No. 847,311. PATENTED MAR. 19, 1907.

J. BRONNENKANT.

METATARSOPHALANGEAL PROTECTOR.

APPLICATION FILED FEB. 14, 1905.

Fig. 7.



Fig. 1.

Fig. 2.

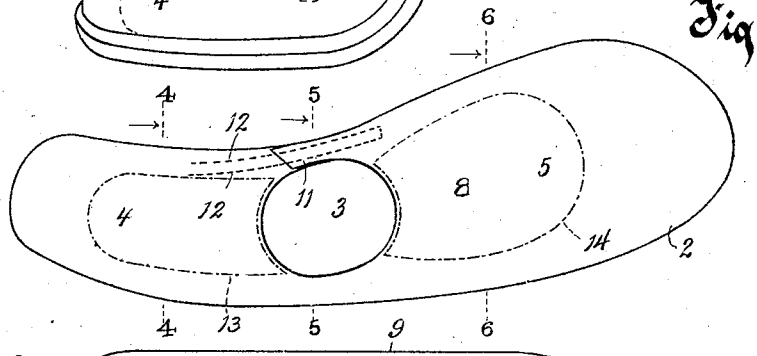


Fig. 3.

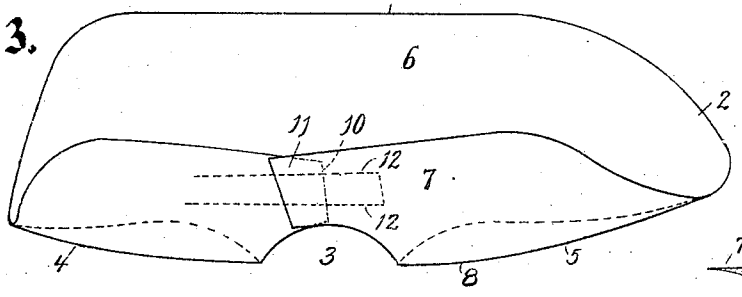


Fig. 4.

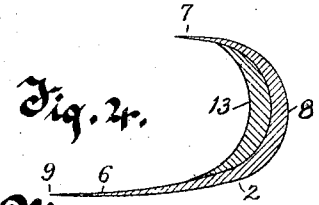


Fig. 5.

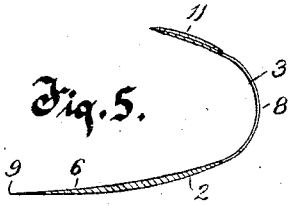
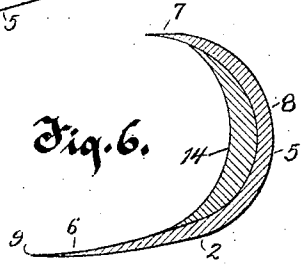


Fig. 6.



Witnesses.

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METATARSOPHALANGEAL PROTECTOR.

No. 847,311. Specification of Letters Patent. Patented March 19, 1907.

Application filed February 14, 1905. Serial No. 245,636.

To all whom it may concern:

Be it known that I, JOSEPH BRONNENKANT, residing in Racine, in the county of Racine and State of Wisconsin, have invented new and useful Improvements in Metatarsophalangeal Protectors, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

The object of my invention is to provide an improved construction in protectors of the general character of the one for which Letters Patent of the United States No. 739,824 were issued to me on September 29, 1903.

The protector is adapted to be applied to the foot of a person having a bunion or swollen and enlarged joint of the great toe at its junction with the foot to protect the bunion or swollen and tender part of the foot from being pressed against, rubbed, or abrading by the inclosing boot.

The old device was found to be lacking in that along the upper part longitudinally it did not fit and properly conform to the shape of the toe and foot, resulting in an undesired fullness of the protector along the line such as when the user was walking to cause the protector to bend or buckle transversely above the opening in the protector, thereby forming a rib, that soon produced discomfort of or a sore on the foot.

The object of the present invention is to provide an improved construction adapted to obviate the foregoing and other imperfections in the old protector.

The invention consists of the protector and its parts as herein described and claimed or the equivalents thereof.

In the drawings, Figure 1 represents a boot of a form now commonly worn with my improved protector indicated in dotted lines therein, showing the position of the protector when in use. Fig. 2 is a view of the improved protector looked at from the outside and in substantially horizontal plane with the medial longitudinal line thereof. Fig. 3 shows the protector in outline when looked at downwardly from a point substantially vertically above the top part of the protector. Figs. 4, 5, and 6 are transverse sections, respectively, on lines 4 4, 5 5, and 6 6 of Fig. 2; and Fig. 7 is a detail in section, showing the overlapping of the top part of the protector.

The body or principal portion of my improved protector is made of some firm but slightly-yielding material, advisably of leather, of sufficient thickness and firmness to be adapted to hold its shape when once molded thereto, the margins of the body portion of the protector being skived off on the inside, so as to make the margins thinner, diminishing to a comparatively sharp line along the outer edge thereof.

In the drawings, 2 represents the body or principal part of the protector, which is advisably made integrally of leather and is constructed by being cut in blank form from a piece of leather, which is then molded so as to cause it to assume the shape desired. The body of the protector is provided with an opening 3, so located as to be adapted to permit the bunion or swollen part of a toe to enter this opening when the protector is on the foot around and adjacent to such swollen or enlarged part. The part 4 of the body of the protector, that is in front of the opening 3, may for convenience be called the "toe" member, and the part 5, that is at the rear of the opening 3, may for similar convenience be called the "instep" member. Also for further designating the parts of the protector the lower long and wide portion 6 of the body of the protector may be called the "bottom" part, the upper less long and narrow portion 7, that is at the top of the protector, may be called the "top" part, and the elongated and curved middle portion 8 between the bottom and the top parts may be called the "side" part.

The bottom part 6 of the protector is made of considerable width from the opening 3 to its inner edge 9, and this bottom part of the protector being of considerable length as well as of width in use passes under the toe and front part of the instep of the foot, partially across the foot, practically from the inner edge of the foot to about the middle longitudinal line thereof, and resting on the bottom or sole of the boot is held in place by the pressure of the foot on such considerable portion of the protector.

To draw and hold the side part 8 into the curved form longitudinally that is shown by the bottom line in Fig. 3 of the drawings from

the front end to the rear end, the leather of the body part is in making cut across transversely opposite the middle of the opening 3 along the line 10, and the two ends of the top part thus formed are pulled together and made to overlap at 11, and the ends of this part thus pulled toward each other and made to overlap are secured in position advisably by two lines of stitching 12 12 through these thus-overlapped ends of the parts. The pulling together of these two ends and securing them to each other causes the body part to assume a curved form along the middle or axial line of the side part, (shown substantially in Fig. 2,) and at the same time the pulling together of these ends of the upper part draws down that portion of the top part that is above the opening 3, so that the upper part is considerably depressed above the opening 3 and about along the section-line 5 5 on Fig. 2. This method of construction and form obtained thereby in the top part of the protector causes it when in use to fit closely to the foot at and above the big-toe joint with the foot, thereby preventing any transverse downward buckling or ridge-like formation of the protector at this point when the user is walking, and the toe by the yielding of the front part of the sole of the boot swings or is bent upwardly.

It will be seen that by constructing the protector in the manner described a means is provided consisting of the wide and long bottom part of the body of the protector for holding the protector securely and against displacement on the foot within the boot and that by cutting apart the strip of the top part above the opening and pulling the ends together and securing them to each other in overlapped condition the top part of the protector is drawn in centrally transversely above the opening, thereby causing the top part to curve downwardly medially, so as to more perfectly fit the foot, and at the same time by this drawing together of the top part of the body the side part of the body along the middle longitudinal line thereof is drawn inwardly at the ends, forming the curve shown at the bottom in Fig. 3, whereby the protector is along this curved line as well as along the parts adjacent thereto and controlled thereby brought to a form that causes it to fit more perfectly to the foot than it otherwise would do.

Besides the protection afforded to the swollen or enlarged part of the foot that projects into the opening 3 by the considerable thickness of the leather or body part of the protector, at the front and at the rear especially of the opening, I also provide fillings or cushions 13 and 14, respectively, in front and at the rear of the opening 3 on the inner surface of the body part extending from near the opening 3 for about two-thirds of the distance from the opening to the front end of the body part and from near the opening a little more than half the distance toward the rear of the body part, as indicated by broken lines in Fig. 2, and in and along the side part of the body upwardly and downwardly substantially to the extent shown in Figs. 4 and 6, respectively. These fillings or cushions are advisably made of compact felt secured in place on the leather by being cemented or glued thereto. These cushions may be of such thickness as desired to adapt any particular protector to guarding a swollen part of greater or less height against the bearing or rubbing of the boot thereon.

What I claim as my invention is—

1. A metatarsophalangeal protector, consisting of an elongated body provided medially with an opening to admit therein the enlarged or swollen great-toe joint and extending in front of the opening to fit on and along the great toe and at the rear of the opening on and along the instep of the user, the bottom part of the body being below the opening and adapted, when the device is adjusted to the foot, to extend beneath the bottom of the foot, and the top part above the opening being shortened longitudinally by cutting the part transverse above the opening in two and drawing the ends together and overlapping and securing them to each other whereby the top part by the strain thereon is drawn together longitudinally and is depressed into concave form over the opening so as to fit the foot at the toe-joint.

2. A metatarsophalangeal protector, consisting of an elongated body provided medially with an opening to admit therein the enlarged great-toe joint and extending in front of the opening to fit on and along the great toe and at the rear of the opening on and along the instep of the user, the bottom part of the body being below the opening and adapted, when the device is adjusted to the foot, to extend beneath the bottom of the foot, and the top part above and inwardly of the opening being shortened longitudinally, whereby the top part is drawn together longitudinally and is depressed into concave form over the opening so as to fit the foot at the toe-joint.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH BRONNENKANT.

Witnesses:

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