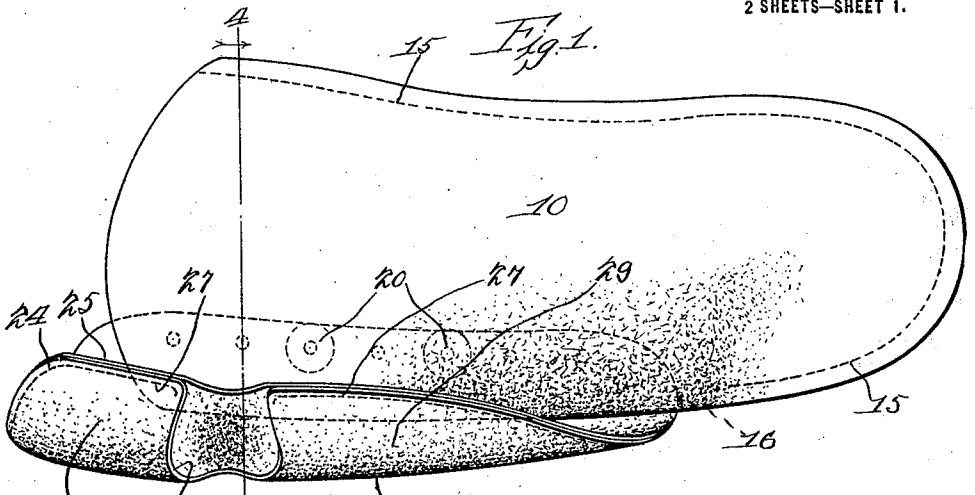



Fig. 1.

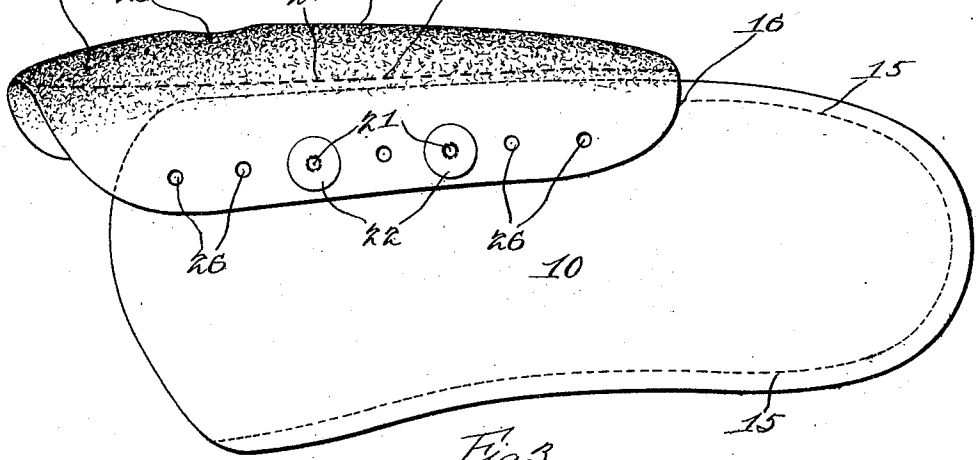



Fig. 2.

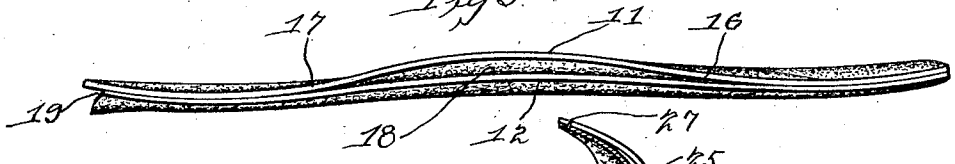



Fig 3.

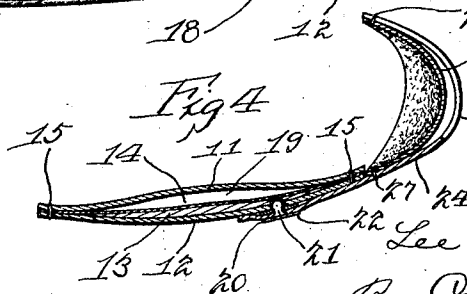



Fig 4

Inventor:
Lee W. V. Wilms
By Chas. C. Tillman
Atty.

Witness:
Chas. S. Magnusson.

L. W. V. WILMS.

COMBINED BUNION GUARD AND FOOT SUPPORT.

APPLICATION FILED NOV. 17, 1919. RENEWED JUNE 6, 1921.

**1,402,557.** **Patented Jan. 3, 1922.**

2 SHEETS—SHEET 2.

Fig. 5.

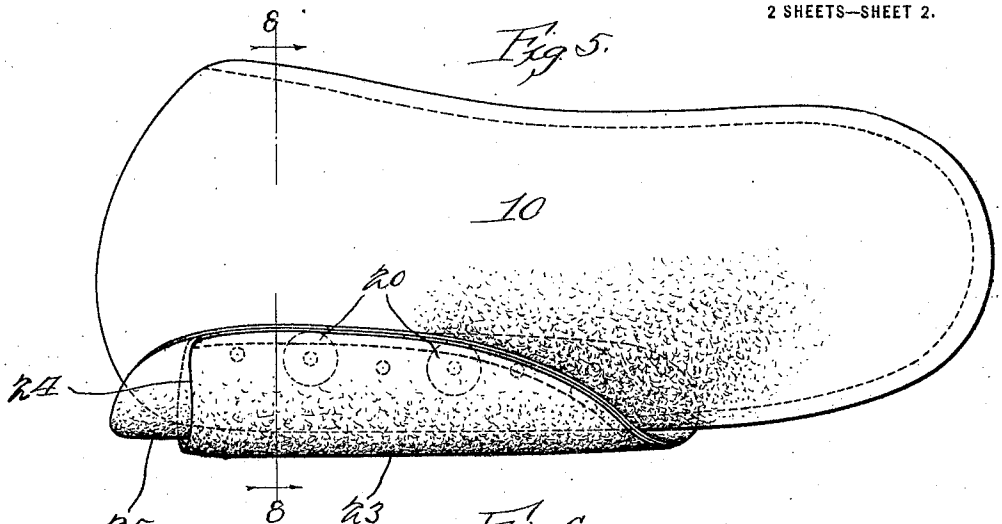



Fig. 6.

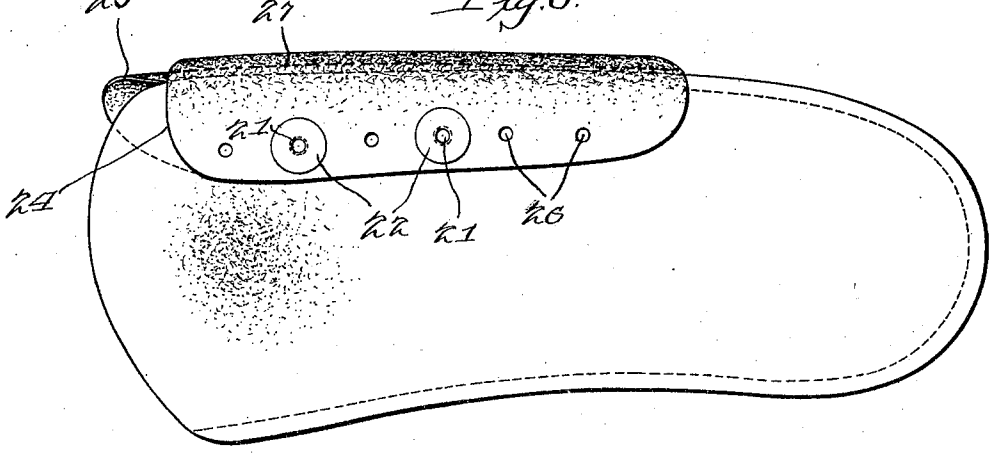
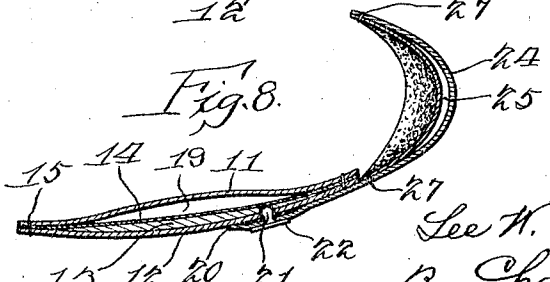



Fig. 7.




Fig. 8.




Witnesses:
David S. Magnuson.

Inventor:
Lee W. V. Wilms.
By Chas. P. Tillman
Atty.

# UNITED STATES PATENT OFFICE.

LEE W. V. WILMS, OF CHICAGO, ILLINOIS.

## COMBINED BUNION GUARD AND FOOT SUPPORT.

1,402,557. Specification of Letters Patent. Patented Jan. 3, 1922.

Application filed November 17, 1919, Serial No. 338,539. Renewed June 6, 1921. Serial No. 475,552.

*To all whom it may concern:*

Be it known that I, LEE W. V. WILMS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in a Combined Bunion Guard and Foot Support, of which the following is a specification.

This invention relates to devices of the knid which are of the insertable and removable insole type for shoes, and it consists in certain peculiarities of the construction, novel arrangement, combination and operation of the various parts thereof, as will be hereinafter more fully set forth and specifically claimed.

One of the objects of the invention is to furnish a combined bunion guard and foot support of such construction of its parts and arrangement of the material out of which the parts are made as to afford yielding or resilient support and pressure to the foot wherever the device and foot contact with one another, and particularly to the plantar portion of the foot.

Another object is to provide a device of the above named character, which shall be so constructed as to be adjustable in its elevation at certain points thereof, and besides furnishing resilient support to the plantar portion, will afford such support, elevation and relief to weakened or strained longitudinal, transverse and metatarsal arches of the human foot, in such a manner as not to interfere with the natural functions of the muscles, ligaments and the articulations, but will allow them freedom of action and mobility. Another, and important object of the invention is to provide a bunion guard or protecting means which can be, and usually is, adjustably attached to the body or foot supporting member of the device at the front portion near the inner edge thereof. Other objects and advantages of the invention will be disclosed in the following description and explanation.

In the accompanying drawings, which serve to illustrate an embodiment of the invention—

Fig. 1 is a plan view of the combined bunion guard and support showing the parts thereof arranged in about the positions they will occupy when the device is inserted in a boot or shoe.

Fig. 2 is a bottom plan view.

Fig. 3 is a view in elevation of the inner edge of the body or foot support of the device, but showing the bunion guard omitted therefrom.

Fig. 4 is a cross-sectional view taken on line 4—4 of Fig. 1 looking in the direction indicated by the arrows.

Figs. 5, 6, 7 and 8 are views corresponding to Figs. 1 to 4 inclusive, showing a slight modification in the construction of the body or foot support, as well as a modification in the construction of the bunion guard or protector.

Corresponding numerals of reference refer to like parts throughout the different views of the drawings.

Referring now more particularly to Figs. 1 to 4 inclusive of the drawings, the reference numeral 10 designates as a whole the body or foot support of the device, which is of about the shape in outlines as shown in different views of the drawings, that is, it is elongated and of a shape to conform generally to the inner fixed sole of the shoe in which it is to be placed and worn. It will be observed in the different views of the drawings that the front portion of the body 10 is somewhat wider than the heel or rear portion thereof. This body or support is composed of flexible and resilient material and preferably of three parts or layers. The upper part or layer 11 is by preference made of firm leather and the lower part or layer 12 of soft leather of substantially the same size and shape as the upper layer. Between the layers 11 and 12 is located a filling or member 13 of cork or felt, which layer may be substantially of the same size and shape as the upper and lower layers 11 and 12 between which it is located. The upper surface of the filling or member 13 may be covered by means of a strip 14 of cloth such as canvas and the same may be secured to the filling 13 by means of cement or any other adhesive.

The parts 11, 12 and 14 are secured together near their outer edges by a line of

stitches 15, which line extends from the front portion of said parts along the outer edge of the support, around the heel portion thereof, and then along the rear inner edge of the support to a point rearwardly of the transverse middle of the body or support, as at 16, see Fig. 1 of the drawings.

At about the point indicated by the reference numeral 16, the inner edge of the upper part or layer 11 is left free or unsewed to a point near the front end of the inner edge of the body or support as indicated at 17, but the lower portion 12 and covering of the filler 13 are stitched or sewed together along their inner edges under the free portion of the upper layer or part.

By this arrangement it is apparent that a pocket 18 will be formed between the upper layer 11 and the filling, and its covering in which pocket a pad of any suitable cushioning material and of the desired shape may be inserted.

It will be observed, by reference to Fig. 4 that the filling 13 tapers towards its side edges, and it will also be understood that said filling tapers slightly towards its front and rear ends. The front ends of the upper and lower layers of the body or support are free from one another thus affording a longitudinally extended pocket 19 in the front end of the support in which a pad of suitable material and shape may be inserted.

The foot support is upwardly arched along its inner edge as is clearly shown in Fig. 3 of the drawings, and said arch has its greatest elevation about midway between both ends of the members or layers 11 and 12 so as to support the plantar portion of the foot. By providing this arched portion with the transversely extended pocket 18 it is apparent that the elevation of the layer 11 may be extended to cause it to properly fit the plantar portion of the foot by inserting a pad of suitable resilient material shape and thickness in said pocket. It is also obvious by reference to Fig. 3 that the foot support 10 has a gradual elevation at its front end and that by inserting a suitable pad within the pocket 19 the elevation of the upper member or layer of said support can be increased to suit or conform to the front portion of the foot of the wearer. By employing these pockets 18 and 19 it is manifest that a certain degree of adjustability in the shape of the body or support 10 is afforded which can be regulated with great nicety by employing one or more thin pads in each of the pockets if desired.

Located on the lower surface of the lower layer or member 12 of the foot support is a pair of socketed disks or plates 20 which as shown in Fig. 1 of the drawing are positioned forwardly of the middle of the support and near its inner edge. These socketed disks or plates are for the purpose of engaging projections 21 on male members or plates 22 used in connection with the bunion guard for securing it in place and for its adjustment when desired.

The bunion guard is designated as a whole by the reference numeral 23 and consists of an outer piece of firm leather 24 and an inner piece of soft leather 25 both of which are elongated as shown and are stitched together in the manner to be presently explained. The outer piece 24 is somewhat wider than the inner piece and has near its inner edge a series of openings 26 arranged in a row extending longitudinally with respect to the inner edge or the body or support 10 and with respect to the sockets of the socketed members 20 which are permanently fastened to the lower member or layer 12 of the body or support as before stated.

The openings 26 in the bunion guard are spaced apart so that two of them may register with a pair of sockets of the socketed plates in which position the guard may be secured by placing the projections 21 of the male plates 22 through said openings and into said sockets, where they will be retained in a manner similar to glove fasteners of the well-known construction. By this arrangement it is evident that the guard can be adjusted forwardly or rearwardly as desired on the foot support.

The outer piece 24 is provided with a cut-away portion $26^a$ at a point to coincide with the metatarsal phalangeal articulation of the great toe which articulation is commonly called the "bunion joint." The pieces 24 and 25 are secured together by means of a line of stitches 27 extending from the front portion of the cut-away part $26^a$ near the upper edges of said pieces forwardly and then downwardly to a line about half way between the lower end of the opening $26^a$ and the lower or inner edge of the outer piece 24 as indicated by dotted lines at 27 and at the rear end upwardly then forwardly to the opening.

The two pieces are longitudinally and outwardly curved thus forming an inwardly disposed cavity. The outer piece 24 in conjunction with the inner piece 25 provides a longitudinally extended pocket on each side of the cut-away portion, which are adapted to receive pads of any soft material preferably felt to cushion the inner part of the great toe at its distal end in front of the metatarsal bone and rearwardly of the great toe articulation or the bunion.

The front cushion or pad tends to fill up the space usually found in the shoe just ahead or forwardly of the bunion when this malady is of an aggravated type. The rear cushion or pad will give relief by putting pressure at the distorted metatarsal bone on its inner lateral side, and in this way relieve the articulation at this point

of irritation and pressure at the same time gradually force the metatarsal bone back to its natural inlinement.

The cut-away portion 26ª in the outer member 24 of the guard provides a short protecting portion 28 adapted to lay against the great toe and an elongated portion 29 just back of the metatarsal phalangeal articulation of said toe besides affording a very soft and flexible covering between the vertically disposed walls of the cut-away part 26ª to rest lightly over the bunion.

In the modified forms shown in Figs. 5 to 8 inclusive the construction of the body or support 10 is substantially the same as that shown in Figs. 1 to 4 inclusive of the drawings, except that the transverse pocket 18 is omitted in the modified form.

The modified construction of the bunion guard 23 consists in omitting the cut-away portion 26 employed in the first described construction and in extending the inner piece of soft leather 25 forwardly of the front end of the outer piece of leather 24 to rest against the bunion.

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

1. In a device of the character described, the combination with a foot support of an insole type having a pocket extended transversely therein about midway between its ends, of an elongated and inwardly dished bunion guard longitudinally mounted on the support near its front inner edge.

2. In a device of the character described, the combination with a foot support of an insole type having at its inner edge about midway between the ends of the support a transversely extended pocket and at its front end a longitudinally extended pocket, of an elongated and inwardly dished bunion guard longitudinally mounted on the support near its inner edge and forwardly of its middle portion.

3. In a device of the character described, the combination with a foot support of an insole type having at its front end a longitudinally disposed pocket, of an elongated and inwardly dished bunion guard longitudinally mounted on the support near its inner edge and in front of a medial line between the ends of the support.

4. In a device of the character described, the combination with a foot support of an insole type, of an elongated and inwardly dished bunion guard mounted for longitudinal adjustment on the foot support near its inner edge and forwardly of a medial line between the ends of the support.

5. In a device of the character described, the combination with a foot support of an insole type, of an elongated and inwardly dished bunion guard consisting of two pieces of material one overlying the other, said guard being mounted longitudinally on the support near the inner edge of the latter, the outer piece of the bunion guard having a cut-away portion near its front end with the adjacent walls of the cut-away part free of the inner piece of the guard whereby a forwardly extended pocket and a rearwardly extended pocket in the guard is provided.

6. In a device of the character described, the combination with a foot support of an insole type, of an elongated and inwardly dished bunion guard consisting of two pieces of flexible material one overlying the other, said guard being mounted longitudinally on the support near the inner edge of the latter, the inner piece of material of the guard being softer than the outer piece, said outer piece having a cut-away portion extending to its upper edge and downwardly, said cut-away portion having its adjacent walls free of the inner piece of the guard whereby a forwardly extended pocket and a rearwardly extended pocket in the guard is provided.

7. In a device of the character described, the combination with a foot support of an insole type, of an elongated and inwardly dished bunion guard consisting of two pieces of flexible material one overlying the other, said guard being mounted longitudinally on the support near the inner edge of the latter and having a longitudinally extended pocket located between the pieces of the guard.

8. In a device of the character described, the combination with a foot support of an insole type having at its inner edge about midway between the ends of the support a transversely extended pocket, of an elongated and inwardly dished bunion guard consisting of two pieces of flexible material one overlying the other, said guard being mounted longitudinally on the support near the inner edge of the latter, the outer piece of the bunion guard being made of firmer material than the inner piece and provided near its front end with a cut-away portion, the adjacent walls of the cut-away part being free of the inner piece of the guard whereby a forwardly extended pocket and a rearwardly extended pocket in the guard is provided.

9. In a device of the character described, the combination with a foot support of an insole type having at its inner edge about midway between the ends of the support a transversely extended pocket and at its front end a longitudinally extended pocket, of an elongated and inwardly dished bunion guard consisting of two pieces of material one overlying the other, said guard being mounted longitudinally on the support near the inner edge of the latter and having a longitudinally extended pocket located between the pieces of the guard.

10. In a device of the character described, the combination with a foot support of an

insole type having on its lower surface at the front portion thereof near its inner edge a pair of socketed plates arranged in a longitudinally extended line on the support, of an elongated inwardly dished bunion guard consisting of two pieces of flexible material one overlying the other, the outer piece of material having near its lower longitudinal edge a series of openings to register with the sockets on the foot guard, a plurality of male fastening members extended through said openings into said sockets and detachably engaging the same, the outer piece of the bunion guard having a cut-away portion near its front end with the adjacent walls of the cut-away part free of the inner piece of the guard whereby a forwardly extended and a rearwardly extended pocket in the guard is provided.

LEE W. V. WILMS.