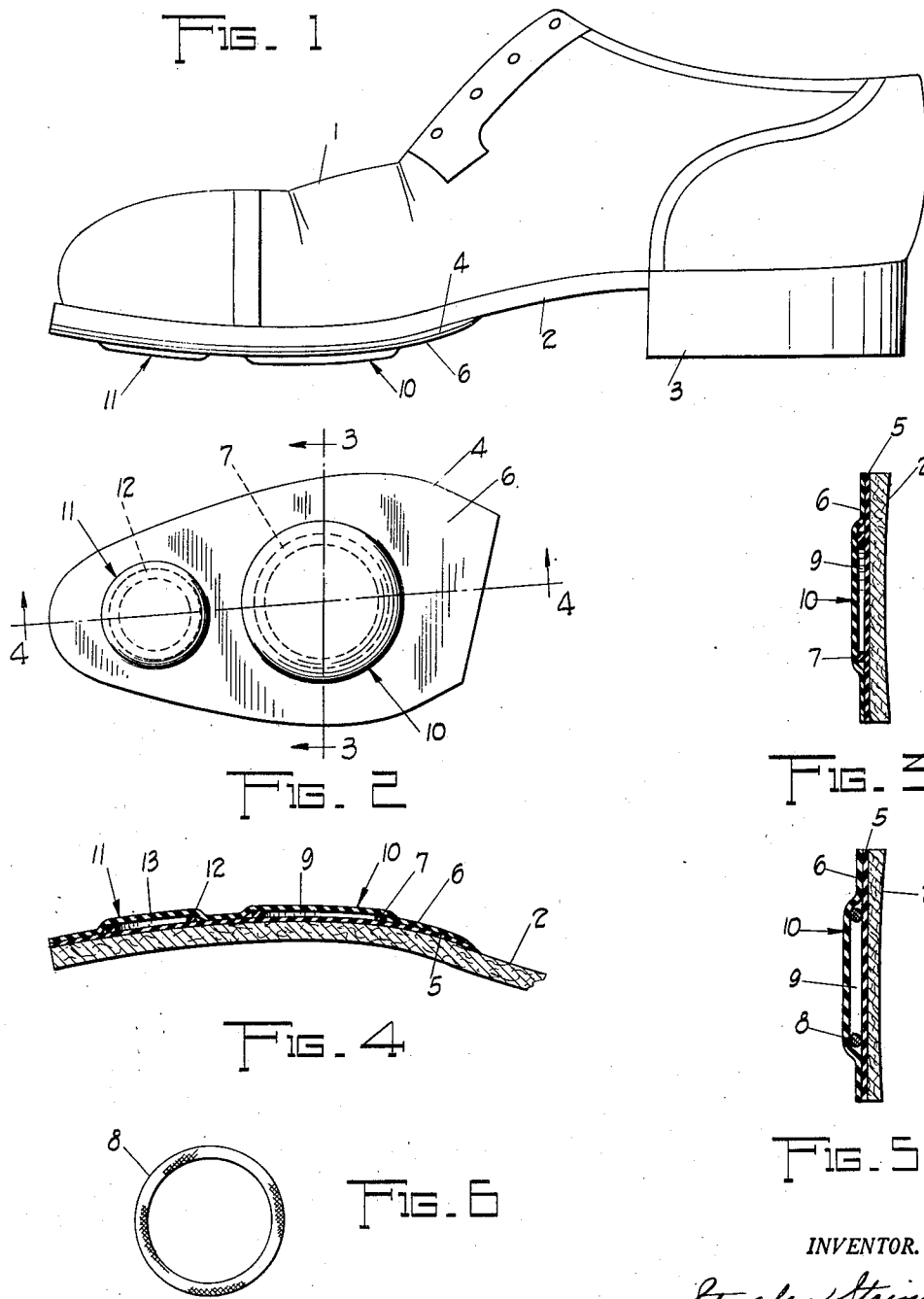


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CUSHION SOLE

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## CUSHION SOLE

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1 Claim. (Cl. 36—29)

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This invention relates in general to improvements in soles for footwear, such as shoes, boots and the like, and has for one of its objects to provide an outer sole that is simple in construction, inexpensive to manufacture and apply and that will insure maximum resilient cushioning against shock in actual wear.

Another object is to provide such an outer sole to include means whereby a pneumatic cushion is obtained upon which to walk.

A further object is to provide such a pneumatic cushion providing means that may be of any desired size and easily installable in the outer sole to provide a pneumatic cushion of any desired size and at any location with respect to the remainder of the sole below whose lower surface the cushion extends.

With the foregoing and other objects in view, the invention resides in the combination of parts and in the details of construction hereinafter set forth in the following specification and appended claim, certain embodiments thereof being illustrated in the accompanying drawings, in which:

Figure 1 is a view in side elevation of a shoe with the outer sole of the invention applied thereto;

Figure 2 is a bottom plan view of the outer sole;

Figure 3 is a view in section taken along line 3—3 of Figure 2, showing a rubber ring between the two sole layers to form a pneumatic cushion;

Figure 4 is a view taken along line 4—4 of Figure 2 showing two pneumatic cushions formed by rubber rings;

Figure 5 is a view similar to Figure 3 of a sole using a fibrous ring instead of a rubber ring; and

Figure 6 is a plan view of one of the rings, alone.

Referring more particularly to the drawings, a conventional shoe is shown at 1 with a main sole 2 and a heel 3. The outer sole, generally indicated at 4, and comprising the present invention, may be applied to the main sole 2 as illustrated in Figure 1.

In order to facilitate the carrying out of the objects of the invention, the outer sole may comprise two layers 5 and 6 of rubber, or like material that is water-proof, wear-resisting and resilient. Referring to Figure 3, the two sole layers 5 and 6 are suitably bonded together. At the desired location, a ring of desired size is interposed between the two sole layers prior to bonding. Such a ring is shown at 7 to be made of rubber, although it may be made of rope or

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other like material, as shown at 8 in Figure 5. The result is the trapping of air in the area bounded by the ring in which the two sole layers are not bonded together, this air compartment being designated at 9 in Figure 3. The pneumatic cushion thus provided is generally indicated at 10.

In the particular embodiment illustrated, such a pneumatic cushion may be provided in the appropriate area of the outer sole to provide a shock-absorbing walking cushion for the ball of the foot, as conveniently illustrated in Figures 1 and 2.

If such a specific location is desired for such a pneumatic cushion as 10, it may also be desirable to provide a similar pneumatic cushion in the appropriate area for supporting the large toe of the wearer. Such a cushion of lesser size is generally indicated at 11 and is formed by the use of a smaller ring 12, of rubber, rope or other suitable material, to provide trapped air in a small compartment 13 between the spaced unbonded area between the sole layers bounded by the ring 12.

It is to be understood that the location of either or both of the pneumatic cushions is by way of illustration and may be changed within the scope of the present invention. For example, it may be desirable to employ a single pneumatic cushion, by the same means and process, which will embrace the greater portion of the area of the outer sole.

In any event, by means of the present invention there has been provided the means whereby, with negligible added expense in materials and time involved, a pneumatic cushion normally extending below the remainder of the outer sole is obtained for initial engagement with the ground in actual wear. This result is also obtained without sacrifice to the wear-resisting, water-proofing and resiliency characteristics of the outer sole as a whole.

In the following claim the term sole will be used as generic to both soles and heels to which both the present invention is equally applicable.

I claim:

An outer sole for shoes, comprising, in combination, a pair of relatively thin and relatively flexible sole layers of rubber-like material, the peripheries of said layers being bonded together, a ring-like spacer element of relatively stiffer but resilient and yieldable material interposed between said layers, those portions of said layers outside of the periphery of said spacing element and inside of the peripheries of said layers being

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bonded together and those portions of said layers within the bounds of the periphery of said spacing element being spaced and unbonded to provide a pneumatic cushion between said layers.

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**REFERENCES CITED**

The following references are of record in the file of this patent:

Number  
1,383,067  
1,539,283  
5 2,033,313  
2,080,469  
2,106,788

4  
**UNITED STATES PATENTS**

Number	Name	Date
1,383,067	Borman -----	June 28, 1921
1,539,283	Staats-oels -----	May 26, 1925
2,033,313	Wilson -----	Mar. 10, 1936
2,080,469	Gilbert -----	May 18, 1937
2,106,788	Borman -----	Feb. 1, 1938

**FOREIGN PATENTS**

10 Number	Country	Date
14,814/07	Great Britain -----	Mar. 12, 1908