July 31, 1956 L. T. HILL 2,756,519

BOX TOE FOR SAFETY SHOES

Filed March 11, 1955

Fig. 1.

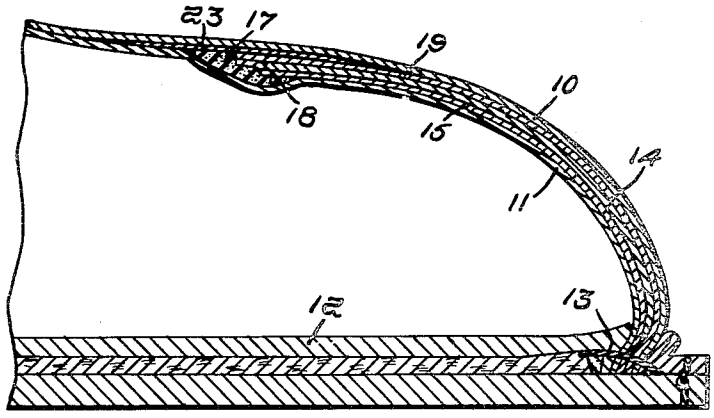
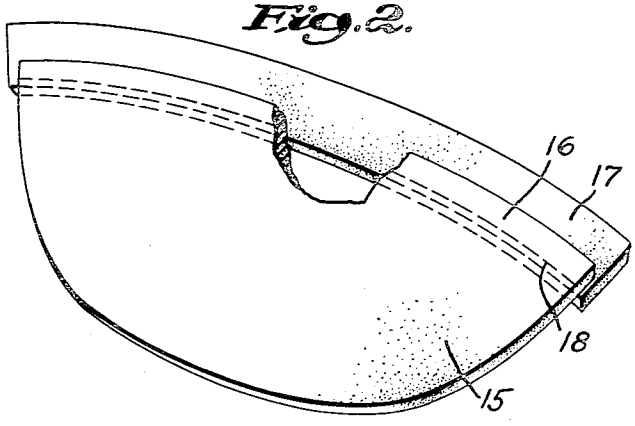



Fig. 2.




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# BOX TOE FOR SAFETY SHOES

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3 Claims. (Cl. 36—77)

This invention relates to safety shoes of the type having a steel reinforcing box in the toe, and pertains more particularly to a pad construction for enclosing, and cushioning the edge of, a steel toe box. This application is a continuation-in-part of my copending application Serial No. 402,053, filed January 4, 1954, now abandoned.

Safety shoes of the general type to which this invention pertains have heretofore presented a rather awkward appearance due to the ridge created in the upper by the rear edge of the steel box. This edge also has a tendency to cut through the upper when the shoe is worn. Furthermore the metal edge is likely to hurt the wearer's foot and cause blisters. Another complaint frequently encountered is that the steel box transmits cold too rapidly and tends to chill the wearer's toes. Another difficulty encountered in the use of a metal toe box in a shoe is that the lower edge of the box tends to cut the inseam stitching.

The general object of this invention is to overcome these difficulties by effectively insulating the steel box from the wearer's foot, cushioning the rear edge on the inside, filling in the usual depression immediately behind the edge of the steel box so as to achieve a smoother appearance of the upper, and enclosing the lower edge of the box so that it is not in contact with the inseam. Other advantages and novel features of the device here disclosed will be apparent from the following description:

In the drawings illustrating the invention:

Fig. 1 is a longitudinal cross-section of the toe of a shoe having a box assembly constructed according to the invention;

Fig. 2 is a perspective view, partly broken away, of the pad assembly before it is installed in the shoe.

The box and pad assembly is shown in Fig. 1 as installed in a shoe of the Goodyear welt type having the usual upper **10** and upper lining **11** secured to the insole **12** by inseam stitching **13**. A steel toe box **14** is enclosed in the toe. Between the upper lining and the steel box is inserted a pad of the type shown in Fig. 2. The pad consists of a piece of pyroxylin **15** of a shape and size corresponding to box **14**, having a rear margin **16** to which a strip **17**, of sponge rubber or similar spongy material, is attached, for example, by a line of stitching **18**. The pyroxylin pad is made somewhat larger than the steel box so as to overlap the lower edge of the latter when the two are assembled together. The pad and strip are inserted between box **14** and the lining **11** with the strip overlapping the rear edge of the box. A cover **19** of thin pyroxylin, slightly larger all around than the box is placed between the box and the upper **10**. A strip of gummed tape **23** is applied to the upper in the region overlying the foam rubber strip **18**, and is preferably wider than the latter so as to project beyond its front and rear edges. Strip **23** helps to keep the upper smooth in this region. It is understood that the pad and cover are softened with suitable solvent



and all the parts are formed over a last which may be of the usual type, but is preferably of the type described in my copending application Serial No. 493,651, filed March 11, 1955, now Patent No. 2,737,671, granted March 13, 1956, which has a groove across the forepart to relieve pressure on the foam rubber strip. The pad **15** is bonded to the steel box and to the lining **11** and the cover **19** is bonded to the box and to the upper. The overlapping margins of the cover are bonded to the lower margins of pad **15** so that the steel box is completely encased around its lower edge. This feature serves to prevent breaking of the needle by contact with the box, during the inseaming operation and also protects the inseam stitching **13** against cutting by the edge of the box in subsequent wear. The rear edges of the pad **15** and cover **19** extend a little to the rear of that of the toe box and are bonded together. The cover, being bonded to the upper and tape **23**, keeps the upper from creeping, thus preserving the smooth appearance of the toe, and also prevents the rear edge of the box from cutting through the upper. The pad **15**, being bonded to the lining **11**, prevents wrinkling of the lining, and the sponge rubber strip **17** cushions the rear edge of the steel box and also that of the pyroxylin pad **15** which becomes stiff when it is formed. The wearer's foot is thus protected against irritation by the stiff rear margin of the toe box assembly. It will be noted also that the sponge material tends to fill in the gap behind the rear edge of the box and smooths out the ridge which ordinarily appears in the upper at this point. The whole assembly thus produces a comfortable and smooth appearing forepart.

What is claimed is:

1. In a shoe having a sole, an upper, and an upper liner, a toe box assembly comprising a metal toe box mounted in the forepart of said upper and having a lower edge disposed adjacent said sole and a rear edge disposed across the vamp portion of the upper, a formed pyroxylin pad disposed between said box and said liner and bonded thereto, said pad having a rear edge disposed across the vamp portion of the upper, a strip of foam rubber attached to said pad under the rear edge thereof and extending behind the rear edges of the box and pad, said strip being compressed along its line of contact with said rear edges and deformed upward in the region behind said rear edges to substantially fill in the space between the upper and the liner in said region, and a strip of tape adhesively secured to said upper and overlying said rear edges and said foam rubber strip.

2. A toe box assembly as described in claim 1, having a pyroxylin cover disposed between said metal box and said upper, the cover and pad having edges projecting behind that of the box and bonded together, said tape having margins disposed behind and in front of said strip, the front margin overlying said cover.

3. A toe box assembly as described in claim 1, having a cover disposed between said metal box and said upper, the cover and pad having lower edges projecting below the lower edge of said metal box and bonded together.

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