July 9, 1929. R. L. DIVELEY ET AL 1,720,120

SHOE

Filed May 28, 1928 2 Sheets-Sheet 1

Fig. 1.

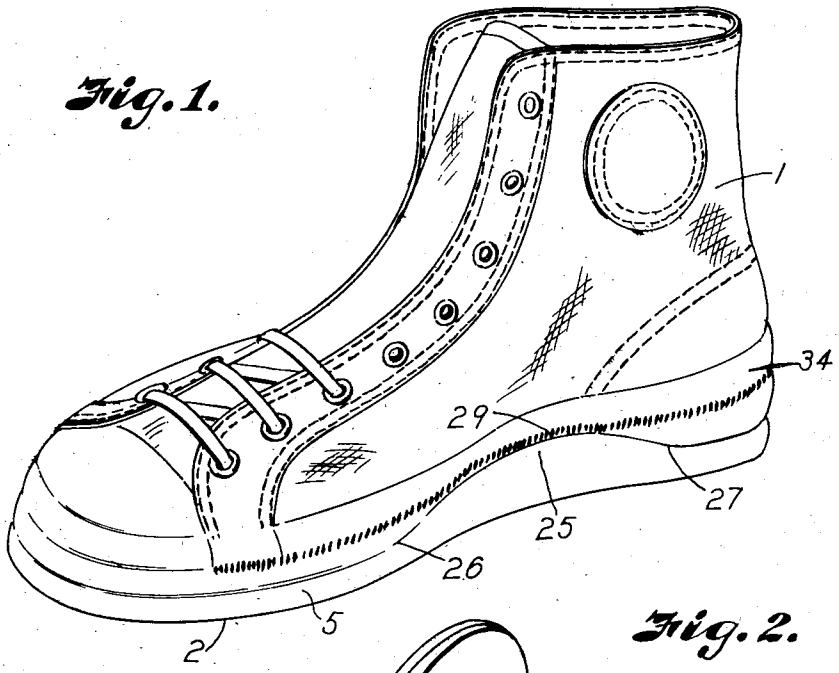
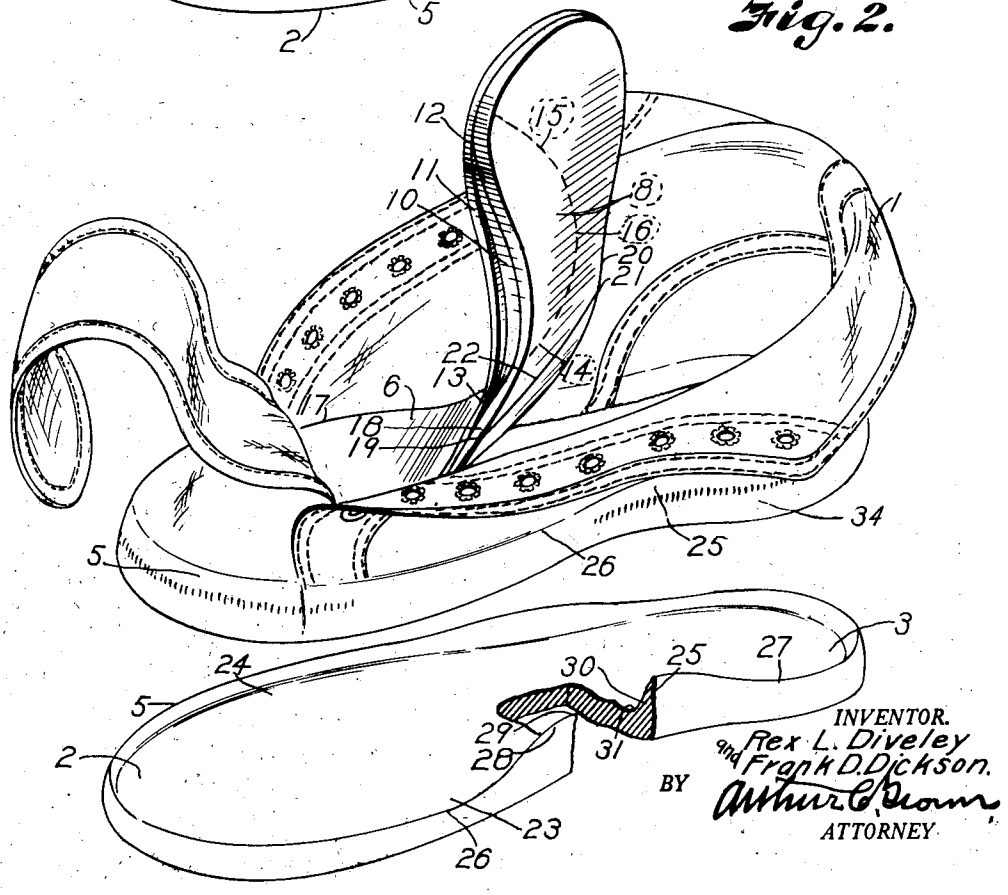


Fig. 2.



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Fig. 3.

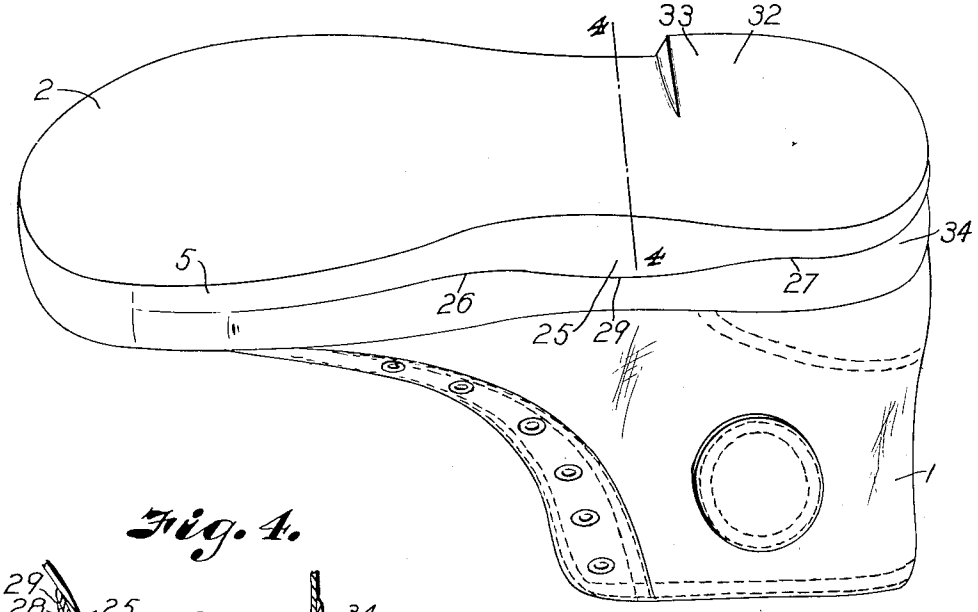


Fig. 4.

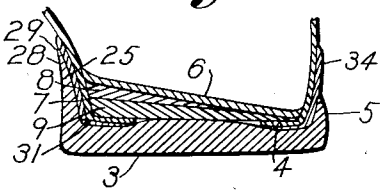
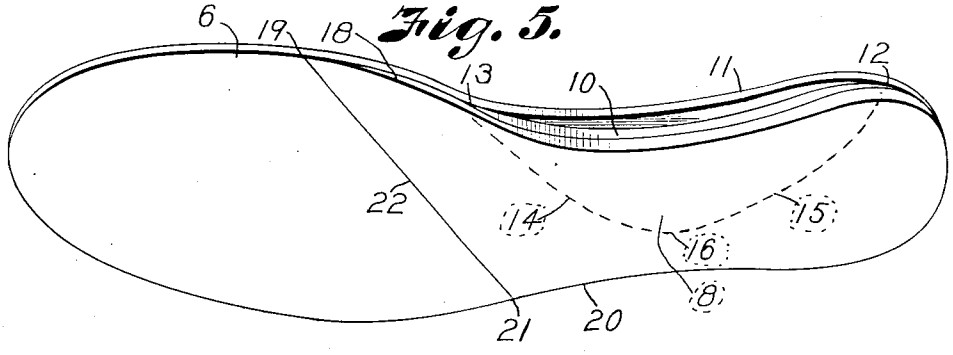


Fig. 5.



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UNITED STATES PATENT OFFICE.

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SHOE.

Application filed May 28, 1928. Serial No. 281,160.

Our invention relates to footwear and more particularly to shoes of a corrective nature, the principal objects of the invention being to overcome unfavorable foot conditions, and to provide means which will tend to correct improper conditions without distorting bones, joints, nerves or muscles which may be normal, the present application being a continuation in part of our co-pending application, Serial No. 218,194.

Corrective means such as disclosed in our aforesaid pending application are primarily designed for application to shoes having relatively rigid outer soles and relatively stiff uppers, and wherein the soles and uppers provide support for the foot and for wedges adapted to correct the posture of the foot. Shoes having soft soles and uppers, for example, rubber-soled canvas shoes, may be provided with corrective wedges or elevations but the yielding character of the soles tends to permit a malformed foot to tilt toward the inner margin.

A further object of the invention, therefore, is to build up and re-enforce the inner edge of a shoe and provide auxiliary means to cooperate with elevations and interposed wedges in supporting the long arch and correcting foot posture.

In accomplishing these and other objects of the invention we have provided improved details of structure, the preferred forms of which are illustrated in the accompanying drawings, wherein:

Fig. 1 is a perspective view of a shoe constructed in accordance with our invention.

Fig. 2 is a perspective view of the shoe, illustrating the outsole in separated position and partly in section, and an inner sole and wedges partly removed.

Fig. 3 is a perspective view of the shoe from beneath and illustrating the construction of the heel.

Fig. 4 is a detail fragmentary sectional view on the line 4—4, Fig. 3, illustrating the relation of an auxiliary supporting member to the soles and wedges.

Fig. 5 is a perspective view of an inverted inner sole provided with wedge or lift members.

Referring in detail to the drawings:

1 designates the upper portions of a shoe constructed of textile material such as canvas, and 2 an outsole constructed of moldable material such as rubber and having a heel portion 3 formed integrally therewith. Inturned edges 4 of the uppers overlie the sole adjacent its outer edges, and an upstanding peripheral flange 5 of the sole extends along the outer face of the uppers in assembled position. A second sole 6, for example, an insole, may then be positioned on the outsole, the outer edge portions of the insole covering the inturned edges 4 of the uppers.

A wedge or elevation 7 for lifting the longitudinal arch of a foot and for tilting the heel and arch consists preferably of a built-up portion of one of the soles, and is illustrated as built up on the inner sole 6, and as comprising two lift members 8 and 9.

The lift 8 comprises a three-sided body having an exterior edge 10 approximately registering with the inner margin 11 of the sole and extending from a point 12 adjacent the midportion of the heel position forwardly to a point 13 in the anterior border of the position of the long arch of the foot.

The other edges 14 and 15 of the lift 8 are convex and meet at a point 16 substantially in the median line of the longitudinal arch, and approximately two-thirds of the distance from the inner to the outer margin 17 of the sole. The lift 8 tapers towards each of the points 12, 13 and 16, whereby the edges 14 and 15 are made feather edges.

The side and heel end margins of the lift 9 register substantially with the margins of the sole 6, the inner side margin 18 extending forwardly to a point 19 in the metatarsal arch position, and the outer margin 20 extending forwardly to a point 21 in the outer margin of the metatarsal arch position whereby an obliquely extending forward edge 22 is formed. The lift 9 is tapered forwardly to a feather edge from a line adjacent said edge, and is tapered laterally from the inner margin.

The two lifts thus described as separate members comprise the wedge 7 and may be molded on the outsole or insole as a single wedge or elevation which is adapted to lift and tilt the longitudinal arch and heel and to permit the outer portion of the foot to bear normally and equally on the straight outer edge of the outsole.

The inner and outer side margins 11 and 17 of the inner sole ordinarily lie in the same plane because the corresponding supporting edge portions 23 and 24 of the outsole lie in a plane in soft shoes as commonly constructed, the formed arch support of leather shoes being absent.

We not only insert the wedge above described, but also provide a marginal arch support or filler 25 extending along the inner edge of the soles from a point 26 representing the anterior border of the long arch rearwardly to a point 27 at the middle of the heel position, and comprising an upwardly tapering arch member corresponding substantially to the arch produced on the inner edge of a leather shoe adjacent the heel. The member 25 is preferably formed integrally with the body and inner flange of the outsole, the outer face 28 and arcuate upper edge 29 of the member being continuations of the flange, and the inner wall 30 extending downwardly and inwardly from the edge 29 to provide a structure corresponding to the natural curvatures of the inner edge of a foot.

The inner margin 31 of the member 25 extends arcuately over the face of the sole between the marginal points 26 and 27. The inner edge of the elevation or wedge 7 preferably tapers downwardly and inwardly conformably to the slanting wall 30 of the arch member, and the outer margin of the inner sole preferably extends beyond the wedge 7 to overlie the adjacent portion of the arch member as a counter.

The sole 2 when formed as an outsole is provided with a heel 32 formed on the under surface of the heel portion 3, the heel being built up as at 33 to provide a substantial elevation for the outer portion of the heel position, and the heel tapering inwardly and vanishing, whereby the inner edge portion of the outsole extends in a plane from the toe to the end of the heel portion.

Attaching material such as adhesive 34 may be applied between the outsole and the edges of the uppers to secure the members together, and may extend upwardly over the adjacent portions of the uppers above the edges of the outsole.

A preferable mode of producing a shoe having the supporting features above described comprises molding the arch member integrally with the outsole, applying an adhesive material, laying edge portions of the uppers over the adhesive and upper face of the outsole to join the edges of the uppers with the surface of the sole and with the upstanding flanges, and then inserting an inner sole provided with the elevation or wedge 7. The elevation is preferably built up on the inner sole by attaching the triangular member to the under surface thereof, and applying the heel lift over the triangular member, as illustrated in Fig. 5. The inner sole is then installed on the outsole to overlie the inturned edges of the uppers. The tapering inner edges of the inner sole and elevation are adapted to rest against the inner wall of the arch member, and to be attached thereto by means such as glue, to provide a substantially unitary arch support and tilting device.

The arch member and elevation cooperate to press against the arch of the wearer and tilt the arch and heel for support of weight by the outer portion of the longitudinal arch. The shoe tends to establish the habits of supporting the weight on the outer and stronger part of the foot, and of pointing the foot to the front. The structure, however, does not disturb or distort any parts of the foot of the wearer when said foot normally tends to point to the front and has a normal posture.

What we claim and desire to secure by Letters Patent is:

1. In a shoe, a molded outsole having an upstanding arch member on its inner edge portion extending from the metatarsal zone to the heel zone and an elevation having an inner edge adjacent the arch member and tapering forwardly and rearwardly and towards its outer margin, and provided with a thickened portion intermediate of its length, tapering forwardly, rearwardly and laterally and vanishing substantially on the median line of the sole.

2. In a shoe, a sole having an upstanding arch member at its inner edge extending from the metatarsal zone to the heel zone having a tapering inner wall, and an elevation having an inner edge overlying the tapering inner wall of the arch member and tapering forwardly and rearwardly and laterally and provided with a thickened portion intermediate of its length, and extending substantially to the median line of the sole.

3. In a shoe, a sole having an elevation adapted to support the arch and tilt the heel of the wearer, and a wedge-like arch member on the inner edge of the sole conforming substantially to the contour of the arch of the foot and extending from the metatarsal zone to the mid portion of the heel zone, and tapering gradually forwardly and rearwardly and sharply laterally.

4. In a shoe, a sole having an elevation adapted to support the arch and extending over a portion of the heel zone to tilt the heel of the wearer, and a wedge-like arch member on the inner edge portion of the sole extending from the metatarsal zone to the mid portion of the heel zone, and tapering gradually forwardly and rearwardly, and having an inclined inner wall, the inner edge of the elevation overlying a portion of said inclined wall.

5. A shoe comprising in combination with a sole and an elevation extending into the heel zone and having a forward transverse feather edge extending obliquely from a point on the inner border of the metatarsal zone to the outer border of the metatarsal zone on the outer margin of the sole, and decreasing in thickness from the inner margin

toward the outer margin, an arch member positioned on the inner edge portion of the sole and having an inner wall inclining downwardly and inwardly, said inner wall providing a retaining element for the inner edge of the elevation.

6. In a shoe, in combination with a sole, a wedge having a forward transverse feather edge extending obliquely from a point on the inner border of the metatarsal zone to the outer margin of the metatarsal zone on the outer margin of the sole, and decreasing in thickness from the inner margin toward the outer margin, and a triangular wedge covering a portion of the first named wedge, an arch member positioned on the inner edge portion of the sole and extending exteriorly along the inner edge of the first named wedge, and having an inner wall inclining downwardly and inwardly, the inner edges of said wedge being positioned conformably to said inclined wall.

7. In a shoe having a molded sole, an inner sole, and textile upper portions, one of the soles having an elevation comprising a triangular member having arcuate edges extending from the inner margin of the inner sole laterally to the median line of the longitudinal arch and decreasing in thickness toward said edges, and a heel tilting member having an inner margin substantially registering with the inner margin of the triangular member and having an outer margin registering with the outer margin of the inner sole, and an arch member integral with the molded sole extending along the inner edge portion thereof and spacing said elevation from the outer margin of the molded sole.

8. In a shoe including a molded sole having a peripheral flange, an inner sole, and textile upper portions, an elevation comprising a triangular member having arcuate edges extending from the inner margin of the inner sole laterally to the median line of the longitudinal arch and tapering toward said edges, and a heel tilting member having an inner margin substantially registering with the inner margin of the triangular member and tapering outwardly to a feather edge, and an arch member integral with said flange extending along the inner edge portion of the molded sole co-terminously with said heel tilting member, the inner edge of the inner sole overlying said arch member.

In testimony whereof we affix our signatures.

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