

1,183,062.

Patented May 16, 1916.

Fig. 1.

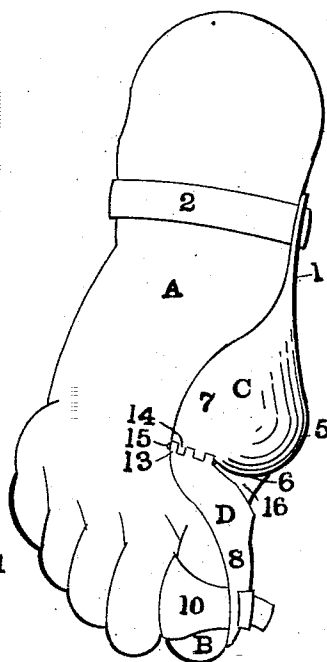
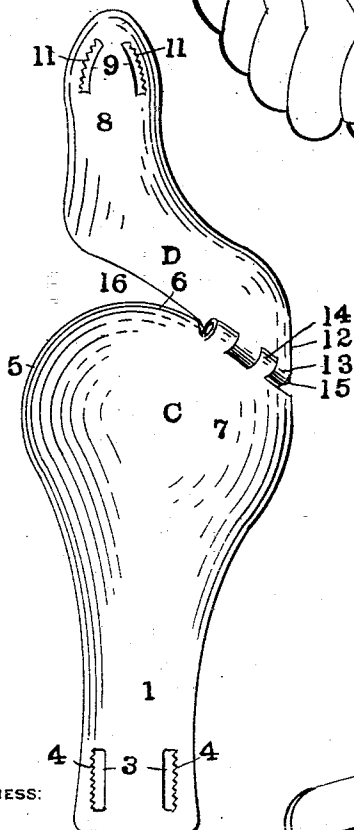


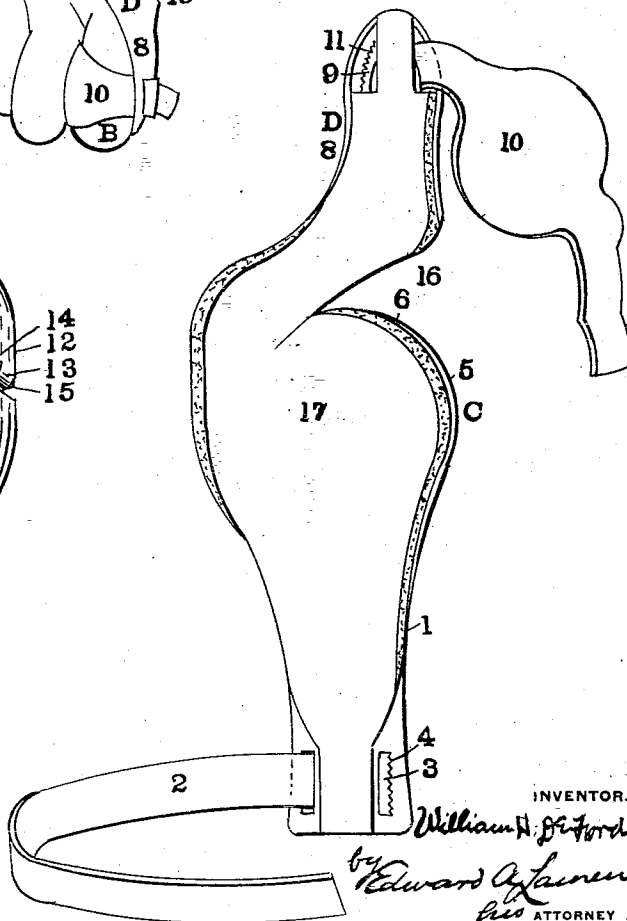
Fig. 2.



WITNESS:

R. A. Wilworth

Fig. 3.



INVENTOR.

William H. De Ford

by Edward A. Lawrence
 his ATTORNEY

UNITED STATES PATENT OFFICE.

WILLIAM H. DE FORD, OF WASHINGTON BOROUGH, PENNSYLVANIA.

BUNION-GUARD.

1,183,062.

Specification of Letters Patent.

Patented May 16, 1916.

Application filed September 27, 1915. Serial No. 52,779.

To all whom it may concern:

Be it known that I, WILLIAM H. DE FORD, a citizen of the United States, and residing in the borough of Washington, in the county of Washington and State of Pennsylvania, have invented or discovered new and useful Improvements in Bunion-Guards, of which the following is a specification.

My invention consists in a new and improved orthopedic device or guard for the relief and cure of bunions or other distortions of the joint of the great toe. In the case of such troubles, the toe is turned inwardly causing the joint to protrude into contact with the shoe and resulting in great pain and a halting gait.

My present invention comprises an improvement in the general type of device illustrated in Letters Patent of the United States No. 933,423, issued to me September 7th, 1908, wherein a flexible metal plate, partially severed to increase its flexibility, was used.

In the accompanying drawings, Figure 1 is a bottom plan view of a human foot wearing one of my improved guards; Fig. 2 is an enlarged elevation of the guard reversed from the position shown in Fig. 1 and rotated slightly to show the outer side of the guard, and Fig. 3 is a top plan view of the guard.

The following is a detailed description of the drawings.

A represents a left foot whose great toe B is to be straightened into place and protected from shoe pressure. It will be understood that the left foot is shown simply for the sake of illustration and that the guards are made in lefts and rights to fit either foot.

The guard is molded, pressed or otherwise formed of a rigid material, such as sheet metal and comprises a ball part C and a toe part D.

The ball part C consists of a rearwardly extending shank 1, which, when the guard is in place, extends back along the inside of the instep and is held in position by an adjustable strap or tape 2, which passes through the twin slots 3 in the end of the shank and encircles the instep. The outer edges of said slots are serrated, as at 4 so that the strap or tape need not be buckled or tied but will hold firmly when its both ends are threaded through said slots. The forward portion of the ball part C is curved

and extended to form a cup or container 5 for the toe joint, the front edge being cut away in a curve 6 at the outside. The lower forward portion 7, which fits under the ball of the foot is flattened and merges into the shank 1 by means of an easy curve or incline in the rear of the toe joint.

The toe part D is provided with a forward portion 8 which incloses the outside face of the great toe and is cupped or concaved to partially contain the toe. The outer end of said portion 8 is provided with a pair of slots 9 through which is threaded a strap or tape 10 which encircles the great toe and holds it snugly in or against the portion 8. The slots are provided with serrated outer edges 11 to hold the strap or tape without otherwise securing it, in any desired adjustment. The central portion of said strap 10 is extended laterally to distribute the pressure over the entire toe. The rear end portion 12 of the toe part D is curved inwardly under the great toe and is provided with hinge loops 13 which interlace with similar hinge loops 14 on the inner front edge of the ball portion C and are both engaged by a pivot rivet 15, thus providing a vertical hinge movement in the guard under the foot but within the line of the great toe joint. It will be observed that there is no contact between the toe portion D and the front edge of the cup 5, a space 16 being left between the same to avoid contact or the pinching of the flesh between the portions of the guard when the latter bends in walking.

The inner surface of the guard, contacting with the foot of the wearer, is provided with a continuous layer or thickness 17 of felt or other soft cushioning material which protects the foot from the rigid material of the guard and prevents the pinching or abrading of the flesh. Said layer is cut away to expose the slots 3 and 9 for the introduction of the straps.

It is evident that by the use of my improved device a bunion or joint distortion may be reduced without pain as the toe straps 10 may be gradually tightened as the joint straightens under treatment. The joint and toe are perfectly protected from shoe pressure by the rigid backing or base material of the guard which assumes the pressure of the shoe contact. While rigid against horizontal bending, thus protecting the toe against painful movement, the guard

bends readily in a vertical plane with the movement of the foot in walking, the joint or hinge being inside of the line of the toe joint so that constriction of said joint in vertical bending is avoided, additional freedom and room for said joint in bending being provided by the open space 16. In other words, support is provided at the points and along the planes required but at other points and along other planes full freedom and absence of pressure are obtained. The continuous layer of cushioning material over the inner surface of the guard prevents injury to the toe and foot and covers the hinge.

In my patented guard, above referred to, the hinge movement was obtained by springing or bending the metal of the guard in walking but I found that in a short time the hinge neck of the metal cracked or broke. I also found that said guard required the use of a relative extensive metal plate under the foot which was awkward and added weight and expense. My present form of guard is of better construction and of a more durable character, and it has the novel advantage of providing for the maximum of natural foot freedom with just the proper amount of correcting support applied at exactly the points required. Through the use of my device, a bunion sufferer is enabled to don a conventional shoe and wear the same while his trouble is being permanently cured, without pain, discomfort or lameness.

What I desire to claim is:—

1. An orthopedic device for bunions formed of rigid material and comprising a ball portion adapted to be strapped to the foot and to contain the great toe joint, a toe portion adapted to encompass the outside of the toe to which said toe is strapped, and a hinge connection between said portions beneath the sole of the foot inside the line of the great toe, substantially as described.

2. An orthopedic device for bunions formed of rigid material and comprising a

ball portion adapted to be strapped to the foot and to contain the great toe joint, a toe portion adapted to encompass the outside of the great toe to which said toe is strapped, a hinge connection between said portions beneath the sole of the foot inside the line of the great toe, and a continuous layer of cushioning material secured to the inner surface of the device, substantially as described.

3. An orthopedic device for bunions formed of rigid material and comprising a ball portion provided with a cup to encompass the affected joint and a shank extending rearwardly along the inside of the foot, means for strapping the end of said shank to the instep of the foot, a toe portion extending forwardly along the outside of the great toe and partially encompassing the same, a strap adapted to encircle said toe and engaging the toe portion, and a hinged connection between said portions beneath the sole of the foot within the line of the great toe, clearance being provided between said portions adjacent to the great toe joint.

4. An orthopedic device for bunions formed of rigid material and comprising a ball portion provided with a cup to encompass the affected joint and a shank extending rearwardly along the inside of the foot, means for strapping the end of said shank to the instep of the foot, a toe portion extending forwardly along the outside of the great toe and partially encompassing the same, a strap adapted to encircle said toe and engaging said toe portion, a hinged connection between said portions beneath the sole of the foot within the line of the great toe, clearance being provided between said portions adjacent to the great toe joint, and a continuous layer of cushioning material secured to the inner surface of the device substantially as described.

Signed at Washington, Pa., this 20th day of September, 1915.

WILLIAM H. DE FORD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."