

June 14, 1927.

J. R. GAMMETER

1,632,064

FASTENING DEVICE FOR SHOES AND THE LIKE

Filed May 13, 1924

FIG-1-

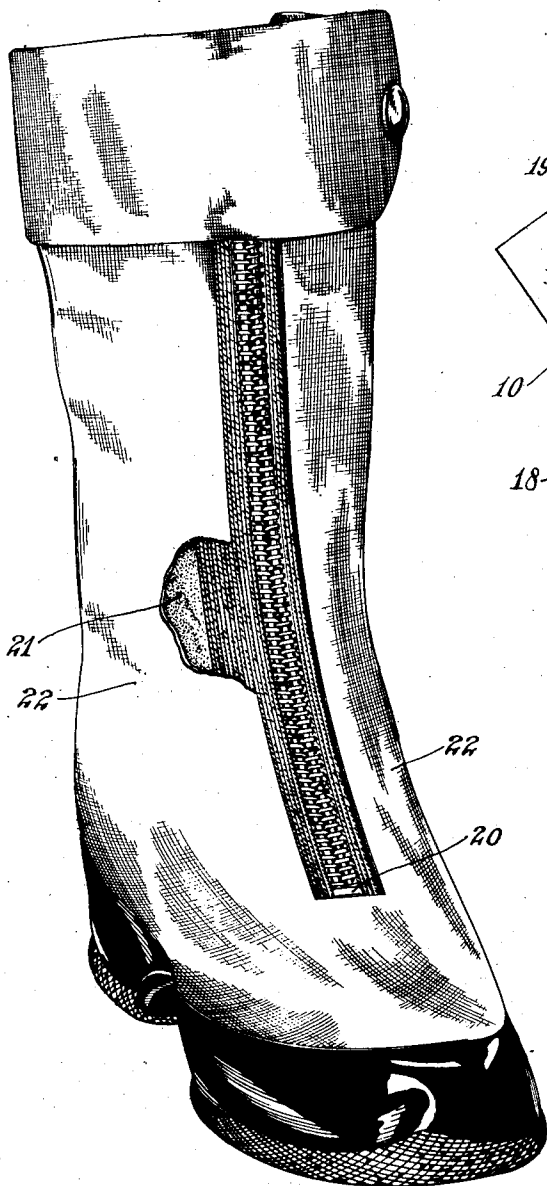


FIG-2-

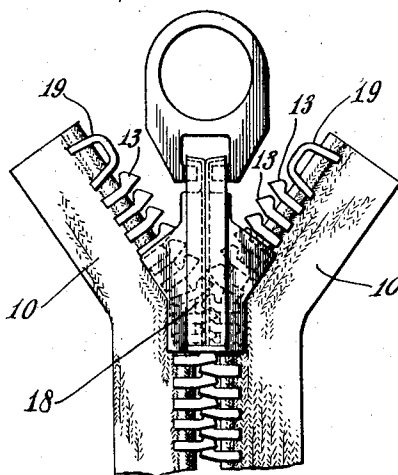
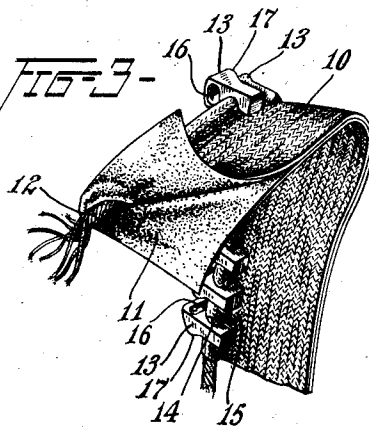


FIG-3-



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UNITED STATES PATENT OFFICE.

JOHN R. GAMMETER, OF AKRON, OHIO, ASSIGNOR TO THE B. F. GOODRICH COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

FASTENING DEVICE FOR SHOES AND THE LIKE.

Application filed May 13, 1924. Serial No. 713,087.

This invention relates to shoes provided with fastening means adapted to provide a substantially continuous connection of the opposed margins or flaps of the shoe, as in the case of a type of fastener heretofore extensively used on overshoes, comprising a pair of stringers having secured thereon, in spaced relation, respective sets of jaw members or clasps adapted to be engaged with each other in alternate, staggered, and nested or stacked relation, by the action of a cam slide mounted upon the two stringers. In such fasteners the stringers preferably are substantially inextensible along the edge to which the clasps are attached, to assure the proper functioning of the slide and to prevent the clasps from springing apart and becoming disengaged when the fastener is subjected to strain.

While fasteners of this type as heretofore applied to overshoes have advantages over the common buckle fasteners, especially in point of quick operation and neatness of appearance, they have not entirely eliminated wrinkling or buckling of the upper at positions along the fastener as the ankle is bent. As the fasteners referred to are not adapted for adjustment in accordance with the shape of the wearer's foot or angle, buckling of the fabric may be such as to spoil the appearance of the shoe where the ankle fit is too loose, or to cause discomfort to the wearer if the fit at the ankle is too close. Wrinkling of the fabric also, because of the continuous junction of the flaps of the shoe, may place excessive local strain upon some of the clasps and upon adjacent parts of the upper.

My chief object is to provide an improved continuous fastener shoe having a neat and comfortable fit notwithstanding variations of shape as to the feet or ankles of individual wearers. A further object is to provide against the entrance of moisture, while attaining the first stated object. Another object is to provide an economical method of forming and assembling the fastener and associated shoe parts, whereby a shoe having the advantages described may be obtained.

My invention is of especial advantage in rubber overshoes, where I find it desirable to join the fastener members with the flaps of the shoe by means of a highly elastic anchorage strip such as is provided by the use of knitted fabric or fabric interwoven with a

decided crimp, as in fabric inserts heretofore used in the "Congress" type of shoe, to provide a high degree of stretchability, and rubber being associated with the fabric or incorporated therein to provide resilience or recoil, so that the fabric, after being stretched, will return to its normal shape when the tension is released.

I am aware that anchorage strips comprising bias-cut fabric have been proposed for fasteners of the type described herein, as in U. S. Patent No. 1,322,650 to G. Sundback, for use in closures for curved openings, where the anchorage strip, in being mounted, requires to be curved in its own plane to conform to the shape of the opening, the bias-cut fabric being used to permit such curvature. Bias-cut fabric strips, however, yield in one direction chiefly by shortening in a direction transverse thereto, the stretch being incident chiefly to the warp and weft threads becoming oblique to each other. Thus the distortion of the fabric under local strain is not so localized, and the bias-cut fabric is not so elastic, as to give the best results in an overshoe fastening, where the problem is not one of mounting the anchorage strip without goring or shrinking, but concerns the avoidance of wrinkles and excessive local strains when the overshoe is flexed in service.

A preferred embodiment of my invention is illustrated in the accompanying drawings, of which:

Fig. 1 is a perspective view of an overshoe provided with my improved fastening structure.

Fig. 2 is an elevation of the continuous fastener, including the anchorage strips, as it appears before it is incorporated in the shoe.

Fig. 3 is a perspective view on a larger scale, of a portion of one of the fastener elements, showing details of construction.

Referring to the drawings, my improved anchorage strip for each stringer comprises a strip of highly stretchable, preferably knitted, fabric 10, one face of which is coated with vulcanizable rubber compound 11, and this strip is laterally folded about an inextensible cord 12, with its coated side inward, as shown clearly in Fig. 3. The cord is disposed longitudinally of the fabric strip, preferably at the middle of the latter, and the two wings of the folded fabric strip

are stuck together, providing a two-ply strip with an intervening layer of rubber. The cord, enclosed in the fabric, provides the anchorage strip with an inextensible beaded edge.

Upon the beaded edge of the anchorage strip thus provided are strung the clasps, 13, 13, of metal, each being formed with an aperture 14 (Fig. 3) to accommodate the bead and with a slot 15 extending from said aperture to accommodate the adjacent flat portion of the anchorage strip. The clasps are secured in spaced relation on the bead by bending toward each other the portions of the clasp which define the apertures 14 and slots 15, the locking portions of the clasps projecting from the beaded edge of the strip.

The locking portion of each clasp is formed at one side with a recess 16 and at the opposite side with a projection 17, the recesses and projections of adjacent clasps, on the respective stringers, being adapted to mate with each other as the clasps are successively brought into stacked or intercalated relation by a cam slide 18 (Fig. 2), as is well understood in the art, reverse movement of the slide serving to disengage the clasps in succession by a bending apart of the stringers, which bending is carried progressively along the stringers by the cam slide. 19, 19 are upper end-stops for the slide cam 18, and 20, Fig. 1, is a lower end-stop connecting the pair of stringers.

In making the shoe the assembled fastening structure, consisting of the parts shown in Fig. 2, is incorporated in the shoe by building the outer margins of the pair of

anchorage strips 10 into the margins of the shoe upper as shown in Fig. 1, between the lining 21 and the outer fabric 22 of the upper. These members, being rubberized on their adjacent faces, adhere to the anchorage strips 10. The shoe as thus built is then vulcanized, with the effect that the anchorage strips are securely joined to the upper. The vulcanization of the rubber coating 11 provides, between the plies of the anchorage strips, an elastic rubber sheet. My preferred procedure thus provides, in a simple and economical manner, the desired resilience or recoil, exclusion of moisture, and a neat and strong beaded edge for the mounting of the clasps.

My invention is susceptible of modification without sacrifice of all of its advantages, and I do not wholly limit my claims to the exact construction or procedure described.

I claim:

1. A fastening device comprising a pair of anchorage strips, a row of clasps secured on a margin of each of the strips and a slide for engaging the clasps of one strip with those of the other, at least one of the said strips comprising a piece of locally-yielding fabric folded upon itself about an inextensible cord to provide a bead, and the clasps being secured upon the said bead.

2. A fastening device as defined in claim 1 in which the folded piece of locally-yielding fabric is held in its folded condition by elastic rubber.

In witness whereof I have hereunto set my hand this 9th day of May, 1924.

JOHN R. GAMMETER.