

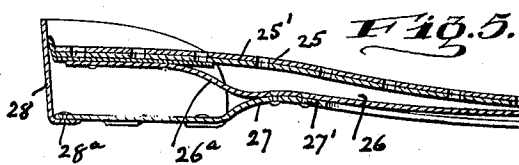
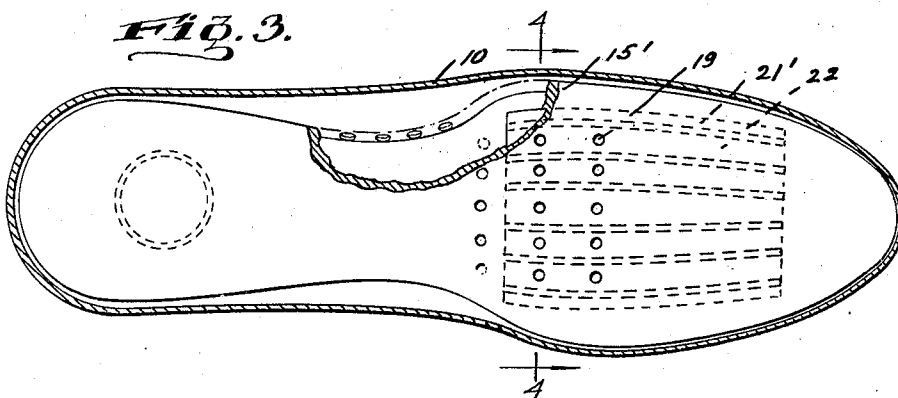
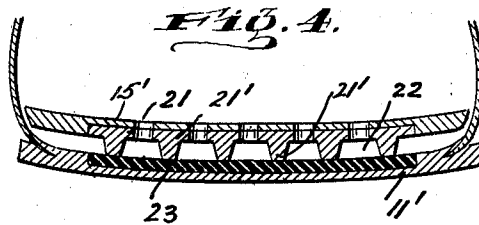
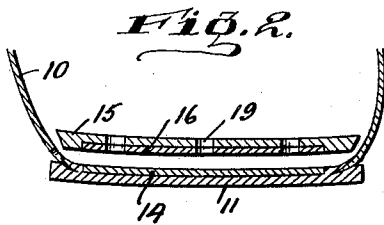
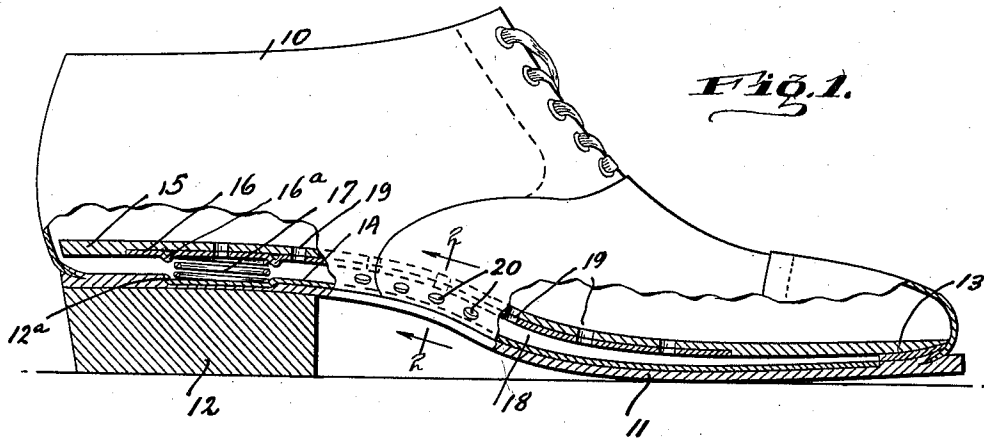
April 4, 1939.

J. GRUBER

2,153,304

SHOE

Filed Feb. 8, 1937



INVENTOR

INVENTOR
John Gruber

BY

Mary Ordman
ATTORNEY

ATTORNEY

UNITED STATES PATENT OFFICE

2,153,304

SHOE

John Gruber, New York, N. Y.

Application February 8, 1937, Serial No. 124,653

1 Claim. (Cl. 36—3)

This invention relates to shoes and more specifically to the sole portion thereof and has for its principal object to provide a shoe that will be comfortable and reduce or prevent soreness of the foot.

The tired and often painful feeling is felt mostly at the heel, which presses with the full or greatest part of the weight of the wearer on the shoe heel. Various attempts have been made to eliminate this evil through different means, such as arch supports or the like, but mostly without any appreciable success.

I have found that the main evil lies in that the heel portion of the insole is not sufficiently resilient to yield under the weight and produce the desired effect. Cushioning means placed below the sole portion of the insole are more harmful than useful, for it is just there, and under the arches, where a more rigid support is needed. It is, therefore, another object of my invention to provide a cushion, in form of a spring under the heel portion of the insole and to provide for a more rigid support for the rest of the insole.

Another object is to so mount the spring cushion at the heel as to maintain the insole separated from the outer sole to provide an air channel which will permit the circulation of air in the shoe through air holes in the insole and the shoe upper.

A still further object of this invention is to provide a construction which will be durable, simple and inexpensive to manufacture and effective as a ventilation affording shoe.

With these and other objects in view which will appear from the detailed description of this device, my invention consists in the novel construction, combination and arrangement of parts, as will be hereinafter more fully described and defined in the appended claim.

In the accompanying drawing which constitutes part of this specification and in which similar reference characters denote corresponding parts,

Fig. 1 is a sectional side elevation of my novel shoe;

Fig. 2 a cross section on line 2—2 of Fig. 1;

Fig. 3 a longitudinal section of the shoe showing a modified construction of the insole;

Fig. 4 a cross section on line 4—4 of Fig. 3, and
Fig. 5 is a longitudinal section of another modification.

In the drawing 10 denotes the shoe upper, 11 the outer sole, and 12 the heel of the shoe. Suitably supported in a depression or cavity 12^a pro-

vided on the upper face of said outer sole is a base plate 14 of steel, aluminum, or the like. This base may be extended to cover the whole or a substantial part of the inner face of the sole and to serve as a reinforcement thereof. 15 denotes the leather insole which is, as usual, attached to the welt 13. This insole is formed on its inner face with a reinforcing plate 16 of steel, aluminum, or the like, which extends from a point near the rear end of the heel portion to a point beyond the arch and which thereby makes the insole sufficiently rigid and can be shaped to act as an arch support.

The heel portion of said plate 16 is provided with a downwardly projecting annular flange or head 16^a to engage the upper end of a spring 17 which is supported in the cavity 12^a of the heel end 12 of the outer sole and which is adapted to yieldingly maintain the insole at a comparatively short elevation from the inner face of the outer sole to form an air channel 18 therebetween. The insole 15 and plate 16 are perforated as at 19 to form air vents, and a number of air vents 20 may be provided in the side or rear of the shoe upper, so that air may circulate through the shoe and cool the foot of the wearer when walking.

Due to the spring, the insole at the heel portion will yield vertically and act somewhat like a bellows, thereby inhaling and exhaling air through the air vents, and will produce an effective air circulation through the same, while at the same time the ball at the heel of the foot will be relieved of pressure.

In the modification shown in Figs. 3 and 4 a plate 21 of steel or other rigid material is embedded in and attached to the insole 15' and is provided with a plurality of longitudinally extending ribs 21' to form air flues 22 between themselves. These ribs may rest on a pad 23 of rubber or other suitable material supported on the inner face of the outer sole 11'. The air vents 19 in the insole are so distributed that they will communicate with said flues or channels 22.

In the modification shown in Fig. 5 the insole 25 is supported at its heel portion by a resilient plate 26, preferably of steel, which at its shank and at its toe end may be riveted or otherwise fixed to the metal plate 27 of the outer sole, as at 27', 27². At the heel end said plate is curved or bent upwardly as at 26^a to bear against the lower face of the heel portion of said insole 25 or its reinforcing plate 25'. This upwardly bent part 26^a affords sufficient resilient support to the heel of the insole and maintains the latter at an

elevation above the outer sole to form an air space.

As shown in this modification, the heel end of the outer sole may be in form of a hood 28 made of some rigid material, such as aluminum, and is suitably fixed, as by riveting or otherwise as at 28^a, to the metal plate 27 of the outer sole. The base of said hood 28 may be made to be about level with the lowest level of the sole, as in rubbers. The outer faces of said hood and outer sole are embedded in or covered by leather (not shown). This construction has been found to also afford an effective rigid support for the foot, and while it is used with a low heel shoe, it nevertheless supports the heel of the foot at some elevation from the bottom of the sole, permitting at the same time sufficient resiliency at the joint where this is most needed.

Various other modifications may be made in the construction of my device without departing from the principle of my invention. I, therefore,

do not wish to restrict myself to the details shown and described.

What I claim is:

In a shoe, the combination of an outer sole having a depression on the inner face of the heel end thereof, a metal reinforcing plate extending over and embedded in the inner face of said outer sole, said metal plate having a depressed portion engaging said depression in said outer sole, a leather insole, a metal reinforcing plate extending over and embedded in the inner face of said insole, a coil spring bearing with its lower end in said depressed portion of said first named metal plate and means on the inner face of said second reinforcing plate to engage the upper end of said spring, said insole and its reinforcing plate being perforated to form air vents, and said coil spring being adapted to yieldingly support said insole and its reinforcing plate at an elevation from said outer sole to form an air channel.

JOHN GRUBER.