

B. F. RHODES.
SOLE AND HEEL.
APPLICATION FILED JULY 23, 1914.

1,120,082.

Patented Dec. 8, 1914.

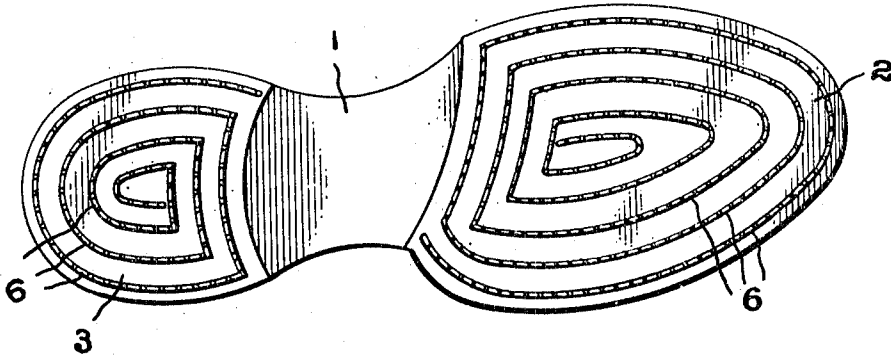


FIG. 1.

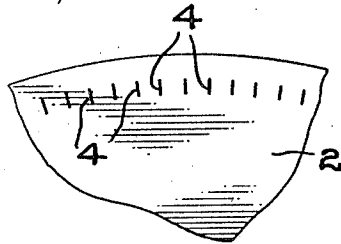


FIG. 2.

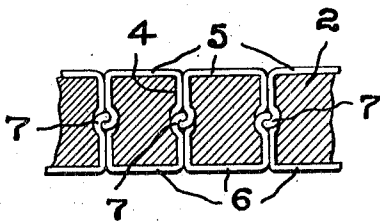


FIG. 3.

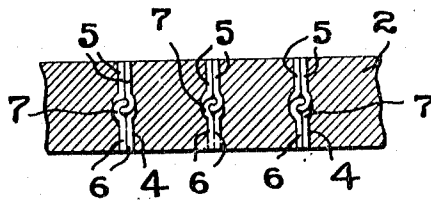


FIG. 4.

Witnesses
L. Meyer
C. R. Ziegler.

Inventor
Byron F. Rhodes,
By *Joshua R. H. Potts.*
Attorney

UNITED STATES PATENT OFFICE.

BYRON F. RHODES, OF ATLANTIC CITY, NEW JERSEY, ASSIGNOR OF FIFTY-ONE ONE-HUNDREDTHS TO FERDINAND KELLER, OF PHILADELPHIA, PENNSYLVANIA.

SOLE AND HEEL.

1,120,082.

Specification of Letters Patent.

Patented Dec. 8, 1914.

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To all whom it may concern:

Be it known that I, BYRON F. RHODES, a citizen of the United States, residing at Atlantic City, in the county of Atlantic and State of New Jersey, have invented certain new and useful Improvements in Soles and Heels, of which the following is a specification.

My invention relates to improvements in soles and heels, an object of the invention being to provide a sole and heel for boots, shoes, slippers, and all kinds of footwear for use by men, women, and children in which the material of the sole is reinforced by a plurality of thread plugs, assisting the leather in sustaining the wear, and greatly increasing the wearing qualities of the sole and the heel.

A further object is to provide in a sole and heel, a plurality of plugs formed by heavy linen or flax cord impregnated with hot melted wax and extending through slits formed in the leather, each plug consisting of two parts coupled together between the upper and lower faces of the sole and heel, whereby an enlargement is formed which tightly binds in the slit formed in the leather and rendered impervious to moisture by the wax so that the plugs remain in the leather throughout the life of the sole or heel, and cannot accidentally pull out of the leather.

A further object is to provide a sole or heel reinforced by an improved arrangement of plugs composed of cord secured in the sole and heel in an improved manner, and when the sole or heel is in its finished state, are entirely independent one of the other, and the sole and heel are perfectly water tight and have the necessary flexibility to insure comfort in walking.

With these and other objects in view, the invention consists in certain novel features of construction and combinations and arrangements of parts as will be more fully hereinafter described and pointed out in the claims.

In the accompanying drawings: Figure 1 is a bottom plan view showing a shoe equipped with my improved sole and heel. Fig. 2 is a fragmentary plan view of a portion of the sole illustrating on an exaggerated scale the arrangement of slits to receive the cord. Fig. 3 is an enlarged fragmentary view in section showing the arrange-

ment of the cords as they are connected, and Fig. 4 is a similar view showing the surplus of the cords on both faces of the sole cut away so as to leave in the shoe the series of independent plugs.

1 represents a shoe, and 2 and 3 the sole and heel secured thereto in any approved manner.

While my improvements are adapted for use in connection with any form of footwear, I shall describe the same particularly in connection with a shoe with the understanding that the invention applies primarily to the wearing face of the sole and the heel, and while in most instances a single thickness of leather is all that is desirable for the sole, in most instances more than a single thickness is desired for the heel in which latter case only the lower section of heel will be equipped with my improved reinforce.

As my invention applies equally well to the sole and heel, I would have it understood that hereinafter in referring to the sole it is to be understood that the construction applies alike to the heel.

The sole 2 is provided with a series of slits 4 which may be variously arranged so as to give to the shoe any desired arrangement of threads and plugs, but in any event the slits will be formed at right angles to the direction of sewing. The slits 4 may be formed by an awl of the proper shape working in advance of a needle or the needle itself may be so shaped as to form the slits, and I would have it understood that in the formation of these slits, there is no material cut out but merely a thin cut formed through the leather for the passage of the cords.

To form the series of plugs in the slits 4, I utilize two cords 5 and 6. These cords as they are fed to the needle, are impregnated with melted hot wax which penetrates the threads and also the fiber of the leather. Furthermore, this wax serves to entirely close the openings in the leather, and assists the plugs in rendering the sole water tight. The threads 5 and 6 are interlocked midway between the surfaces of the leather as shown clearly at 7. That is to say, the threads are looped through each other and drawn tightly so that the coupling or joint of the two threads is located midway between the surfaces, and as this joint or coupling for a knot or enlargement, it is tightly be-

or locked in the slot 4 and acts as an anchor to prevent movement of the plug in either direction. After the entire sole is provided with the desired arrangement of plugs, that
 5 portion of the threads 5 and 6 on the upper and lower faces of the leather is cut away, leaving in the leather a series of independent plugs as shown clearly in Fig. 4.

In some instances where my improvements
 10 are used on cheap shoes, the outer or lower surface of the sole and heel may be left rough and only the cord or thread on the inner surface cut away, in which case the threads would soon become independent, as
 15 the sections of the lower or outer cord would be worn away in time. In any event, the plugs would be securely anchored by reason of the joint or coupling, and no ordinary wear could withdraw any of the plugs, and
 20 the withdrawal of one plug would not affect other plugs, as they each have their own independent locking action in the sole and heel.

My improvements do not detract but
 25 rather enhance the flexible qualities of the leather, and in addition increase the wear of the sole to such an extent that the sole will wear as long as the upper and overcome the necessity for having soles and heels re-
 30 placed.

I would have it understood that my invention is not limited to any particular arrangement of plugs, nor to the precise materials employed, and various slight changes
 35 might be made in the general form and arrangement of parts described without departing from my invention, and hence I do not limit myself to the precise details set forth, but consider myself at liberty to make
 40 such changes and alterations as fairly fall within the spirit and scope of the appended claims.

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

1. A sole or heel having therein a series of plugs, said plugs consisting of thread, each plug being independently anchored midway its ends, substantially as described.
- 50 2. A sole or heel having therein a series of plugs, said plugs consisting of thread, each plug consisting of two sections coupled between the surfaces of the sole or heel, substantially as described.
- 55 3. A sole or heel having therein a series of plugs, said plugs consisting of thread, each plug being independent of the others and

having an anchor between its ends, substantially as described.

4. A sole or heel having therein a series
 60 of plugs, said plugs consisting of thread, each plug being independent of the others and composed of two sections coupled between the surfaces of the sole or heel, substantially as described.

5. A sole or heel having therein a series of plugs, said plugs consisting of thread, each plug being independently anchored
 65 midway its ends, said plugs being located in slits in the sole or heel, and impregnated with wax, substantially as described.

6. A sole or heel having therein a series of plugs, said plugs consisting of thread, each plug consisting of two sections coupled
 70 between the surface of the sole or heel, said plugs being located in slits in the sole or heel and impregnated with wax, substantially as described.

7. A sole or heel having therein a series of plugs, said plugs consisting of thread,
 75 each plug being independent of the others, said plugs being located in slits in the sole or heel and impregnated with wax, each plug having an anchor between its ends, substantially as described.

8. A sole or heel having therein a series of plugs, said plugs consisting of thread, each
 80 plug being independent of the others and composed of two sections coupled between the surfaces of the sole or heel, said plugs being located in slits in the sole or heel, and impregnated with wax, substantially as described.

9. A sole or heel composed of leather having
 85 a series of slits therein, and independent plugs in the slits, each plug consisting of two threads interlocked between the surfaces of the sole or heel, substantially as described.

10. A sole or heel composed of leather
 90 having a series of slits therein, and independent plugs in the slits, each plug consisting of two threads interlocked between the surfaces of the sole or heel, said plugs being impregnated with wax and filling the slits,
 95 substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

BYRON F. RHODES.

Witnesses:

CLARENCE NICHOLSON,
 J. GEO. FRINGS.