E. BORMAN.

PNEUMATIC HEEL.

APPLICATION FILED SEPT 15, 1920.

1,383,067.

Patented June 28, 1921.

FIG. 1

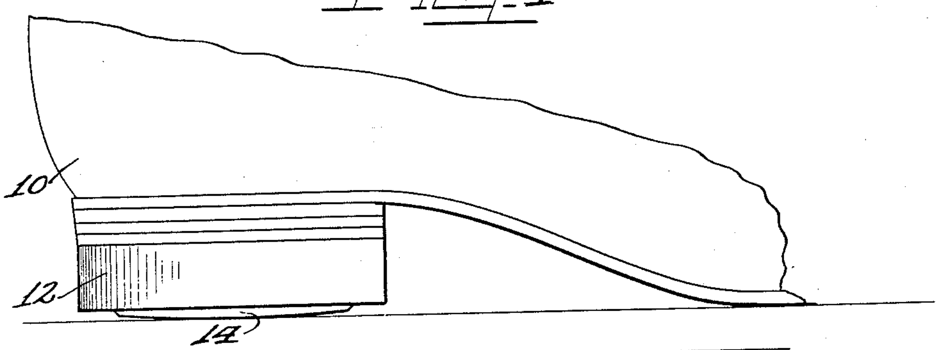


FIG. 3

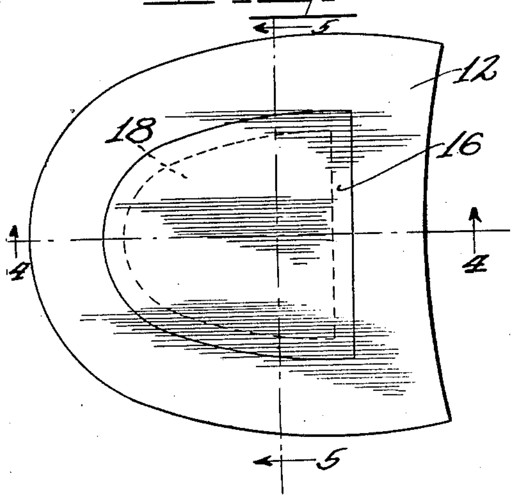


FIG. 2

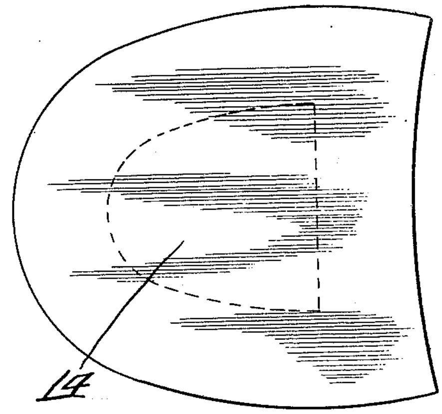


FIG. 4

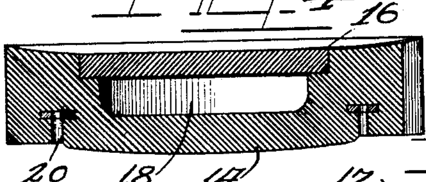


FIG. 5

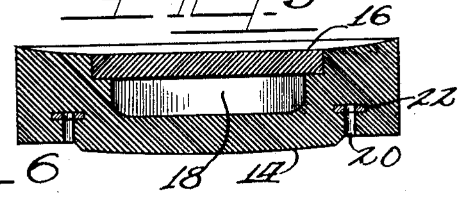
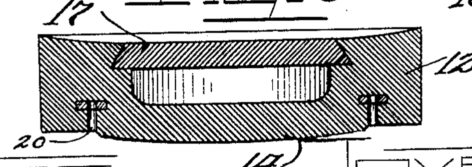


FIG. 6



Witnesses

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Inventor

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UNITED STATES PATENT OFFICE.

EMIL BORMAN, OF CHICAGO, ILLINOIS.

PNEUMATIC HEEL.

1,383,067. Specification of Letters Patent. Patented June 28, 1921.

Application filed September 15, 1920. Serial No. 410,525.

To all whom it may concern:

Be it known that I, EMIL BORMAN, a citizen of Russia, having declared my intention to become a citizen of the United States, residing in the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Pneumatic Heels; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the numerals of reference marked thereon, which form a part of this specification.

This invention relates to an improvement in rubber heels and is adapted to provide a rubber heel which in addition to having the resilient qualities of rubber has also a pneumatic compartment therein in which a cushion of air is maintained, thereby rendering the heel still more resilient and comfortable for the wearer thereof.

An object of this invention is the provision of a pneumatic heel for shoes which is composed of rubber and which has provided therein a layer or cushion of air which is compressed at every step of the wearer thereby resulting in greater elasticity and insuring ease and comfort in walking.

A further object of this invention is the provision of a pneumatic rubber heel for shoes which will not be much, if any more, expensive or difficult to manufacture than the ordinary rubber heel now on the market.

A still further object of this invention is the provision of a pneumatic heel wherein the air cushion provided in the heel is automatically and positively brought into operation in the normal use of the heel in walking.

Other and further important objects of this invention will be apparent from the disclosures in the drawings and specification.

The invention (in a preferred form) is illustrated in the drawings and hereinafter more fully described.

In the drawings:

Figure 1 is a side elevation of a portion of a shoe showing the improved heel attached thereto.

Fig. 2 is a bottom plan view of the heel detached from the shoe.

Fig. 3 is a top plan view of the heel with the pneumatic compartment indicated by the dotted lines.

Fig. 4 is the cross section of the heel taken on the line 4—4 of Fig. 3.

Fig. 5 is a cross section taken on the line 5—5 of Fig. 3.

Fig. 6 is a cross section similar to Fig. 5 showing a slight modification.

As shown in the drawings:

The reference numeral 10 indicates a shoe having the improved pneumatic heel 12 applied thereto in the ordinary manner. The heel is provided with a downwardly and outwardly extending integral protuberance 14 which is adapted to act as an auxiliary cushion and also to compress the layer or pocket of air in the heel. The heel may be made of any preferred shape and of any size and as shown in the drawings is constructed with a recess 18 extending down into the central portion thereof and which is covered by a resilient cap 16 made of rubber or other suitable material. This cap 16 is adapted to fit into a corresponding offset annular recess provided in the heel and which extends around the pocket 18 and when the cap is inserted in position it provides a cover which is flush with the upper side of the heel which may be in a plane parallel to the lower side but which in the preferred form is sunken slightly. The insertion of the cover 16 into position in the heel as shown in Figs. 4 and 5 results in the construction of a resilient air cushion or pocket shown at 18 in these figures. The cover 16 is preferably vulcanized into position, thereby providing an air-tight joint and insuring the efficient and positive operation of the air cushion 18 at all times. However in the modification of the device shown in Fig. 6 the cover 16 may be provided with beveled edges as shown to correspond with similar beveled outstanding edges in the recess in the top of the heel 12. This method of construction provides a joint which is practically air-tight and which moreover provides for additional ease in assembling the heel. As shown, the heel 12 is provided with the usual perforations 20 extending about half way through the heel and terminating with a washer 22 at the base of each which are adapted to provide holders for the insertion of nails to securely attach the heel to the shoe.

It will be seen that herein is provided a rubber heel which has in addition to the natural resiliency of the rubber, a cushion of air provided therein which adds greatly to the beneficial effects produced by such resilient heel when applied to shoes. A fur-

ther advantage of this construction will be found in the fact that as a result of the adaptation of an air cushion in a heel of this sort the material of which the heel is made need not be of such a resilient nature as is ordinarily necessary in the provision of a rubber heel in order to attain the desired elasticity to operate for ease in walking. This will permit in the use of a more durable composition of rubber which therefore will not wear out so quickly and moreover is not nearly so expensive to manufacture. The space in which the air is retained may obviously be made of any desired shape or form, or of any size consistent with the particular rubber heel to which it is to be applied.

It will also be evident that this heel will have the same or better wearing qualities as other rubber heels, on account of the solid and reinforced construction thereof, and moreover constitutes a particularly desirable article which fills a long felt want, namely that of a cushion of compressed air under the heel of the wearer which is positively brought into operation at every step of the wearer owing to the protuberance on the bottom of the heel which will be pressed flush with the remaining surface, thereby compressing the air in the pocket.

I am aware that numerous details of construction may be varied through a wide range without departing from the principles of this invention and I therefore do not purpose limiting the patent granted thereon otherwise than necessitated by the prior art.

I claim as my invention:

As an article of manufacture, a cushion heel for shoes consisting of a rubber body having a hermetically-sealed cavity for air formed by integral and continuous top and bottom walls and up-standing marginal walls of said body, and provided with a curved protuberance, or boss, on its under side of approximately the same shape and area as said cavity, the bottom wall of said cavity being sufficiently yielding to permit loads and shocks to be resisted mainly by the air confined within said cavity.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

EMIL BORMAN.

Witnesses:
CHARLES W. HILLS, Jr.,
EARL M. HARDINE.