This invention relates to an overcorrective shoe for treating the deformity known as "flat feet.

This congenital deformity is to be distinguished from the inrolling of a previously normal foot by weakening of the muscles or ligaments of the foot known as "flattened arches" but sometimes popularly called "flat feet." In the deformity for which the present invention is intended, a malformation of the interior structure of the foot causes an inrolling usually much more marked than with flattened arches and often results in the entire weight being carried by the inner edge of the foot, the outer portion of the foot being useless.

This condition may be corrected in young children by placing the deformed foot in a plaster cast, or a series of such casts, designed to hold the foot in a corrective position for long periods of time. When the cast has been removed there is a tendency for the foot to return to the original deformed condition unless corrective shoes are applied. This tendency is so marked that a normally shaped shoe fails to hold the foot in the normal position and for that reason I have found it advantageous to provide shoes which overcorrect the deformity. The degree of correction necessary depends upon the original degree of deformity of the foot, the nature of the deformity and the extent of the correction which has been secured by treatment in the cast.

The principal object of the present invention is to provide an overcorrective shoe suitable for correction of the deformity described. Heretofore this correction has been secured by twisting the foot about a horizontal axis to lift the inner edge and lower the outer edge thereof. In the present invention the correction is applied much more effectively by twisting the forepart of the foot inwardly about a vertical axis and tilting the heel portion only about a horizontal axis.

Other objects and features of the invention will be understood from the accompanying drawing and the following description and claim.

Since the form of a shoe follows closely the form of the last on which it is made, the shape of the shoe is best described with reference to the last. Several of the figures, therefore, show the last rather than the shoe.

Fig. 1 is a plan view of a preferred form of last on which a shoe may be built in accordance with the invention. Fig. 2 is a rear view thereof with certain parts of the shoe added thereto. Fig. 3 is a vertical sectional view taken on the line 3-3 of Fig. 1 with the insole added thereto.

In the preferred form of the invention illustrated in the drawing, the last 10 and consequently the shoe formed on said last, is formed with the axis A—B of the forepart of the foot inclined inwardly with respect to the axis A—C of the heel portion. The axis A—B makes an acute angle H with the axis A—C. The heel of the last is formed as best seen in Fig. 2 with the underside 11 of the heel portion upwardly and inwardly inclined with respect to the underside of the forward portion indicated by the broken line D—E in Figs. 2 and 3. The heel axis F—G is inclined outwardly from the vertical. The line F—G represents the extreme rear surface of the heel of the last and in normal shoes is substantially vertical.

In constructing a shoe on this last, a wedge piece 13 having the horizontal extent indicated in Fig. 1 is applied to the heel of the insole 13 between the same and the last. The outer corner 14 of the last is rounded and the wedge piece is provided with a lip 15 closely fitting the curvature of the last. In Fig. 2 the underside of the heel of the finished shoe is indicated by the broken line 16. In the forward part of the shoe as shown in Fig. 3 the lower surface of the last 10 is substantially straight across or slightly rounded in the downward direction as in normal shoes. The interior foot bearing surface of the forward part of the shoe is thus substantially parallel to the underside of the outsole indicated in Fig. 3 by the broken line 17.

In a shoe constructed on the last just described and shown in Fig. 4, the rear portion of the shoe is inclined outwardly with respect to the underside of the heel. The inner foot bearing surface of the heel portion represented by the upper surface of the wedge 12 and insole 13 is inclined upwardly and inwardly with respect to the underside of the heel and outsole. This construction when combined with the inward twist of the forepart of the shoe produces a force tending strongly to lift the inner portion of the longitudinal arch of the foot and thus to restore the arch structure and heel and ankle bones to their normal relative positions. The effect on the arch is much more marked than is possible when the foot is merely twisted about a horizontal axis as by wedging beneath the entire inner edge of the foot.

The provision of the rounded corner 14 of the last and the accompanying lip on the wedge piece prevents the heel of the foot from running
over the edge of the wedge piece and insole and serves to preserve the form of the shoe and to prevent callouses on the foot at this point.

The shape of the shoe constructed in accordance with the invention has been indicated by describing the last on which it is made. Constructional features of the shoe which distinguish from the usual practice have been illustrated. In other respects, normal shoe making practice is followed and need not be described in detail. The details of the invention as herein disclosed may be varied without departing from the scope thereof as defined in the appended claim.

The invention claimed is:

An overcorrective shoe for flat-feet having the horizontal axis of the forepart inclined inwardly at an acute angle to the horizontal axis of the rear portion, having the interior foot bearing surface of the forward part substantially parallel with the plane of the undersurface of the outsole, and having the interior foot bearing portion of the heel portion inwardly and upwardly inclined with respect to said plane.

WILLIAM O. MINOR.