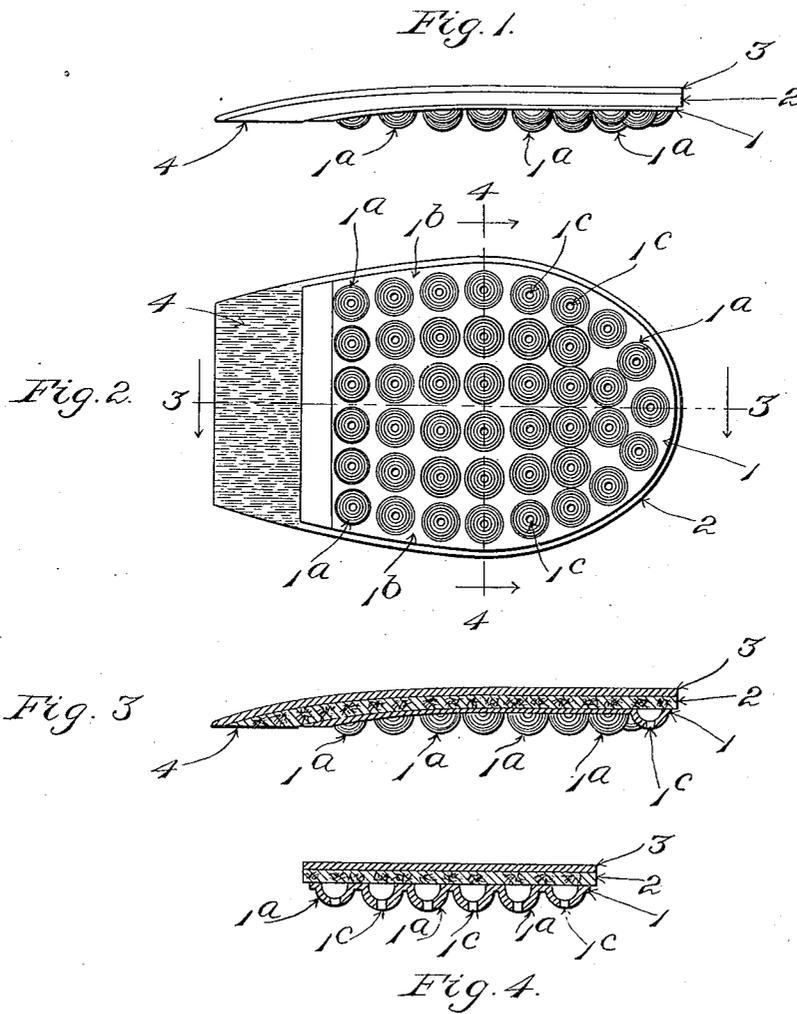


C. E. BULLARD,  
 HEEL CUSHION OR SOCK SOLE FOR SHOES,  
 APPLICATION FILED MAY 1, 1907.

1,128,220.

Patented Feb. 9, 1915.



Witnesses:  
 Oscar F. Hill  
 Aaron F. Randall

Inventor:  
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 by Chas. F. Randall  
 Attorney.

# UNITED STATES PATENT OFFICE.

CHARLES E. BULLARD, OF BROOKLINE, MASSACHUSETTS, ASSIGNOR TO GEORGE R. STETSON, OF NEW BEDFORD, MASSACHUSETTS.

HEEL-CUSHION OR SOCK-SOLE FOR SHOES.

1,128,220.

Specification of Letters Patent.

Patented Feb. 9, 1915.

Application filed May 1, 1907. Serial No. 371,294.

To all whom it may concern:

Be it known that I, CHARLES E. BULLARD, a citizen of the United States, residing at Brookline, in the county of Norfolk, State of Massachusetts, have invented a certain new and useful Improvement in Heel-Cushions or Sock-Soles for Shoes, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to heel-cushions or socks such as are placed within the heel-portion of a shoe, upon the sole thereof in position to receive the pressure of the heel of the foot upon which such shoe is worn, to obviate shock or jar in walking.

The invention consists in a cushion to be worn inside a shoe, having a rubber cushioning layer formed with numerous independent prominent practically-closed hollow nipples, separated from one another at both sides as well as at front and rear and thereby permitting air to flow freely in all directions among them, each closed permanently except for having in the apex thereof a hole of relatively small area for restricted egress and ingress of air, to partially confine within each nipple the air contained therein and thereby utilize the elasticity of such air under compression.

In carrying the invention into effect I employ by preference an intermediate layer of light flexible cushioning material, composed of cork or cork-composition, closing the said nipples permanently at the back thereof, and a top-layer or facing of smooth material, preferably leather.

An embodiment of the invention is illustrated in the drawings, in which latter,—  
Figure 1 is an edge view of a heel-cushion or sock embodying the invention. Fig. 2 is a bottom view thereof. Fig. 3 is a view in longitudinal section on line 3, 3, of Fig. 2. Fig. 4 is a view in transverse section on line 4, 4, of Fig. 2.

Having reference to the drawings,—the rubber cushion is marked 1, the body-layer 2, and the top-facing 3. These three portions or layers are secured together, preferably by means of cement applied to their contacting faces. The rubber cushion is shown formed at its under side, in this instance, with the rounded projecting practically-closed hollow nipples 1<sup>a</sup>, 1<sup>a</sup>, etc., extending from the web or connecting portion

1<sup>b</sup>. The spacing of the said nipples or projections apart from one another admits air among them beneath the body-layer, and provides for free circulation of the air in all directions as the heel cushion is alternately compressed and relieved of compression in walking. The said nipples are hollow or chambered, to enable them to yield more readily by the collapsing of their walls, and to contain air, and each thereof is formed in its apex with a small opening 1<sup>c</sup> to permit egress of air under pressure, and permit ingress of air when the pressure is relieved and facilitate the return of the nipples to their normal shapes and positions. This opening is so small, that the air is retained more or less on application of pressure, and is retarded in its escape, thereby utilizing the elasticity of the compressed air.

The escape of the air through the small openings 1<sup>c</sup> in the apices of the nipples obviates bursting of the nipples when compressed under the weight of the wearer. The said openings also permit the return entrance of air into the interior of the nipples when the pressure is relieved, thereby enabling the nipples to recover their full size quickly and rendering the action more lively.

Layer 2, in the drawings, is formed of cork or cork-composition, which is light, flexible, and non-absorbent. It also is quite yielding, and supplements the elasticity of the rubber cushion. Hence the heel-cushion or sock is easier and more comfortable to the foot than when a layer of stiff leather is combined with a rubber cushion.

The top facing 3 consists of a thin sheet of leather.

The body-layer and top-facing projects some distance beyond the forward end of the web of the rubber cushion, at the shank-end of the heel-cushion or sock. The said end of the said web is thinned to a feather-edge, and the projecting portion of the body-layer is reduced and tapered by skiving so as to avoid a ridge at the front end of the heel-cushion or sock when in place within a shoe, such as would cause discomfort to the foot of the wearer.

To suit the round of the concavity or depression which usually exists in the sole of a shoe, at the heel, the nipples 1<sup>a</sup>, 1<sup>a</sup>, etc., are graduated in size, being smaller at the

front and back ends, and at the opposite sides, than in the central portion, thereby causing the heel-cushion or sock to conform to the deeper depression existing in the shoe-sole for the reception of the ball of the heel, and the comparative elevation around such depression.

The forward end of the body-layer 2 is coated with glue, as indicated at 4, to enable such end to be caused to adhere to the surface of the sole of a shoe. A tack or tacks may be employed, in addition, to assist in holding the heel-cushion or sock in place, or the tack or tacks alone may be utilized.

15 What is claimed is:—

1. A cushion to be worn inside a shoe, having a rubber cushioning layer formed with numerous independent prominent permanently practically-closed hollow nipples, separated from one another at both sides as well as at front and rear and thereby permitting air to flow freely in all directions among them, each closed permanently except for having in the apex thereof a hole of relatively small area for restricted egress and ingress of air, to obviate bursting under compression by permitting escape of air, while partially confining within each nipple the air contained therein and thereby utilizing the elasticity of such air under compression, said holes permitting entrance of air to enable the nipples to recover full size quickly and render the action more lively.

2. A cushion for wear inside a shoe, having a rubber cushioning layer formed with numerous independent protuberant practi-

cally-closed hollow nipples, separated from one another at both sides as well as at front and rear, and a cork layer secured to said rubber layer and permanently closing the said nipples at the back thereof, each nipple being completely closed except for having a small hole of relatively small area in its apex for restricted egress and ingress of air, to practically confine within the nipple the air contained therein, and thereby utilize the elasticity of such air under compression, the spaces at all sides of the individual nipples permitting air to flow freely in all directions among them.

3. A cushion for wear inside a shoe, having a rubber cushioning layer formed with numerous independent protuberant practically-closed hollow nipples of graduated lengths, longest at the center of the cushion and shortest at sides, front end and rear end, separated from one another at both sides as well as at front and thereby permitting air to flow freely in all directions among them, each closed permanently except for having in the apex thereof a hole of relatively small area for restricted egress and ingress of air, to partially confine within each nipple the air contained therein and thereby utilize the elasticity of such air under compression.

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

CHARLES E. BULLARD.

Witnesses:

CHAS. F. RANDALL,  
EDITH J. ANLERTON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."

It is hereby certified that in Letters Patent No. 1,128,220, granted February 9, 1915, upon the application of Charles E. Bullard, of Brookline, Massachusetts, for an improvement in "Heel-Cushions or Sock-Soles for Shoes," an error appears in the printed specification requiring correction as follows: Page 2, line 59, after the word "front" insert the words *and rear*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 16th day of March, A. D., 1915.

[SEAL.]

J. T. NEWTON,  
*Acting Commissioner of Patents.*