Nov. 25, 1924. 1,516,840

F. A. BUTLER

SHOE

Original Filed June 24, 1920 3 Sheets-Sheet 1

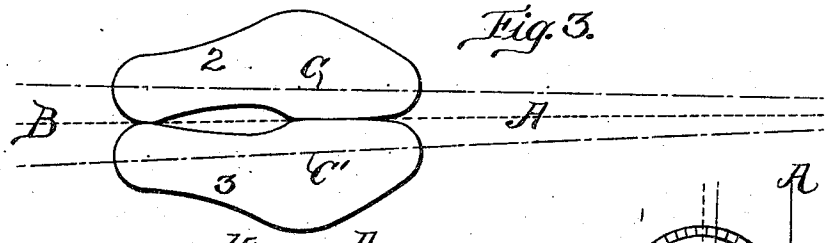


Fig. 3.

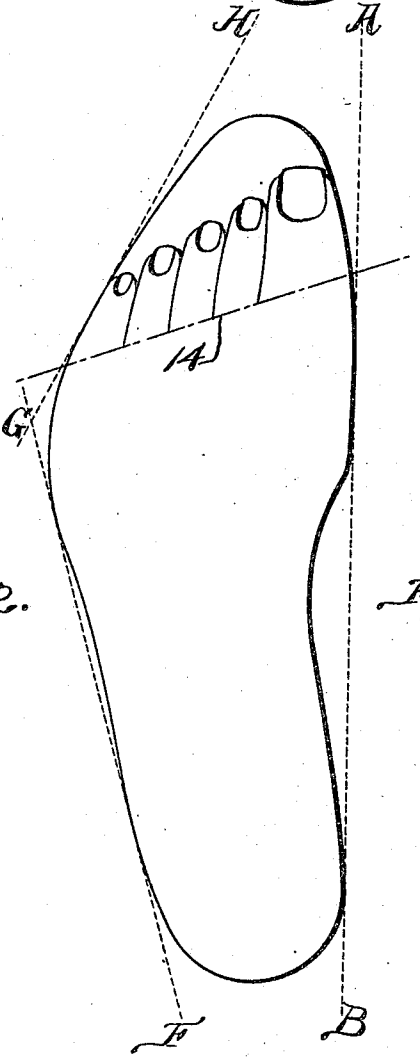


Fig. 2.

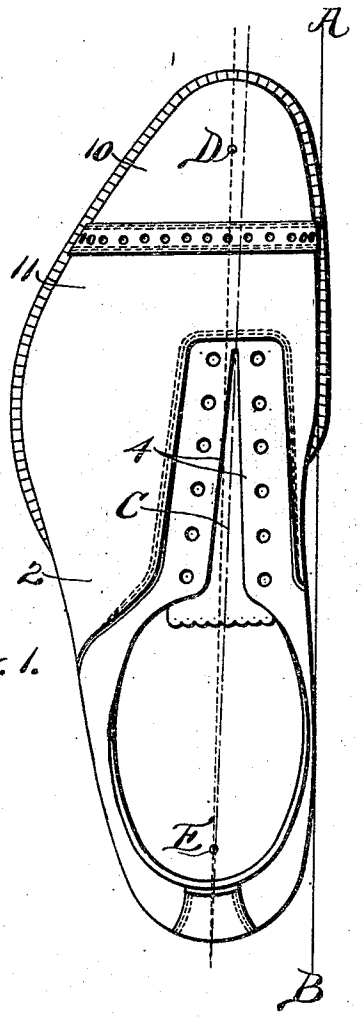


Fig. 1.

Inventor:
Fergus A. Butler
by J. F. McCready
his Atty.

Nov. 25, 1924. 1,516,840

F. A. BUTLER

SHOE

Original Filed June 24, 1920 3 Sheets-Sheet 2

Fig. 7.

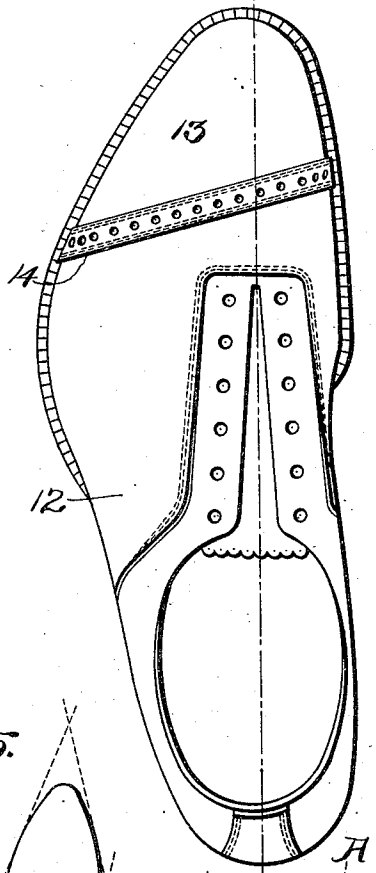


Fig. 6.

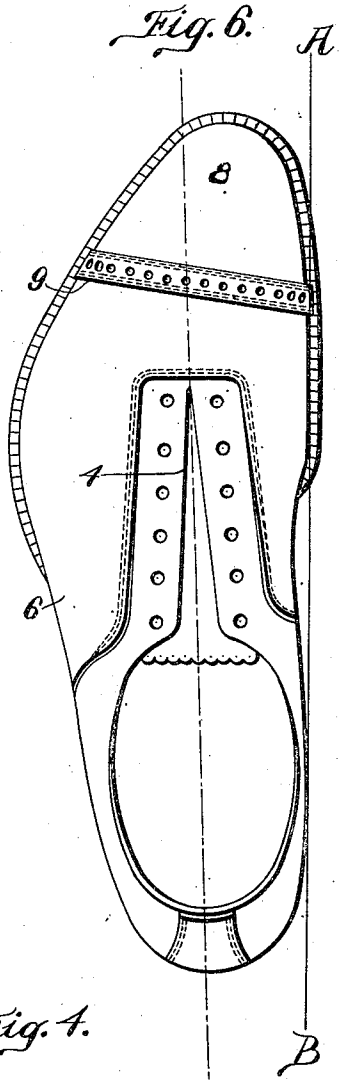
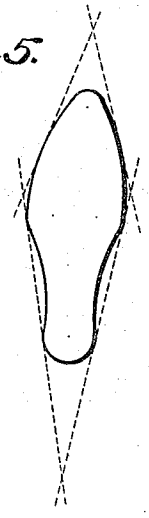


Fig. 5.



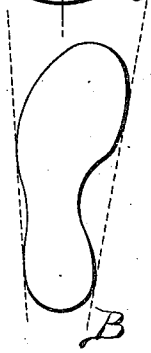


Fig. 4.

Inventor:
Fergus A. Butler,
by J. H. McCready
his Atty.

Nov. 25, 1924. 1,516,840

F. A. BUTLER.

SHOE

Original Filed June 24, 1920 3 Sheets-Sheet 3

Fig. 9.

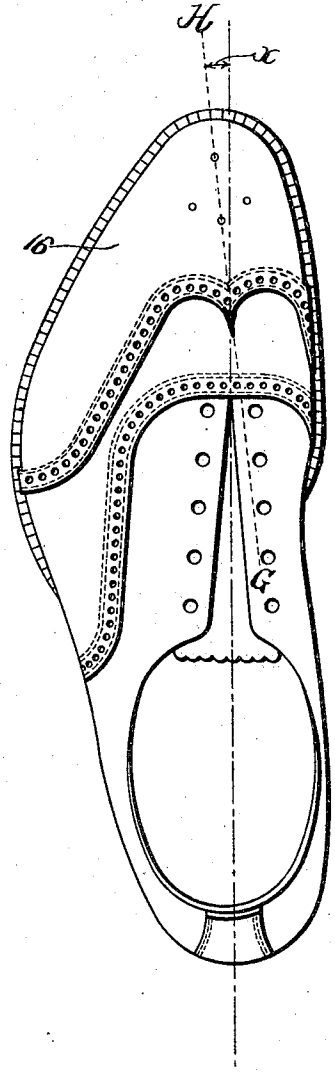
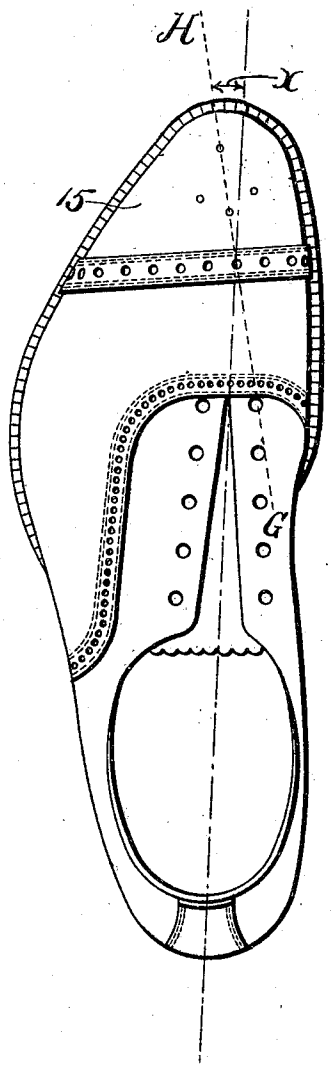


Fig. 8.



Inventor:
Ferguson A. Butler.
By J. H. McCready
his Atty.

Patented Nov. 25, 1924. 1,516,840

UNITED STATES PATENT OFFICE.

FERGUS A. BUTLER, OF NEW YORK, N. Y.

SHOE.

Continuation of application Serial No. 391,402, filed June 24, 1920. This application filed November 8, 1921. Serial No. 513,695.

To all whom it may concern:

Be it known that I, FERGUS A. BUTLER, 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 Shoes, of which the following is a specification.

This invention relates to shoes and is especially concerned with shoes of the so-called orthopædic type. It is the general object of the invention to devise a shoe which while conforming more accurately to the anatomical construction of the foot shall also present a more pleasing appearance than the orthopædic shoes heretofore proposed. The invention is especially concerned with the position of the lacing slit and the placing of the toe cap. The invention aims to so place the parts of the shoe that while the features essential to orthopædic construction are retained, an optical effect is produced which gives the shoe substantially the appearance of a shoe of the popular, unorthopædic, but more stylish constructions.

For a more complete understanding of the objects of the invention and of the manner in which it is proposed to accomplish them, reference should be made to the following description and to the accompanying drawings, in which—

Figure 1 is a plan view of a shoe embodying features of the present invention;

Figs. 2 and 3 are diagrammatic views designed to illustrate more clearly the features of this invention;

Figs. 4 and 5 are diagrammatic views illustrating prior constructions;

Fig. 6 is a plan view of a shoe constructed along prior art lines;

Figs. 7, 8 and 9 are plan views of shoes embodying features of the present invention.

The chief characteristic of orthopædic shoes is that they are made on a swing last and have a comparatively straight inside edge. That is, the right-hand edge of the left shoe and the left-hand edge of the right shoe are each referred to in the shoe trade as "inside edges," and when a substantial part of the forepart of the shoe beyond the junction of the forepart and shank lines lies in a line tangent to the heel, such a shoe is said to have a straight inside edge, and the last on which such a shoe is made usually is called a swing last. This relationship is shown in Figs. 1 and 4 in which the line A—B tangent to both the forepart and heel is coincident with the outline of the forepart beyond the junction of the shank and forepart for a substantial distance. This term is used in distinction to popular type shoes, as for instance, that shown in Fig. 5 in which the relationship just described is not present, and the lasts on which shoes of this type are made are usually termed in the trade straight lasts. The feature of a straight inside edge is recognized as very desirable in a shoe designed to conform to the anatomical structure of the foot since in a normal foot the inner edge of the great toe lies substantially in a line with the heel, and a shoe having a straight inner edge therefore avoids the displacing or outward swinging of the great toe which is produced in a shoe of the outline shown in Fig. 5. These shoes, however, as heretofore constructed, have been objectionable to a large percentage of the purchasing public due to their unsightly shape and lack of style. It is one of the objects of this invention to overcome this difficulty and to provide a shoe of attractive appearance without sacrificing any of the features which are desirable from an anatomical standpoint.

Another objection to shoes of this type as heretofore constructed is in faulty location of the lacing slit and consequently of the eyelets which hold the lacings, and in the locating of the toe cap or tip. The lacing slit usually points toward the outer part of the toe curve. The usual method of locating the toe cap or tip is to have its rearward edge or toe cap line at substantially right angles to the median line of the toe portion of the shoe. It may here be noted that in a general way the toe portion of the shoe designates that portion of the shoe forward of the junction of the forepart and shank lines, while the portion of the shoe rearward of the juncture of the forepart and shank lines is hereinafter referred to as the major portion of the shoe. Usually the toe cap line crosses the foot immediately behind the great toe or at a point close to the junction of the great toe with the foot, but it extends across the other toes and is a common cause of

corns on the second and third toes. The presence of a toe cap is very objectionable to many people. At the same time a toe cap adds substantially to the attractive appearance of a shoe and performs a valuable function in preserving the shape of the shoe.

It is one of the objects of this invention to improve the construction of shoes so far as the location of the toe cap and lacing slit are concerned with a view to removing the objectionable features which have existed in prior constructions, and placing them so that the shoe will be more comfortable to wear and so that they will conform more accurately to the structure and movements of the foot.

A further object of this invention is the production of an optical effect to counteract the toe-in appearance of a swing last shoe In modern shoes the median line of the major portion of the shoe is fixed for the eye by the lacing slit and by other conspicuous lines or seams upon the upper surface of this portion of the shoe; and the median line of the toe portion is fixed for the eye by the rear edge of the toe cap, which is assumed to be substantially at right angles to this median line, and by other conspicuous lines, seams or features of ornamentation of the toe portion of the upper which constitute the design of this part of the shoe and which are assumed to be symmetrically disposed in relation to this median line. I find in practice that the most satisfactory optical effect is obtained by directing the median line of the major portion of the shoe, as fixed for the eye, slightly inward toward a line tangent to the inner edges of the toe and heel parts and directing the median line of the design of the toe portion of the shoe upper slightly outward from the median line of the major portion.

Referring now to Fig. 1 of the drawings, 2 designates a shoe which may be made according to any usual or convenient process, but having a comparatively straight inside edge as indicated by the line A—B. The edges of the lacing "slit" are indicated at 4 and the center line of this slit at C. The centers of the toe and heel curves are indicated at D and E, respectively, and the line D—E is the longitudinal median line of the shoe as a whole. In this shoe the lacing slit is inclined inwardly, as shown, and instead of lying to the left of the line D—E, it lies to the right of this line between the center D and the inside edge of the shoe. It will be observed that this center line is approximately parallel with the line A—B, although not exactly parallel thereto, as will be seen from an inspection of Fig. 3. That is, the center line C of the shoe 2 and the corresponding line C′ of the mate 3 to this shoe, when extended anteriorly, converge.

While the style of the shoe may be largely dictated by personal preferences, I prefer both for anatomical reasons and also from considerations of appearance to depart from the usual rounded and relatively shapeless form shown in Fig. 4 by adopting a form that has roughly the outline of a triangle, as best shown in Fig. 2, from which it will be seen that the shoe outline is bounded by three lines A—B on the inside edge and F—G and G—H on the outside edge, these lines when extended forming a triangle.

One of the objectionable features of a shoe having a substantially straight inside edge is that it has an appearance of toeing in, or what is sometimes referred to as "pigeon-toed" appearance. This will be seen from an inspection of Fig. 6 in which the shoe 6 has the same outline as that shown in Figs. 1 and 7 but in which the center line of the lacing slit is located in a relationship common in shoes of this type. In the modern shoe, as above stated, the eye naturally fixes the center line of the lacing slit as the median line of the major portion of the shoe, and if an unusually large part of the toe portion of a left shoe lies at the right of this line it produces the "pigeon-toed" appearance above mentioned. This appearance is very substantially changed by the placing of the center line of the lacing slit in the manner above described, as will readily be seen from an inspection of Figs. 1 and 7. In other words, the location of the lacing slit so that its center line extends substantially parallel with the inside edge of the shoe and crosses the toe tip approximately at the center of the toe curve, gives the impression to the eye that the median line of the shoe is directed straight ahead, and it thus avoids or counteracts the toe-in appearance of the swing last shape. This feature, therefore, both improves the appearance of the shoe and also contributes to the comfort of the wearer, since it brings the line of eyelets at the opposite sides of the lacing slit more nearly along the instep ridge of the foot. On the other hand, if the center line of the lacing slit is directed too far inwardly, the eye refuses to regard it as the median line of the shoe, just as it does when the lacing slit points too far outwardly, and the shoe in either case has a freak appearance which the present invention aims to avoid.

The usual placing of the toe cap or tip also is responsible in a substantial measure for the "pigeon-toed" appearance of shoes made on a swing last. Fig. 6 shows the toe cap 8 placed substantially in the usual manner. As above stated, this method of locating the toe cap is not only objectionable from a standpoint of appearance, but also for the reason that the toe cap seams are made to cross the toes. It will be observed that in this figure the toe cap line

9, or rearward edge of the toe cap, makes an acute angle with the line A—B, this angle being measured on the toe cap. When this toe cap is placed, as shown in Fig. 1, with the toe cap line 9 making an angle slightly greater than a right angle with the line A—B and also with the longitudinal median line of the shoe, the "pigeon-toed" appearance is effectually counteracted and a shoe of far more attractive design is produced by this change.

I prefer, however, to so place the toe cap that the toe cap line, or in other words, the rearward edge of the toe cap, will be slanted backwardly toward or into a position substantially parallel with the line of the junction of the toes with the foot. This arrangement has the advantage of bringing the tip seams back of the toes and thus avoiding the discomfort which many people find to the presence of a seam or the rear edge of a toe cap across the toes, and it also brings the toe cap line into a position substantially parallel with the line of flexure in the forepart of the foot. Such an arrangement is illustrated in Fig. 7 in which the toe cap 13 has its rearward edge 14 slanted backwardly, as shown, the position of the toe cap line with reference to the toes being illustrated diagrammatically in Fig. 2. This construction not only produces a more comfortable shoe and one more correct from an anatomical standpoint, but it also materially improves the appearance of the shoe, since the position of the toe cap line, if considered alone, would give a "toe-out" appearance, but when seen in conjunction with the other lines of the shoe counteracts the "pigeon-toed" appearance of a shoe of this shape and avoids the toe-in appearance to which the trade objects.

It is not necessary that the toe cap line be slanted backwardly as much as has been shown in Fig. 7 so far as the question of appearance goes. It will be seen from an inspection of Fig. 1 that the toe cap 10 is so located that the shoe does not have the "pigeon-toed" appearance of the shoe shown in Fig. 6, although both shoes have the same shape. The toe cap line 9 of the shoe makes an angle somewhat greater than a right angle with the median line of the shoe, this angle being measured on the toe cap, and while I regard it as preferable from a standpoint of comfort to have the toe cap line slanted somewhat farther back, nevertheless the position of this line as shown in Fig. 1 is a substantial improvement on the usual placing of this part of the shoe. It will also be observed that the shoe shown in Fig. 1, while it includes the features of my invention, avoids any freakish appearance. In many styles of shoes the toe cap or tip bears an ornamental design, in some cases very simple, while in others quite elaborate, and I find that the location of this design can also be used to counteract the pigeon-toed appearance produced by the straight inside edge.

Referring to Fig. 8, the toe cap 15 has a very simple ornamental design, and according to this invention the longitudinal median or center line G—H of this design is inclined outwardly with reference to the center line of the lacing slit. The outward inclination of the median line G—H of the toe cap with reference to the center line of the lacing slit gives a toe-out appearance to the shoe, the degree of which depends on the degree of this inclination.

The same is true in Fig. 9 which shows a brogue shoe, the center line G—H of the design of the winged cap or tip 16 being inclined outwardly and making an acute angle X with the center line of the lacing slit.

The same principles can be followed with other styles of shoes, as will be obvious to those skilled in this art, the present disclosure making no attempt to deal exhaustively with styles and shapes, but being designed to disclose the more general features and underlying principles of the invention. The same principles also may be applied to button shoes, the front seam of the upper of the shoe being positioned in the same way that the center line of the lacing slit is located in lace shoes. In some shoes also it is customary not to use a separate toe cap or tip piece but to stitch or otherwise work a design directly on the toe portion of the vamp. This, however, is regarded as the equivalent, so far as the present invention is concerned, to the use of the separate toe cap or tip member.

It will be understood that the invention is not limited to the exact designs shown nor to the joint use of its features. Some shoes have a plain toe, and in such shoes the location of the lacing slit may be relied upon alone to correct the toeing-in appearance which the shoe otherwise would present.

The present application is a continuation of my pending application Serial No. 391,402, filed June 24, 1920, so far as the subject matter common to the two applications is concerned.

Having thus described my invention, what I desire to claim as new is:

1. A shoe having a substantially straight inside edge, and having a toe cap the rearward edge of which makes an angle greater than a right angle with said edge, said angle being measured on said toe cap.

2. A lace shoe having a substantially straight inside edge, and having a toe cap the rearward edge of which makes an angle greater than a right angle with the center

line of the lacing slit, said angle being measured on said toe cap toward the outer side of the shoe.

3. A shoe having a substantially straight inside edge, and having a toe cap the rearward edge of which extends substantially parallel to the line of flexure of the forepart of the shoe.

4. A shoe of the character described having a toe cap the rearward edge of which is slanted backwardly and outwardly, whereby, when the shoe and its mate are placed side by side with their inner edges in contact, a line joining the adjacent ends of the toe cap lines of the two shoes lies substantially ahead of the line joining the opposite ends of said toe cap lines.

5. A shoe of the character described having a substantially straight inside edge, and a toe cap thereon having its rearward edge lying at an angle to said inner edge which counteracts the pigeon-toed appearance produced by said straight inside edge.

6. A shoe having a substantially straight inside edge and having the median line of the major portion of the shoe crossing the toe tip of the shoe adjacent to the center of the toe curve but between said center and the inner edge of the shoe and crossing the heel curve adjacent to its middle point.

7. A swing last lace shoe having a substantially straight inside edge, and having the center line of the lacing slit extending substantially parallel to said edge and crossing the toe tip of the shoe approximately at the center of the toe curve.

8. A lace shoe having a substantially straight inside edge with the center line of the lacing slit extending approximately parallel to said edge, and a design on the toe portion of the upper arranged substantially symmetrically with relation to its longitudinal median line, said median line being directed outwardly with reference to the center line of said lacing slit.

FERGUS A. BUTLER.