Jan. 27, 1925. 1,524,049

F. H. MARTIN

RUBBER BOOT

Filed Aug. 22, 1924

Fig-1

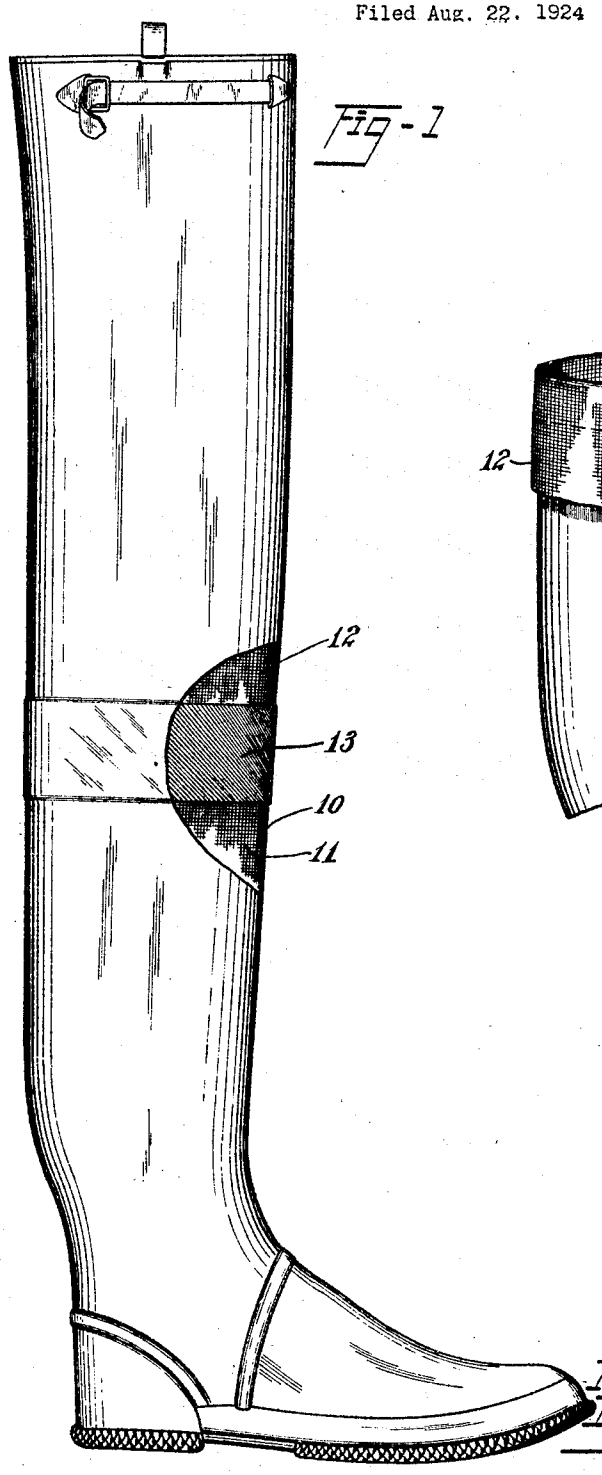
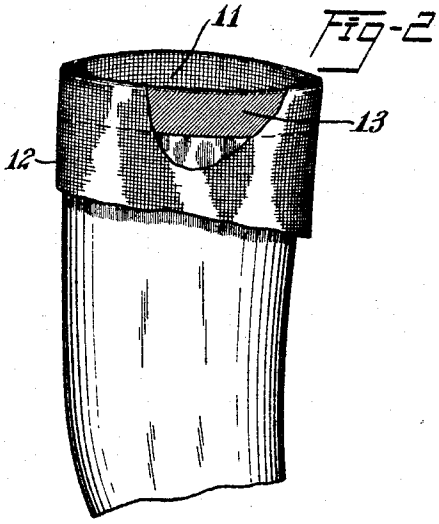


Fig-2



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UNITED STATES PATENT OFFICE.

FREDERICK H. MARTIN, OF AKRON, OHIO, ASSIGNOR TO THE B. F. GOODRICH COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

RUBBER BOOT.

Application filed August 22, 1924. Serial No. 733,609.

To all whom it may concern:

Be it known that I, FREDERICK H. MARTIN, a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented a certain new and useful Rubber Boot, of which the following is a specification.

This invention relates to rubber boots adapted to be turned down or to be extended to their full height, at the choice of the wearer, as in the case of wading boots commonly referred to as hip-boots.

The useful life of such boots, as heretofore made, frequently has been limited by the breaking or cracking of the leg of the boot at the primary line of fold, at the knee, the fold at this line being relatively abrupt as compared with supplemental folds of the larger and more tapering upper leg portion, and the primary line of fold being subject to wear incident to rubbing against the trousers of the wearer. When the lining fabric has been weakened by such wear, vertical strains upon the material which are incident to normal service soon result in rupture of the rubber cover of the boot.

As such defects are not susceptible of ready repair, the usefulness of the boot as a full-length wader is practically destroyed although its other parts may still remain in good condition.

The object of my invention is to provide a rubber boot in which the objectionable feature described will be largely overcome, so that the boot may have a long period of useful service, more commensurate with the durability of its other parts.

Of the accompanying drawings:

Fig. 1 is a side elevation of a hip-boot embodying my invention in its preferred form, a part of the rubber cover of its leg portion being sectioned and broken away.

Fig. 2 is a side elevation of the same in turned-down condition, a part of the lining fabric being broken away.

Referring to the drawings, the boot comprises the usual rubber cover 10 which, in the finished boot, is continuous throughout the vertical height of the boot, and the usual leg-lining 11 and top lining 12, which may be of duck or of relatively light and stretchable material such as the knitted fabric commonly referred to as cotton net.

At the knee, and preferably between the rubber cover 10 and the lower portion of the top-lining 12, adjacent the latter's junction with the leg-lining 11, is interposed a band 13 of weftless or substantially weftless rubberized thread fabric, similar to that commonly used in cord tires, but preferably of smaller thread-size, said band preferably being cut on a bias of about 45°, as shown, so as to provide elasticity in a vertical direction as well as circumferentially of the leg, the weak weft threads, when used, being adapted to break under relatively small strain, after serving their purpose of holding the warp threads in orderly relation during the preparation of the fabric.

In the vulcanization of the boot the linings 11 and 12, the thread fabric insert 13 and the cover 10 become firmly united, providing a reinforced zone at the knee adapted not only to withstand the wearing action of the underlying garment in service, but to be easily flexed and to withstand the repeated flexure of alternately folding the boot-top down and extending it to its full height.

In service the boot-top is folded down so that the primary line of fold comes within the reinforced zone represented by the thread fabric insert 13, as shown in Fig. 2, and the circumferential elasticity of said insert permits such folding of the reinforced zone, although the latter is relatively thick, without excessive wrinkling or buckling of the compressed inner half of the folded zone and without excessive strain upon the material at the convex side of the line of fold. When a net top-lining is used, the vertical elasticity of the insert, as well as its circumferential elasticity, avoid breaking of the elastic top-lining, 12, at its junction with the insert, such as frequently occurs at the junction line of relatively elastic and non-elastic elements in rubberized-fabric articles. Wear of the inner face of the reinforced zone is met by the relatively strong threads of the insert 13, which continue, throughout a long period of use, to prevent substantial strains upon the adjacent portion of the cover 10. Thus a boot is provided whose several parts are better balanced in their resistance to the destructive effects of service than has been the case in boots of this type as heretofore made.

As various details of the structure de-

scribed may be modified within the scope of my invention I do not wholly limit my claims to the exact construction shown.

I claim:

1. A rubber boot having a leg-portion adapted to be folded upon itself, said leg-portion comprising a reinforcement of substantially weftless, rubberized thread fabric.

2. A rubber boot having a leg-portion adapted to be folded upon itself, said leg-portion comprising a band of substantially weftless, rubberized thread fabric encircling the leg at the knee and having its strength-giving threads disposed obliquely in the leg of the boot.

3. A rubber boot having a relatively stiff lower leg-portion, a relatively flexible upper leg-portion, and a reinforced annular zone connecting the two and comprising an annular band of rubberized fabric having strong threads disposed obliquely in the leg of the boot.

In witness whereof I have hereunto set my hand this 11th day of August, 1924.

FREDERICK H. MARTIN.