No. 682,141. Patented Sept. 3, 1901.

W. GALLOWAY.

HYGIENIC HEEL SUPPORT.

(Application filed Feb. 23, 1901.)

(No Model.)

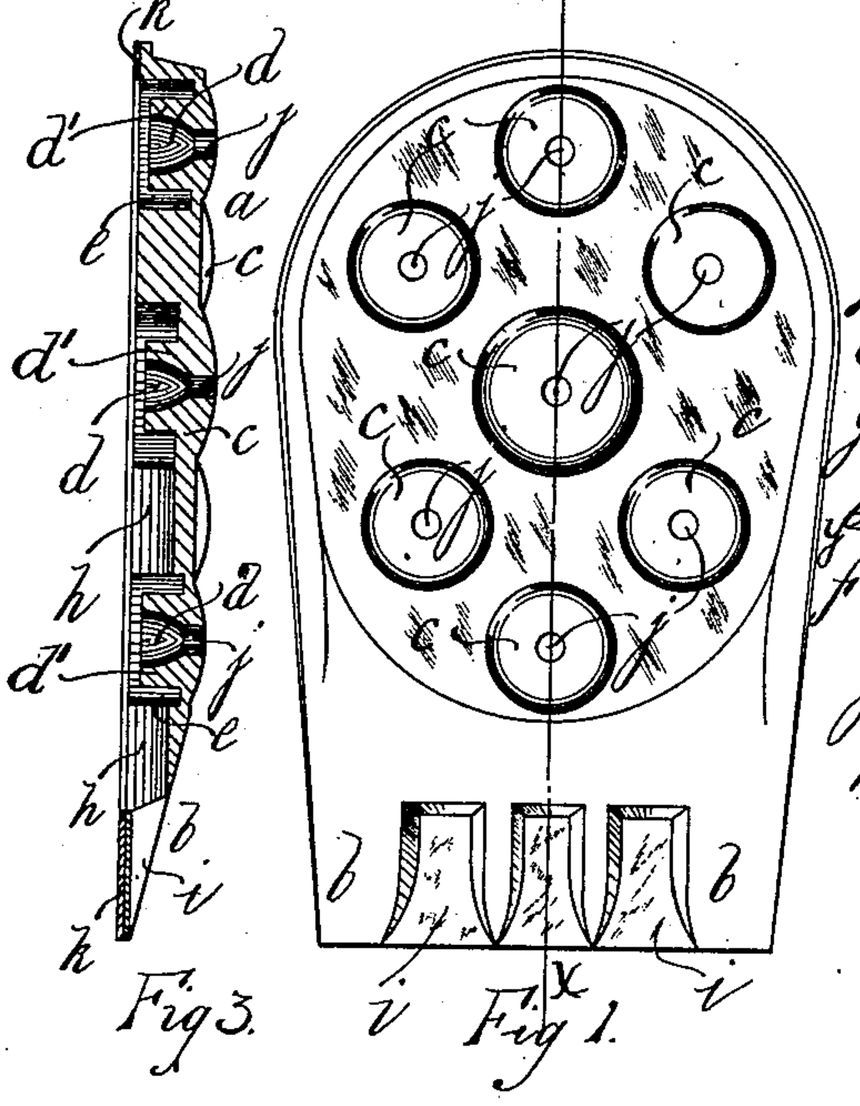

Fig 3.

Fig 1.

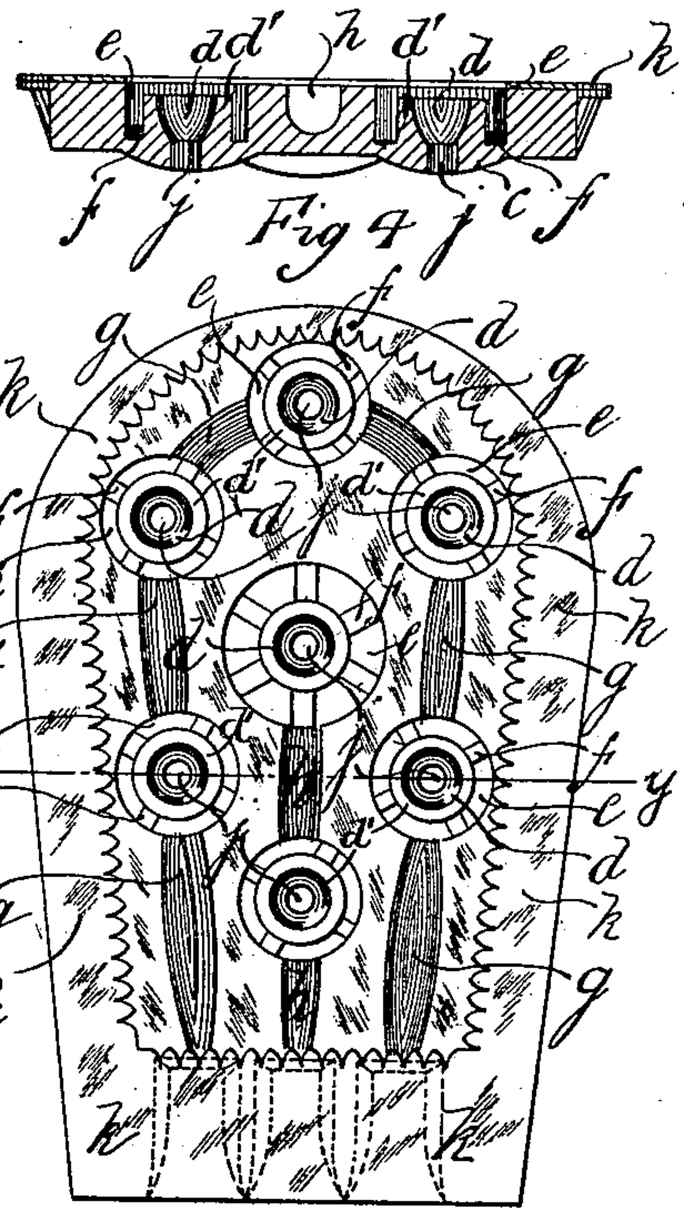

Fig 4.

Fig 2.

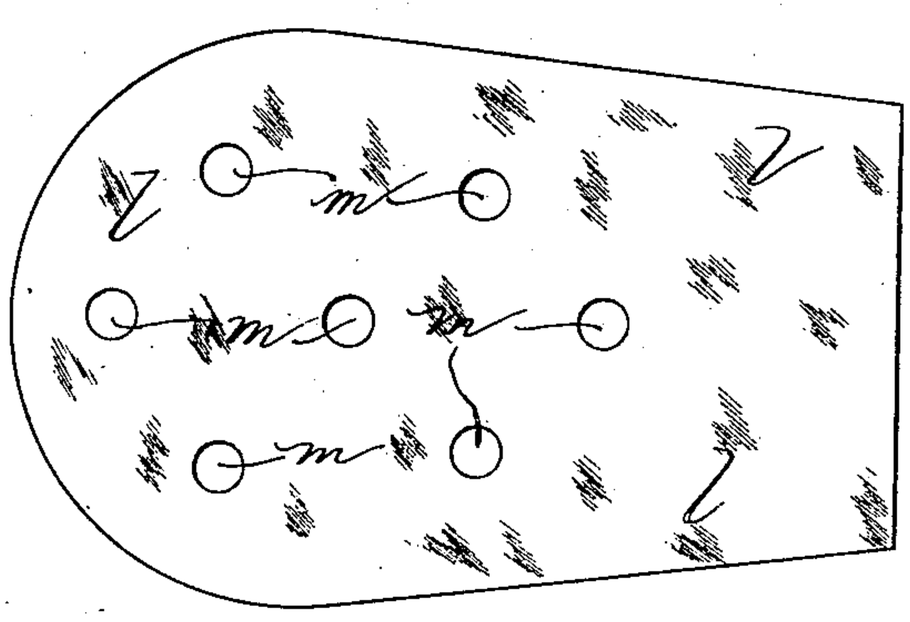

Fig 5.

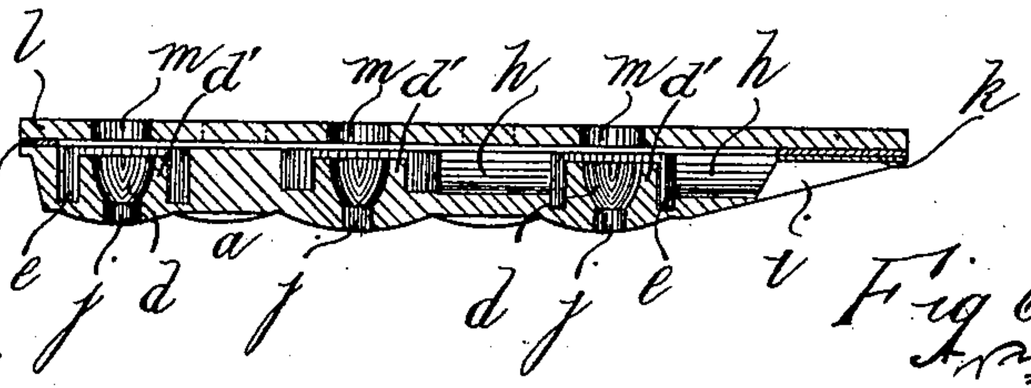

Fig 6.

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UNITED STATES PATENT OFFICE.

WILLIAM GALLOWAY, OF GLASGOW, SCOTLAND, ASSIGNOR TO ALLAN THOMSON, OF SAME PLACE.

HYGIENIC HEEL-SUPPORT.

SPECIFICATION forming part of Letters Patent No. 682,141, dated September 3, 1901.

Application filed February 23, 1901. Serial No. 48,406. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM GALLOWAY, traveler, a subject of the King of Great Britain, residing at 55 Caledonia road, Glasgow, Scotland, have invented a certain new and Improved Hygienic Heel-Cushion, of which the following is a specification.

The object of this invention is to provide a convenient and effective means of counteracting the shock, strain, and pressure communicated to the various organs of the body by the repeated concussion of the solid heels of boots and other articles of footwear when in the act of walking.

In order that my said invention may be properly understood, I have hereunto appended an explanatory sheet of drawings, whereon—

Figure 1 is a plan view of the anticoncussion heel-cushion. Fig. 2 is an inverted plan view of the cushion. Fig. 3 is a longitudinal section taken on the line *x x*, Fig. 1. Fig. 4 is a cross-section taken on the line *y y*, Fig. 2. Fig. 5 is a plan view of a rubber thickening-strip or "lift." Fig. 6 is a longitudinal section of an inverted cushion with a lift attached thereto.

In carrying out the invention I provide a cushion *a*, of resilient india-rubber or other similar or equivalent material or composition made in the form and shape of the insole-heel. The cushion is slightly elongated, as shown, so that it fits the inside of the boot or shoe at the heel and extends forward a short distance along the waist or shank of the boot or shoe, the cushion being at the same time gradually diminished in thickness or tapered down at *b*, so as to meet the insole. The cushion is made on its upper surface with a number of raised or thickened parts *c*, which facilitate depressing the hollow projections *d'* when the pressure of the foot is on the parts *c*, and on its under surface at places corresponding with these raised parts *c* with hollow projections *d'*, said projections being each formed with a cavity *d*, preferably bell-shaped, and with which communicate perforations *j*, formed in the center of each raised or thickened part *c*. A groove *e* is made in the body of the cushion around each hollow projection *d'*, so as to enable each hollow projection to expand or spread when depressed, and in the bottom of each groove *e* there are formed ribs *f*, which radiate from the projections *d'* and serve to strengthen or stiffen the walls of said projections at such points. The grooves *e* of the five outer series of hollow projections are connected together by a groove or channel *g*; while the two grooves *e* of the two central hollow projections are connected together by a channel *h*. The ends of the channel *g* and the channel *h* communicate with the passages or spaces *i* at the tapered or "waist" end of the cushion.

It will be seen that the circular wall of each hollow projection is not of quite the same depth as the thickness of the cushion.

The upper surface of the cushion may be covered by a piece of chamois leather or textile or other suitable material which may be cemented, sewed, or otherwise secured in place, but the same is common and not part of the invention and therefore not shown. This covering will be made with perforations corresponding with the perforations *j*, and coming in contact with the foot will therefore prevent the rubber having a drawing or other injurious action on the heel.

I prefer to cement or otherwise secure a piece of canvas or other fabric *k* and which may be cut out in way shown at Fig. 2 to the under side of the cushion. This fabric can in its turn be cemented or otherwise secured to the insole of the boot or shoe.

If so desired, in order to increase the thickness of the cushion and to enhance its action a lift *l*, such as shown at Fig. 5, may be cemented or otherwise secured to the under side of the cushion. This lift will be made of india-rubber and be perforated at *m*, so as to correspond with the cavities *d* in the projections *d'*.

The complete cushion can either be put into its position during the process of manufacture or inserted in the boot or shoe at any other time. The cushion may be made of any desired thickness. The cushions will be made in different sizes, so as to suit different-sized boots and shoes. The hollow projections *d'* when subjected in walking to the pressure of the foot carrying the weight of the body act as air cells or cushions and so assist the re-

silient cushion to absorb the shock of contact of the heel of the boot with the ground. At the same time these hollow projections, owing to their expansion and contraction, serve as air-pumps or ventilating-valves for circulating air in the boot, thereby preventing the rubber of the cushion injuriously affecting the part of the foot with which it comes in contact and also helping to ventilate the whole foot and keep it cool and refreshed. It will be seen from Fig. 2 that the channels *g h* permit of air being circulated around the heel and also being pressed forward under the sole of the foot. The ends of the channels form to a certain extent bellows-nozzles for blowing the air through the passages *i* under the foot.

Having now fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A heel-cushion for boots and shoes comprising an elastic body having projections in its under side each formed with a cavity, and with perforations through its top communicating with said cavities, the lower ends of the projections terminating above the plane of the bottom of the body, and the body portion on its under side formed with channels communicating with the cavities of the projections, substantially as described.

2. A heel-cushion for boots and shoes comprising an elastic body having projections on its under side each formed with a cavity, and with perforations through its top communicating with said cavities, the lower ends of the projections terminating above the plane of the bottom of the body, and the body portion on its under side formed with channels communicating with the cavities of the projections, and outlet-passages leading from said channels at one end of the cushion, substantially as described.

3. A heel-cushion for boots and shoes comprising an elastic body having projections on its under side, each formed with a cavity, and with perforations through its top communicating with said cavities, said body having a groove formed therein around each projection and provided with radiating ribs in said grooves, and formed with channels connecting the cavities of the projections and with outlet-passages leading from said grooves at one end of the cushion, substantially as described.

4. A heel-cushion for boots and shoes comprising an elastic body having projections on its under side, each formed with a cavity, and with perforations through its top communicating with said cavities, said body having a groove formed therein around each projection and with channels connecting said grooves and with outlet-passages leading from said channels at one end of the cushion, and a "lift" of elastic material secured to the bottom face of the elastic body and formed with openings registering with the cavities in the projections, substantially as described.

Signed at Glasgow, Scotland, this 30th day of January, 1901.

WILLIAM GALLOWAY.

Witnesses:
H. D. FITZPATRICK,
WILLIAM GALL.