Aug. 17, 1943. F. F. FISHER ET AL 2,327,254

FLARE INDICATOR

Filed Oct. 17, 1942

Fig. 1.

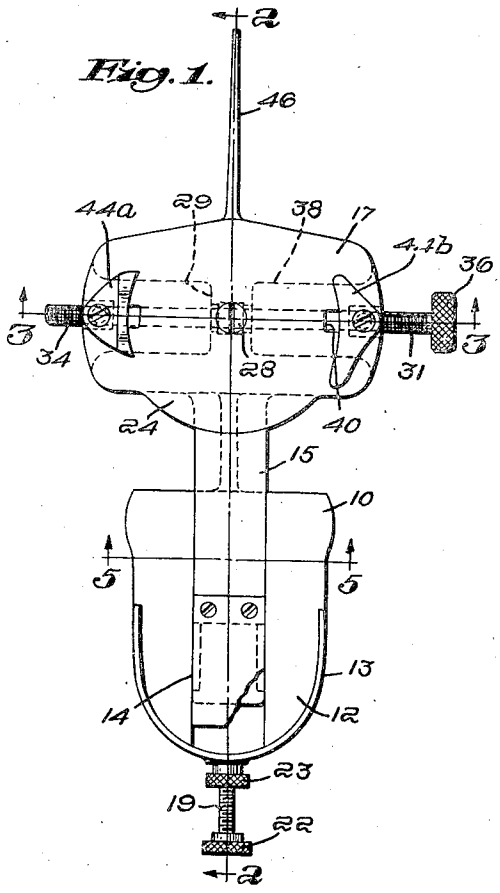


Fig. 2.

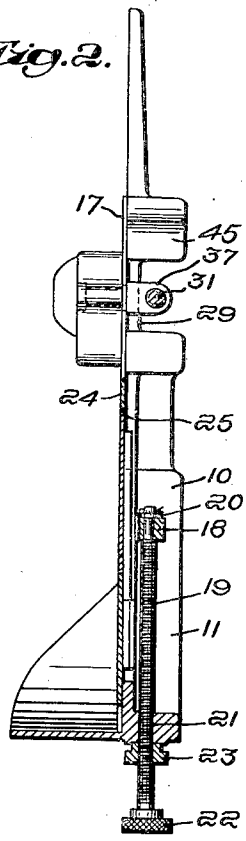


Fig. 3.

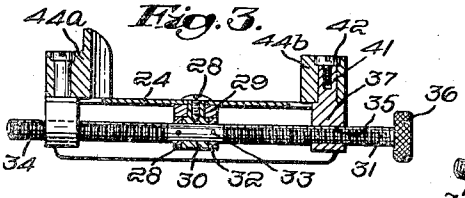


Fig. 4.

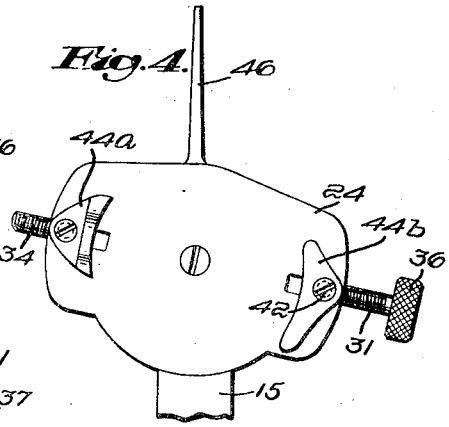


Fig. 5.

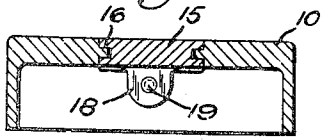


Fig. 7.

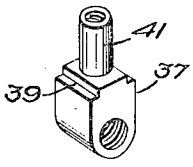
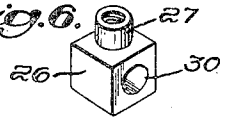


Fig. 6.



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FLARE INDICATOR

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Application October 17, 1942, Serial No. 462,424

4 Claims. (Cl. 33—3)

The present invention relates to the orthopedic art and has particular reference to a novel indicator for determining the proper shoe last for a foot.

It is the principal object of our invention to provide an indicator for determining the flare of the foot so as to permit selection of the proper shoe last.

Another object of the invention is to provide an adjustable device which is readily adjustable to the foot to determine its flare.

With the above and other objects and advantageous features in view, the invention constitutes a novel arrangement of parts for a flare indicator more fully disclosed in the detailed description following, in conjunction with the accompanying drawing, and more specifically defined in the claims appended thereto.

In the drawing,

Fig. 1 is a plan view of the novel flare indicator;

Fig. 2 is a vertical section thereof on the line 2—2 of Fig. 1;

Fig. 3 is a transverse section thereof on the line 3—3 of Fig. 1;

Fig. 4 is a detailed fragmentary view similar to Fig. 1, the parts being shown in angular relation;

Fig. 5 is a section on the line 5—5 of Fig. 1; and

Figs. 6 and 7 are respectively perspective views of the pivot and slide bushings.

The determination of the proper last for a good shoe fit depends on the shape of the foot. If a centerline be drawn between the centers of the ball portion and the heel portion of a foot, it will be found that a normal foot may be straight or balanced with respect to the centerline, or may extend or flare to a greater extent either to the right or to the left of the centerline. If the foot flare is inward towards the body, an inflare last is indicated, whereas if the foot flare is outward away from the body an outflare last is indicated. Thus, if the centerline when extended passes between the second and third toes, counting from the big toe, a straight last is desirable; if the centerline when extended passes between the first and second toes, an outflare last is desirable, and if the centerline when extended passes beyond the third toe, an inflare last is most suitable.

It has been found desirable to accurately determine the flare of a foot in order to specify the proper last for a fitted shoe. We have provided an indicator having a heel seat in which the heel of a foot may be placed, the ball of the foot then resting on a rotatable support or platform which is adjustable to the foot so as to centralize the ball in vertical alignment with the center of the heel. When the foot is so located a pointer positioned in the same vertical alignment, discloses whether the foot requires a straight last, an inflare last or an outflare last, and thus assists in the proper selection of the shoe.

Referring to the drawing, the novel indicator comprises a heel section 10 having a depending skirt 11 for setting on the floor. The heel section 10 has a heel seat 12 with a back rest 13 and is provided with a longitudinal slot 14 in which a slide member 15 is slidably mounted, the relatively sliding parts having cooperating tongue and groove elements as indicated at 16 in Fig. 5. The upper end of the slide member 15 extends transversely on each side to provide transverse sections 17 for receiving a ball plate, hereinafter described, the slide member being adjustably movable with respect to the heel section 10 by suitable means such as the nut and screw arrangement illustrated in Fig. 2.

In this arrangement a depending boss 18 has the forward end of the screw 19 rotatably secured thereto, as by means of a lock washer 20, the rear end of the screw being received in a threaded bore 21 extending through the rear portion of the depending skirt 11, and having a knurled head 22, whereby turning of the knurled head adjustably moves the slide 15 in the slot 14. A lock bushing 23 is provided for locking the screw 19 in adjusted position.

Referring now to Figs. 1 and 3, a ball plate 24 is pivotally mounted on the forward end 17 of the slide member 15 between the transverse sections, the ball plate being preferably seated in a recess 25, see Fig. 2, so as to present a smooth surface to the foot when it is placed in the device. The connection of the ball plate 24 to the slide member includes a depending bushing 26, shown in perspective in Fig. 6, having an upwardly extending cylindrical portion 27 which is internally threaded to receive a lock screw 28 for locking the bushing to the ball plate 24, the cylindrical portion 27 of the bushing being rotatably seated in a corresponding opening in the bridge portion 29 of the forward end 17 of the slide member, the lower portion of the bushing 26 having a cylindrical transverse bore 30 through which the central portion of a double transverse screw 31 extends, the parts being locked together by means of end washers 32 and lock pins 33, whereby the bushing 26 and its associated parts readily turn in

the forward end of the slide member. The double transverse screw 31 has two oppositely directed threaded portions 34, 35 and a knurled head or the like 36 for manual adjustment, the threaded portions 34 and 35 being received in correspondingly threaded slide bushings 37.

As illustrated in Fig. 1, the transverse sections 17 are cut away to provide swinging clearance for the transverse screw 31 and the slide bushings 37; the slide bushings 37 have reduced parallel guide faces 39, see Fig. 7, which are slidingly received in transverse slots 40 of the ball plate, the upper portions of the bushings 37 being formed as cylindrical portions 41 which are internally threaded to receive lock screws 42 for swingingly retaining edge members 44a and 44b on the ball plate, the edge members having arcuate faces for accommodation to the edges of the ball portion of the foot. The transverse sections 17 are provided with depending legs or skirts 45, see Fig. 2, of the same height as the skirt 11 of the heel portion, for seating on the floor, and has a vertical pointer 46, see Fig. 6, in vertical alignment with the center of the ball plate 24 and of the heel portion 13.

The operation of the indicator may now be explained. Referring to Fig. 1, the device is placed on the floor in front of a person who is being fitted for shoes. The heel of the foot is inserted in the heel portion of the device, and the two edge members 44a and 44b are approximately set on opposite sides of the ball line of the foot. The length is adjusted by turning the knurled head 22, until the slides 44a and 44b are in proper relation to the ball line, and the lock nut is then tightened. The knurled wheel on the transverse screw is then turned until the slides 44a and 44b touch the ball of the foot at the ends of the ball line, the plate 24 swinging for this purpose as indicated in Fig. 4; the double acting transverse screw moves both edge members simultaneously and equally with respect to the center of the ball plate. The ball line is thus exactly centered with respect to the heel center, and the position of the pointer 46 with respect to the toes of the foot immediately discloses whether the foot is straight, or has an inflare or an outflare, thus determining the type of last which is required for the particular foot.

In some instances, it may be desirable to obtain an accurate reading of the angular variation of the ball line from a perpendicular to the axial line of the foot. For this purpose, a second indicator similar to indicator 46 and shown in dotted lines in Fig. 4, may be mounted on or be part of the ball plate 24, the swing of this auxiliary indicator from the indicator 46 disclosing the angular deviation of the ball line.

While we have described a specific constructional embodiment of the invention, it is obvious that changes in the size, in the shape, in the proportions of the parts, and in the means for setting the length and the transversely movable edge members may be made to suit the requirements for different indicator designs, without departing from the spirit and the scope of the invention as defined in the appended claims.

We claim:

1. An indicator for determining foot flare, comprising a heel portion, a slide portion adjustably slidably mounted with respect to said heel portion, a member for receiving the ball of the foot, edge members mounted for transverse adjusting movement thereon, said member being pivotally mounted on said slide portion with the pivot in axial alignment with the heel portion center, and means for moving said movable edge members laterally on said member while maintaining said edge members equidistant from the pivot, said slide portion having a flare indicator in alignment with the centers of the heel portion and the ball receiving member.

2. An indicator for determining foot flare, comprising a heel portion, a slide portion adjustably slidably mounted with respect to said heel portion, means for locking the slide portion in adjusted position, a member for receiving the ball of the foot, edge members mounted for transverse adjusting movement thereon, said member being pivotally mounted on said slide portion with the pivot in axial alignment with the heel portion center, and means for moving said movable edge members laterally on said member while maintaining said edge members equidistant from the pivot, said slide portion having a flare indicator in alignment with the centers of the heel portion and the ball receiving member.

3. An indicator for determining foot flare, comprising a heel portion, a slide portion adjustably slidably mounted with respect to said heel portion, a member for receiving the ball of the foot, edge members mounted for transverse adjusting movement thereon, said member being pivotally mounted on said slide portion with the pivot in axial alignment with the heel portion center, and means for moving said movable edge members laterally on said member while maintaining said edge members equidistant from the pivot, said edge members being swingable, said slide portion having a flare indicator in alignment with the centers of the heel portion and the ball receiving member.

4. An indicator for determining foot flare, comprising a heel portion, a slide portion adjustably slidably mounted with respect to said heel portion, means for locking the slide portion in adjusted position, a member for receiving the ball of the foot, edge members mounted for transverse adjusting movement thereon, said member being pivotally mounted on said slide portion with the pivot in axial alignment with the heel portion center, and means for moving said movable edge members laterally on said member while maintaining said edge members equidistant from the pivot, said edge members being swingable, said slide portion having a flare indicator in alignment with the centers of the heel portion and the ball receiving member.

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