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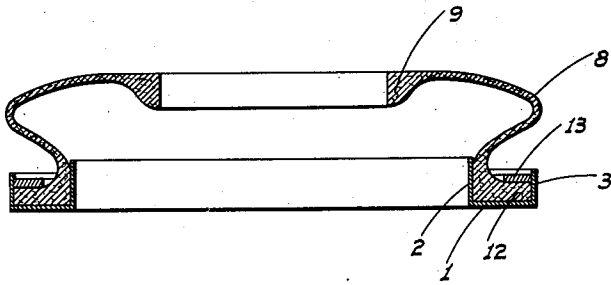
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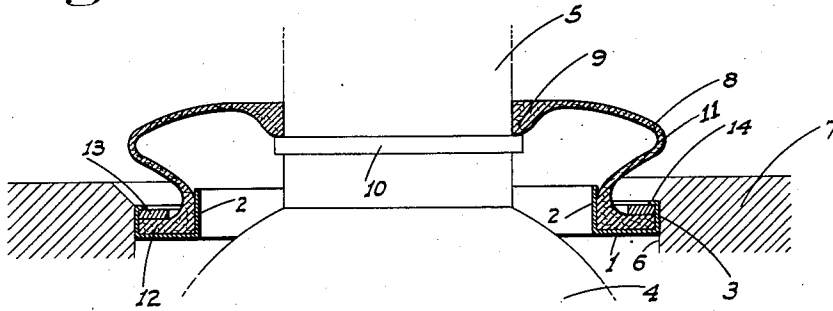
SEALING BOOT ASSEMBLY

Filed May 1, 1942

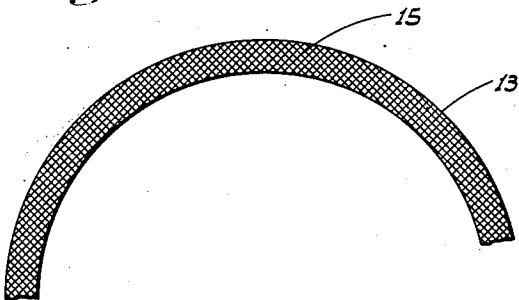
*Fig. 1*



*Fig. 2*



*Fig. 3*



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# UNITED STATES PATENT OFFICE

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## SEALING BOOT ASSEMBLY

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Application May 1, 1942, Serial No. 441,293

4 Claims. (Cl. 287-90)

This invention relates in general to a sealing boot assembly which includes an annular flexible boot adapted at one end to surround a swingable part in sealing relation, and adapted at the other end for sealing connection with a relatively fixed part through which the swingable part projects, as for example, in the Ball and socket unit shown in my copending application for United States patent, Serial No. 398,966, filed June 20, 1941.

The instant invention relates in particular to, and it is an object to provide, unique means for sealing the boot at one end, specifically the end adjacent the fixed part, with the latter in leak-proof and dust-proof relation.

An additional object is to provide the boot at said end with an endless laterally outwardly extending foot which seats in an annular trough mounted on the fixed part; a flat securing ring—roughened and knurled on its under face—but seated on top said foot and said flat ring being engaged with said foot in compressing relation thereto by means of a flange inturned over said ring from the outer wall of the trough.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawing similar characters of reference indicate corresponding parts in the several views:

Figure 1 is a sectional elevation of the improved sealing boot assembly separate from the parts to be sealed, and before inturning or crimping of the flange over the boot-foot compressing and securing ring.

Figure 2 is a sectional elevation of the sealing boot assembly as completed and in use.

Figure 3 is a fragmentary bottom plan of the boot-foot compressing and securing ring.

Referring now more particularly to the characters of reference on the drawing, the improved sealing boot assembly comprises an annular metallic trough 1 which includes an inner wall 2 and an outer wall 3.

The sealing boot assembly is here shown mounted in connection with a ball and socket unit substantially as in the above identified patent application, which includes a ball 4 and a trunnion 5 projecting radially from the ball through a circular opening 6 in a fixed body portion 7.

The annular trough 1 surrounds a portion of the ball 4 and the trunnion 5 in clearance relation, and said annular trough is press-fitted into circular opening 6 in fixed body portion 7, with the trough opening outwardly.

An annular boot 8 of flexible, semi-resilient material—such as rubber—or a rubber substitute such as "Neoprene," extends between trunnion 5 and annular trough 1 and is mounted in connection therewith as follows:

At its outer end the boot 8 is formed with an integral bead 9 which frictionally and snugly engages about the trunnion 5 outwardly of a retaining flange 10 on the trunnion. Intermediate its ends the boot normally bulges outwardly as at 11.

At its lower end the boot 8 is formed with an integral endless, laterally outwardly-projecting foot 12 of substantial thickness, but of lesser thickness than the height of outer wall 3 of trough 1. A flat annular ring 13 seats on top of foot 12, is of substantial width, and is of an exterior diameter such that the ring snugly engages the outer wall 3 of trough 1.

The portion of the wall 3 adjacent its upper edge and about its entire periphery is bent laterally inwardly and downwardly, forming a flange 14, which when formed presses ring 13 so as to compress the portion of foot 12 into positive sealing relation with the trough. In other words, not only is the foot below the ring 13 compressed into engagement with adjacent portions of the trough, but the inner or heel portion of the foot is forced laterally by the inner wall 2 of the trough. In order to prevent creeping of the foot 12 relative to the ring 13 the under face of the latter is roughened or knurled, as at 15.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

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

1. In a sealing boot assembly which includes an annular flexible boot having an endless laterally projecting foot of compressible material formed on one end thereof, an annular rigid

trough in which said foot is seated, said trough including an inner and an outer wall, a ring in the trough on the foot, and means securing said ring in the trough, said foot being compressed axially of the trough between said ring and the bottom of said trough, and compressed radially of the trough between said walls.

2. In a sealing boot assembly which includes an annular flexible boot having an endless laterally projecting foot of compressible material formed on one end thereof, an annular rigid trough in which said foot is seated, said trough including an inner and an outer wall, a ring in the trough on the foot, and means securing said ring in the trough, said foot being compressed axially of the trough between said ring and the bottom of said trough, and compressed radially of the trough between said walls; the ring being of substantial width and engaging one of said walls, and the foot engaging face of said ring being roughened whereby to prevent creeping of the foot relative to said ring.

3. In a sealing boot assembly which includes an annular flexible boot having an endless laterally projecting foot of compressible material formed on one end thereof, an annular rigid trough in which said foot is seated, said trough

including an inner and an outer wall, a ring in the trough on the foot, said ring being of substantial width and engaging said outer wall, the flexible boot extending from the foot between the ring and said inner wall, and means securing said ring in the trough, said foot being compressed axially of the trough between said ring and the bottom of said trough, and compressed radially of the trough between said walls.

4. In a sealing boot assembly which includes an annular flexible boot having an endless laterally projecting foot of compressible material formed on one end thereof, an annular rigid trough in which said foot is seated, said trough including an inner and an outer wall, a ring in the trough on the foot, said ring being of substantial width and engaging said outer wall, the flexible boot extending from the foot between the ring and said inner wall, and means securing said ring in the trough, said foot being compressed axially of the trough between said ring and the bottom of said trough, and compressed radially of the trough between said walls; the inner wall extending a substantial distance beyond the ring axially of said trough in the direction of the boot.

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