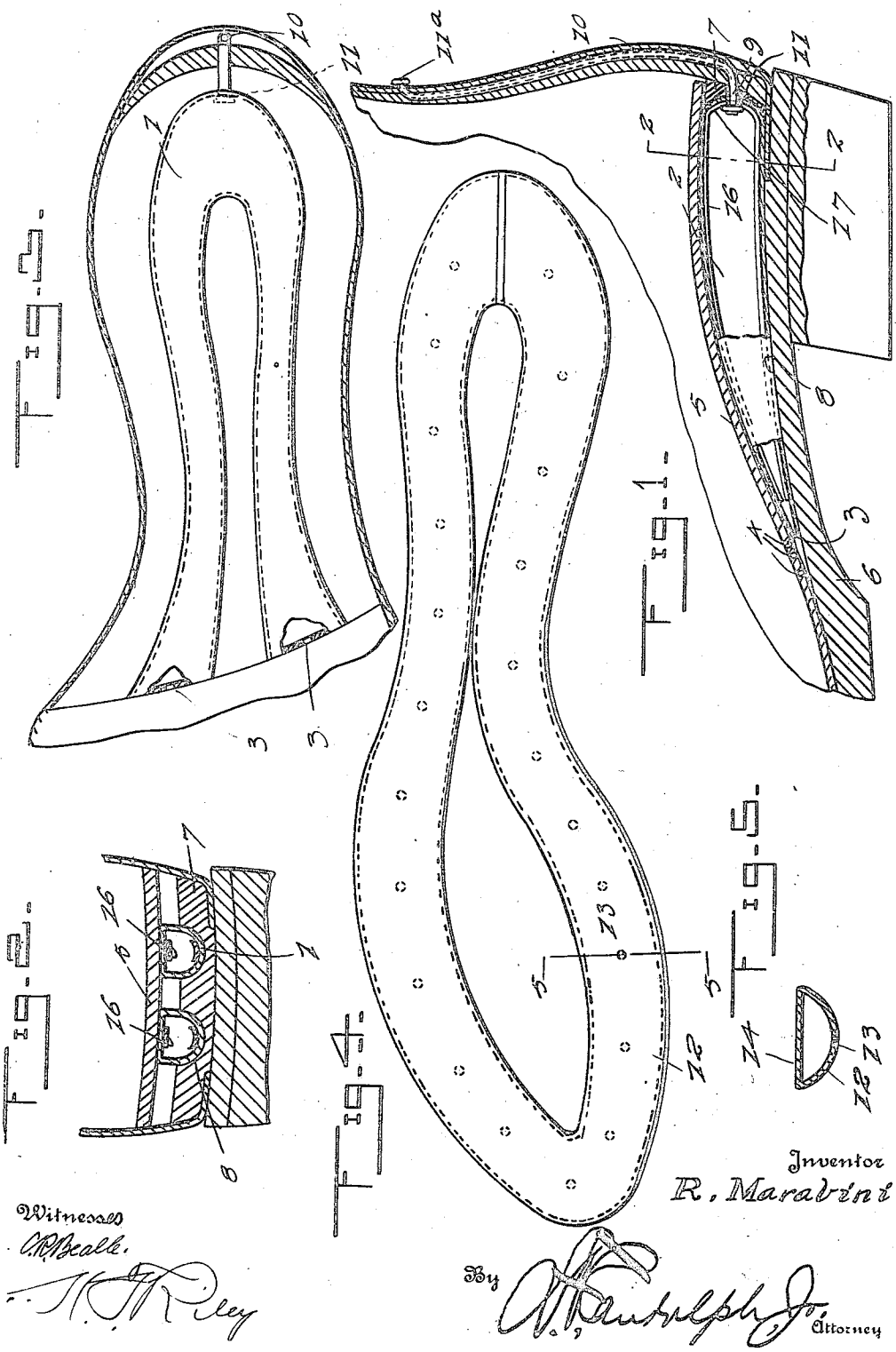
R. MARABINI.

PNEUMATIC SHOE.

APPLICATION FILED JUNE 23, 1916.

1,225,455.

Patented May 8, 1917.



Witnesses

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RAFFAELE MARABINI, OF NEW YORK, N. Y.

PNEUMATIC SHOE.

1,225,455. Specification of Letters Patent. Patented May 8, 1917.

Application filed June 23, 1916. Serial No. 105,462.

To all whom it may concern:

Be it known that I, RAFFAELE MARABINI, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Pneumatic Shoes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to a pneumatic shoe.

The object of the present invention is to improve the construction of cushioning means for shoes, boots and the like to provide a simple, practical and comparatively inexpensive construction adapted to be readily applied to boots, shoes and analogous foot wear and capable of cushioning the foot of the wearer and of causing a circulation of air through the shoe whereby the feet are maintained at a uniform temperature and the feet maintained in a more comfortable and sanitary condition.

With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawing, and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size, and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawing

Figure 1 is a longitudinal sectional view through the rear portion of a shoe provided with pneumatic cushioning and ventilating means constructed in accordance with this invention,

Fig. 2 is a transverse sectional view on the line 2—2 of Fig. 1,

Fig. 3 is a plan view partly in section illustrating the arrangement of the pneumatic cushion,

Fig. 4 is a plan view of a pneumatic cushion illustrating a modification of the invention,

Fig. 5 is a sectional view on the line 5—5 of Fig. 4.

Like numerals of reference designate corresponding parts in the several figures of the drawing.

In the accompanying drawing in which is illustrated the preferred embodiment of the invention, 1 designates an elastic pneumatic cushioning tube designed to be constructed of rubber or other suitable material and composed of side portions and a connecting rear portion forming an approximately U-shaped cushion which extends forwardly from the back of the shoe to a point intermediate of the ends of the same. The sides 2 of the pneumatic cushion taper forwardly and preferably terminate at the front of the instep portion of the shoe and are provided at their front ends with one or more apertures 3 which communicate with perforations or apertures 4 of an inner sole 5 of the shoe 6. While I show the cushion applied to a portion of a shoe it will be apparent that it is applicable to various forms of foot wear and the term "shoe" is to be understood as to comprehend all of such forms of foot wear. The pneumatic cushion is interposed between the inner sole 5 and an auxiliary or supplemental inner sole 7 and the elastic tube constituting the pneumatic cushion is preferably approximately D-shaped in cross section as clearly shown in Fig. 2 of the drawing and the supplemental or auxiliary inner sole which constitutes a support for the pneumatic cushion is provided with a groove 8 curved in cross section and receiving the rounded portion of the D-shaped elastic tube which presents flat upper surfaces to the under face of the inner sole 5. By seating the pneumatic cushion within the auxiliary inner sole or support and permitting the said cushion to project slightly above the same a limited compression of the cushion results from the walking action of the wearer.

The pneumatic cushion is connected at the back with the lower end 9 of a tube 10 preferably constructed of metal and mounted within the back of the shoe and having its lower end 9 extending inwardly through the rear wall of the cushion and provided with a terminal head or flange 11. The upper end of the tube 10 is curved outwardly and is provided with an exterior flange 11^a. The air is adapted to be forced from the pneumatic cushion in the act of walking and the cushion will automatically expand and draw the air into the elastic tube.

The pneumatic cushion is provided at

each side with a cushioning spring 16 extending longitudinally of the cushion and conforming to the configuration of the same and composed of upper and lower portions and a rear connecting portion 17. The front portions of the upper and lower sides of the spring converge to correspond with the taper of the cushion and the springs in inflating the cushion. The upper side or portion of the spring is flat or straight in cross section and the lower side is curved transversely as clearly illustrated in Fig. 2 of the drawings.

In Figs. 4 and 5 is illustrated another form of the invention in which the elastic tube is continuous and forms a cushion 12 of the general outline of the shoe. The elastic tube of the cushion 12 is approximately D-shaped in cross section and it is arched at the flat portion at 13 and rounded or semi-cylindrical at the lower portion at 14. The rounded lower portion is provided with perforations 15. The cushion shown in Figs. 4 and 5 is designed to be mounted substantially as shown in Fig. 2 of the drawing so that a partial compression of the cushion will be effected in the act of walking. The back of the cushion shown in Figs. 4 and 5 will be connected with a rear air tube similar to that shown in Fig. 1.

What is claimed is:—

1. The combination with a shoe, of a support located within the shoe and provided with a groove, a pneumatic cushion consisting of an elastic tube seated in and projecting above the groove, and an inner sole arranged upon the cushion and adapted to compress the same when subjected to pressure, the compression of the cushion being limited by the said support.

2. The combination with a shoe, of a support located within the shoe and provided with a groove, a pneumatic cushion consisting of an elastic tube seated in and projecting above the groove, an inner sole arranged upon the cushion and adapted to compress the same when subjected to pressure, the compression of the cushion being limited by the said support, said cushion being provided with apertures communicating with the interior of the shoe and a rear air tube connected with the cushion and mounted in the rear portion of the shoe and communicating with the outside atmosphere.

3. The combination with a shoe provided at the back with a tapering support having a substantially U-shaped groove, of an inner sole provided at the front of the support with perforations and an approximately U-shaped pneumatic cushion arranged in the said groove and projecting above the said support and having front outlets communicating with the said perforations and a rear air tube mounted in the back portion of the shoe and having a lower terminal portion extending into the back of the pneumatic cushion.

4. The combination with a shoe, of a support arranged within the shoe and provided with a substantially U-shaped groove curved in cross section and tapered longitudinally in depth, an inner sole located above the support and provided intermediate of its ends with perforations located at the front of the said support, a substantially U-shaped pneumatic cushion seated in the said groove and approximately D-shaped in cross section to fit the groove and present upper flat faces to the inner sole, said cushion being provided at the front with outlets communicating with the said perforations and a rear air tube mounted in the back of the shoe and having a lower inwardly extending terminal portion piercing the back of the pneumatic cushion.

5. A pneumatic cushion for shoes consisting of an elastic tube approximately D-shaped in cross section and rounded at the bottom and having a flat top portion, said tube being provided with apertures and having longitudinally disposed sides conforming to the configuration of the shoe, a rear air tube, an inner sole supported by the flat upper portions of the tube, and a spring extending along the elastic tube and having a leaf or portion bearing against the under side of the flat top portion of the tube.

6. A pneumatic cushion for shoes consisting of an elastic tube approximately U-shaped to conform to the configuration of the rear portion of a shoe and having forwardly tapered sides and a substantially U-shaped spring extending longitudinally of the cushion and composed of upper and lower sides and a connecting portion, the sides converging to conform to the tapered portion of the cushion.

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

RAFFAELE MARABINI.

Witnesses:
ANTONIO SOMMER,
ANGELO FAVA.