

July 21, 1953

E. W. TOWN

2,645,865

CUSHIONING INSOLE FOR SHOES

Filed July 25, 1952

FIG. 1

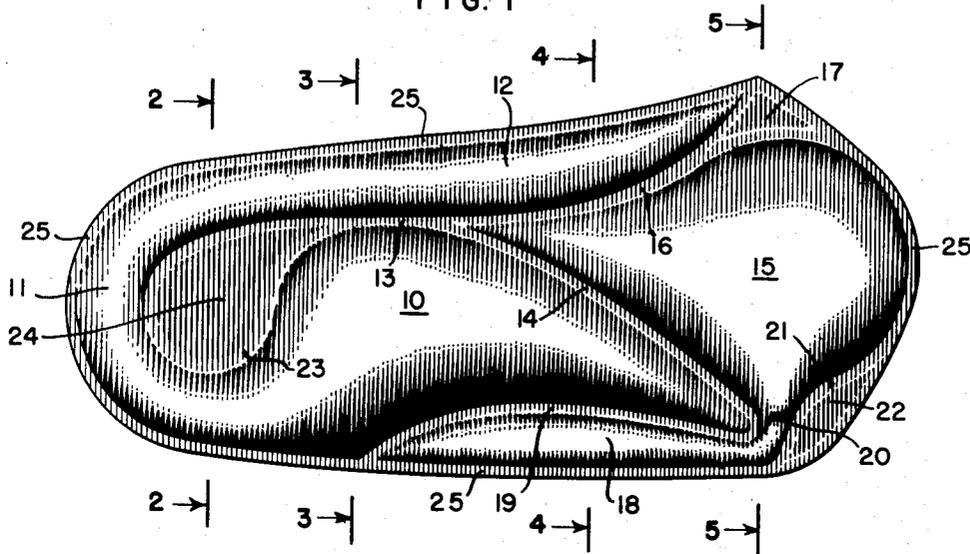


FIG. 2

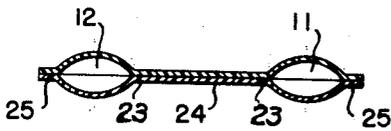


FIG. 3

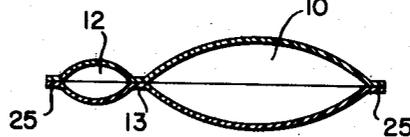


FIG. 4

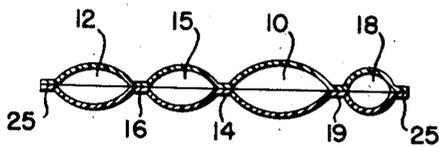
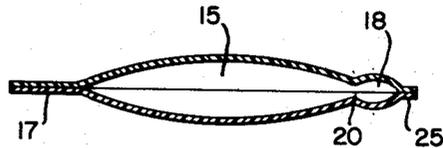


FIG. 5



INVENTOR.
EDWARD W. TOWN

BY

Jas. C. Nobensmith
ATTORNEY.

UNITED STATES PATENT OFFICE

2,645,865

CUSHIONING INSOLE FOR SHOES

Edward W. Town, Wildwood, N. J.

Application July 25, 1952, Serial No. 300,958

5 Claims. (Cl. 36—71)

1

2

This invention relates to cushioning insoles for shoes, and it relates more particularly to insoles adapted to be inserted in shoes for the purpose of providing greater comfort to the user, particularly persons suffering from fallen arches and other ailments to which the human feet are susceptible, many of which are caused by the peculiarities of the modern factory made shoes.

Heretofore many forms of cushioning insoles have been made or suggested, based on various ideas as to the proper cushioning of the shoes, and in most instances providing for varying degrees of cushioning at certain critical places, such as under the principal arch and at or near the ball of the foot under the metatarsus bones.

In my previous application for Letters Patent filed July 10, 1951, Serial No. 235,929, I have shown and described a novel form of cushioning insole for shoes, which has been found to function in a peculiar yet satisfactory manner as set forth in said application, but for still more effective cushioning the device of the present invention will be found to be an improvement, particularly in those instances where a resilient support is needed under the metatarsus region of the foot.

It has heretofore been suggested to provide air pockets in insoles for the purpose of cushioning, but usually these pockets have been in communication with each other, whereby the varying pressures on the several pockets will, when walking, result in the air being caused to move rapidly about from one cushioning pocket to the other, and as heretofore proposed, this is oftentimes objectionable to the wearer.

On the other hand, where separate closed or uncommunicating pockets were used there was a definite loss of the advantage arising out of the use of one of the air pockets as a reservoir for the air which may be forced from another pocket by reason of undue pressure at certain locations.

The principal object of the present invention is to provide a cushioning insole for shoes having a novel arrangement of pneumatic pockets, which will be automatic in its action, and which will be self-adjusting in response to shifting of the areas of pressure which occurs particularly when walking.

A further object of the present invention is to provide a cushioning insole of the character aforesaid which may be inexpensively made, yet which will be efficient in its action and durable in its construction.

The nature and characteristic features of the present invention will be more readily understood from the following description, taken in connec-

tion with the accompanying drawing forming part hereof, in which:

Figure 1 is a plan view of a preferred form of cushioning insole embodying the main features of the present invention;

Fig. 2 is a transverse section thereof taken on the line 2—2 of Fig. 1;

Fig. 3 is a similar section taken on the line 3—3 of Fig. 1;

Fig. 4 is a similar section taken on the line 4—4 of Fig. 1; and

Fig. 5 is a similar section taken on the line 5—5 of Fig. 1.

It should, of course, be understood that the description and drawing herein are illustrative merely, and that various modifications and changes may be made in the structure disclosed without departing from the spirit of the invention.

Referring to the drawing, the device of the present invention as there shown is preferably made of two sheets of suitable material having the requisite flexibility and strength, joined to each other at their edges and along intermediate lines to provide air pockets of peculiar shapes as hereinafter set forth.

Certain of the modern plastics in flexible sheet form are quite adaptable for the making of the insoles of the present invention, particularly if the same are of the so-called "heat sealable" type.

The construction and novel arrangement of the cushioning insole of the present invention will perhaps be better understood by a description of the manner of making the same, for which purpose the two sheets of the material are shaped to the proper outline, and while superposed on each other, heat is applied at the edges and along certain lines so that the two sheets are joined to each other at the edges and the aforesaid lines, thereby to provide the air pockets of the peculiar shape and arrangement.

The two sheets will be united to each other by the application of the heat around the edges and also along the interior lines to define the main central pocket 10 which is located under the main or principal arch of the foot for the purpose of supporting the same. Said pocket 10 is in communication with a marginal pocket which extends around the heel as at 11 and along the outer side portion of the insole as at 12.

The main central pocket 10 is separated from the side marginal pocket 12 by a sealing line 13, and from a median point on this sealing line a diagonal sealing line 14 extends diagonally forward toward the front end of the inner side portion of the insole. There is thus provided near

the front end of the insole a pocket 15 which serves to cushion and support the metatarsal portion of the foot.

The pocket 15 is separated from the marginal pocket 12 on the outer side of the insole by a sealing line 16 which continues forwardly to the front end of the insole, leaving a flat portion 17 between the front end of the side marginal pocket 12 and the forward portion of the metatarsal cushion pocket 15.

A pocket 18 is provided along the inner side of the insole, being formed by a sealing line 19 disposed between the forward portion of the pocket 10 and the pocket 18, extending substantially parallel to the inner marginal edge of the device and terminating intermediate the ends thereof.

The pocket 15 communicates with the marginal pocket 18 on the inner side by means of a passageway 20 which is formed by the provision of a sealing line 21 extending inwardly from the front end of the insole a sufficient distance to provide said passageway 20, resulting in the provision of a flat portion 22 at the inner forward end of the insole.

The heel portion 11 of the marginal pocket, with which the main arch supporting pocket 10 communicates, is defined by a sealing line 23 extending in looplike formation at the rear end of the sealing line 13, thereby resulting in a centrally disposed flat portion 24, which in the use of the insole is positioned under the center of the heel of the user.

Around the perimeter of the insole, the two sheets of the material of which the same is made, are united to each other by a sealing line 25, which closes the pockets which extend to the edges.

It will, of course, be noted that the insole terminates short of the toe portion of the shoe in which it is to be used, as there is no necessity for any cushioning or support of the toe portion of the foot.

Each of the pockets above described is distended by the air contained therein being under a slight degree of pressure, the amount of such pressure depending upon the size of the insole which is ordinarily proportional to the weight of the user.

In the use of the device, the insole is inserted in the shoe with the heel portion thereof disposed within the heel portion of the shoe and with the main cushioning or supporting pocket 10 disposed on the inner side of the shoe, thereby to provide a support for the main arch of the foot when the weight of the wearer is placed on the device. The pocket 15 will then be disposed below the metatarsal portion of the foot.

By the foregoing arrangement, when the weight of the wearer comes on the insole, the air will pass from the places of greatest pressure into the reservoirs provided by the pockets on the marginal edges of the device. That is to say, any air which is expelled from the main pocket 10 will be caused to pass into the marginal pocket provided by the portions 11 and 12 at the heel and the outer side edge portion of the insole, and the same will serve to inhibit sidewise spreading of the foot of the user.

In like manner, any air which is expelled from the pocket 15 by the pressure of the metatarsal portion of the foot thereon will pass into the reservoir provided by the pocket 18 on the inner marginal edge of the device.

However, when the device is disposed within

the shoe that portion thereof in which the pocket 18 is positioned, as well also as a portion of the pocket 10, will extend up the side of the shoe where the soft leather of the shoe is located, and the pocket 18 will to a certain extent cooperate with the main pocket 10 in providing a proper and adequate support of the main arch of the foot.

In the use of the insole, the air which is expelled from the areas of greatest pressure will be permitted to pass into the reservoirs provided by the marginal pockets, which in turn will add a modicum of support, serving to prevent the spreading of the foot by reason of the support provided by the marginal pockets. In the movement of the foot, particularly in walking, the air will move from place to place to accommodate the constantly shifting pressure areas, and it has been found that the peculiar arrangement of the pockets, as herein set forth, serves to provide comfort and relieves weariness, particularly in those cases in which there is a condition which is commonly known as "flat feet" when the arches of the foot have fallen and assistance to the natural muscle action is needed.

The movement of the air from place to place within the various pockets of the insole will also serve to massage the fleshy portions of the foot whenever the actuation of the foot causes the pressure areas to shift, and in this manner the effectiveness of the device will be greatly enhanced.

I claim:

1. A cushioning insole comprising a device shaped in outline to fit a portion of the interior of a shoe, said insole comprising thin sheet members secured to each other at their marginal edges and along intermediate sealing lines, said sealing lines being shaped to provide a centrally located air pocket adapted to be positioned under and support the main arch of the foot, a marginal pocket in communication therewith having a portion extending along the outer edge, a cushioning air pocket located forwardly of the central pocket and separated therefrom by a sealing line, said air pocket being adapted to be disposed under and support the metatarsal portion of the foot, and an air pocket along the inner edge of the device in communication with the metatarsal supporting pocket and separated from the main arch supporting pocket.

2. A cushioning insole comprising a device shaped in outline to fit a portion of the interior of a shoe, said insole comprising thin sheet members secured to each other at their marginal edges and along intermediate sealing lines, said sealing lines being shaped to provide a centrally located air pocket adapted to be positioned under and support the main arch of the foot, a marginal pocket in communication therewith having a portion extending along the outer edge, a cushioning air pocket located forwardly of the central pocket and separated therefrom by a sealing line, said air pocket being adapted to be disposed under and support the metatarsal portion of the foot, and an air pocket along the inner edge of the device in communication with the metatarsal supporting pocket and separated from the main arch supporting pocket by a sealing line extending substantially parallel to the inner marginal edge.

3. A cushioning insole comprising a device shaped in outline to fit a portion of the interior of a shoe, said insole comprising thin sheet members secured to each other at their marginal edges and along intermediate sealing lines, said sealing

5

lines being shaped to provide a centrally located air pocket adapted to be positioned under and support the main arch of the foot, a marginal pocket in communication therewith having a portion extending along the outer edge, a cushioning air pocket located forwardly of the central pocket and separated therefrom by a sealing line, said air pocket being adapted to be disposed under and support the metatarsal portion of the foot, and an air pocket along the inner edge of the device in communication with the metatarsal supporting pocket and separated from the main arch supporting pocket by a sealing line extending substantially parallel to the inner marginal edge and terminating intermediate the ends thereof.

4. A cushioning insole comprising a device shaped in outline to fit a portion of the interior of a shoe, said insole comprising thin sheet members secured to each other at their marginal edges and along intermediate sealing lines, said sealing lines being shaped to provide a centrally located air pocket adapted to be positioned under and support the main arch of the foot, a marginal pocket in communication therewith having a portion extending around the heel and along the outer edge, a cushioning air pocket located forwardly of the central pocket and separated therefrom by a sealing line, said air pocket being adapted to be disposed under and support the metatarsal portion of the foot, and an air pocket along the inner edge of the device in communication with the metatarsal supporting pocket and

6

separated from the main arch supporting pocket by a sealing line extending substantially parallel to the inner marginal edge and terminating intermediate the ends thereof.

5. A cushioning insole comprising a device shaped in outline to fit a portion of the interior of a shoe, said insole comprising thin sheet members secured to each other at their marginal edges and along intermediate sealing lines, said sealing lines being shaped to provide a centrally located air pocket adapted to be positioned under and support the main arch of the foot, a marginal pocket in communication therewith having a portion extending around the heel and along the outer edge, a cushioning air pocket located forwardly of the central pocket and separated therefrom by a sealing line extending diagonally forward from the inner line of the outer side pocket toward the front end of the inner side portion of the device, said air pocket being adapted to be disposed under and support the metatarsal portion of the foot, and an air pocket along the inner edge of the device in communication with the metatarsal supporting pocket and separated from the main arch supporting pocket by a sealing line extending substantially parallel to the inner marginal edge of the device and terminating intermediate the ends thereof.

EDWARD W. TOWN.

No references cited.