MEANS FOR TREATING AND PROTECTING CORNS

Original Filed Oct. 27, 1926
This invention relates to corn protectors and has for its primary object the provision of a device of this character, the use of which may be made in consideration of the anatomical, physiological and mechanical causes which are the cause of their creation, and which will be characterized by means which I shall call a substitute for lack of loose areolar tissue in the parts subject to corns, the same functioning bursa like to prevent the skin from being dragged back and forth by the action of induced friction and which will serve to prevent irritation and inflammation of the skin due primarily to the action of friction between the worn structure and the area of skin to which the protector is applied.

A further object of my invention is to provide a protector of this character which functions to cause a distribution of pressures by buoyant means wherein certain surfaces of the protector will compensate themselves to said pressures while remaining free for incident relative movements, so that the surface of the protector in contact with the skin will move with the skin while another surface of the protector will accommodate itself to a different movement incident to the pressing action of the shoe.

Another object of the invention is to provide a protector which serves to raise the pressure inducing portion of the shoe to a position relatively to the corn so as to allow at all times for the main to and fro motion of the foot within the shoe, thereby causing the forces, friction and pressure to be taken up by the walls of the protector and to give to the hard and unyielding deep structure a loose areolar tissue-like action or free riding motion. It is well known anatomically that where the skin overlies the hard structure such as bones, tendons and their sheaths, fibrous tissue and fascial sheathes, as for instance, the elbow and the knee, there are special structures to care for friction and pressure, namely, the olecranon and prepatella bursae. These bursae are sac-like structures of fibrous tissue lined with secreting cells which supply a lubricating fluid so that the walls separated by the secretion slide over one another. In this manner the deep layer of the bursa is affixed to the hard structures and the superficial layer rides freely with the skin.

Structurally, that part of the foot subject to corns, namely the metatarsus and phalanges, is in general wedge-shaped with the thin end of the wedge forwardly disposed. In the act of walking or running one knee is raised and the leg and foot kicked forward with muscular force, and as this foot reaches the ground the body weight is pushed forward by the foot behind, already on the ground, and the body so tipped that the forward foot supports the body weight. The leg behind is now raised and flexed at the knee and duplicates the motion of the foot previously described. When either foot reaches the ground in its forward progress, the momentum of the foot is lost by means of friction and pressure of the shoe or boot with the ground, and the friction and pressure of the foot within its coverings. In this latter process, the convexity of the wedge-like shape of the foot is driven into the concavity of the wedge-like shape of the shoe or boot, the foot tending to ride forward within its coverings towards the toe of the shoe or boot. Note also that the hard bony parts of the foot also tend to, and do, ride forward within the soft parts of the foot. Thus where the hard parts have no soft coverings of areolar tissue and directly underlie the skin, this skin is rubbed against the shoe and so is subjected to an inordinate amount of friction and pressure at the site of the toes and toe-joints.

Just before the aft foot leaves the ground, due to the muscular effort to throw the body forward and onto the forward foot, the convexity of the wedge-like shape of the metatarsus and phalanges tends to slide out of the concavity of the front of the shoe or boot, and moves towards the heel end thereof. Thus it is seen that due to the close adherence and integral nature of the skin of the metatarsus and phalanges to the deep hard structure, and lack of loose areolar and soft tissues between them, subject, as it (skin) is, to varying amounts of friction and pressure in the cycle of ambulation from the time it leaves the
ground until it next leaves the ground, this skin is subject to an inordinate amount of use, friction and pressure which results in the production of corns. I refer to the above

natural or resulting consequences in order that it may appear perfectly clear that my invention is truly in the nature of a substitute for the lacking loose areolar tissue in the parts subject to corns, and that it is not

a mere pad with an attempt to simply alleviate or treat corns by a distribution of friction and pressure over a certain skin area adjacent to the corn.

With the above and other objects in view

which will appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangements of parts which will hereinafter be fully described and particularly pointed

out in the claims.

In the accompanying drawing has been illustrated the preferred form of the invention, it being, however, understood that no limitations are necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the claims may be resorted to when desired.

Figure 1 is a perspective view of my protector in applied position upon the foot;

Figure 2 is a plan view thereof applied behind a corn on the little toe;

Figure 3 is a section on line 3—3 of Figure 2; and

Figure 4 is a section on line 4—4 of Figure 2.

I do not wish to be limited to the kind of material employed in carrying the invention into practice, except that the material should have inherent elastic qualities. I prefer the use of rubber, and that the device be formed of a single piece of material. Neither should I be limited to the size or shape of the device nor the manner of attaching the device to the part to be treated.

The device 5 is sac-like, and in fact is skin-like and a hollow-walled body whose walls are separated by a space 6. This space contains air, or if preferred, I may use some buoyant agent or fluid such as glycerin. This sack-like (bursa) body is preferably of rectangular shape, and in applying same to the part to be treated, same is placed at right angles to the longitudinal plane of the toe foot, as shown in Figure 2 of the drawing, where it reposits directly behind the corn. It may be made to adapt itself to the transverse or other contour of the toe by simply flexing it as shown in Figures 1 and 5 of the drawing, and securing same to the toe by adhesive means 7. The means 7 shown herein is in the form of a strip of adhesive tape attached intermediate of its ends to the top wall of the sack, leaving its free ends for attachment to the skin at the respective ends of the sac.

When the sac is applied in the manner set forth, the bursa-like functional characteristics thereof manifest themselves as is seen on reference to the description contained herein.

As stated, the device is situated at right angles to the longitudinal axis of the foot so as to function to take up the forces, friction and pressures incident to the natural forward and backward motions of the foot within the shoe.

I claim:

1. A corn protector comprising a deformable member, and means securing said member to the foot in line with the width of the foot and having unattached portions extending between the member and the foot for permitting a limited rolling motion of the member upon the foot and in a line with the length of the foot.

2. A corn protector comprising a deformable member, and means securing said deformable member to the foot in line with the width of the foot and having unattached portions extending between the member and the foot for permitting a limited rolling motion of the member upon the foot and in a line with the length of the foot.

3. A corn protector comprising a deformable member, and a fastening member securing said deformable member to the foot in line with the width of the foot and having unattached portions extending between the member and the foot for permitting a limited rolling motion of the member upon the foot and in a line with the length of the foot.

4. A corn protector comprising a deformable member, and a strip securing said member to the foot in line with the width of the foot and having unattached portions extending between the member and the foot for permitting a limited rolling motion of the member upon the foot and in a line with the length of the foot, the ends of said strip being secured to the foot.

5. A corn protector comprising a deformable member in the shape of a roll, and a strip securing said member in the direction of the length of the member, and having its ends secured to the foot, said strip having unattached portions extending between the member and the foot for permitting a limited rolling motion of the member upon the foot.

6. A corn protector comprising an elongated substantially rectilinear deformable body adapted to be positioned crosswise of a foot having an adhesive secured, thereto lengthwise over the same and projecting from the ends thereof so as to provide end portions adapted to be secured to the foot of the wearer.

MORRIS P. KAUFMAN.