May 10, 1960 F. M. RONCI 2,935,799

REINFORCED HEEL WITH REPLACEABLE TAP

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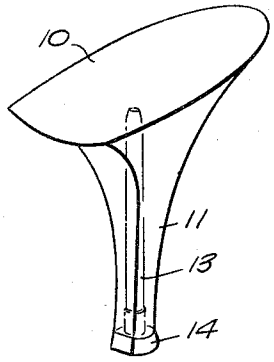


FIG. 1

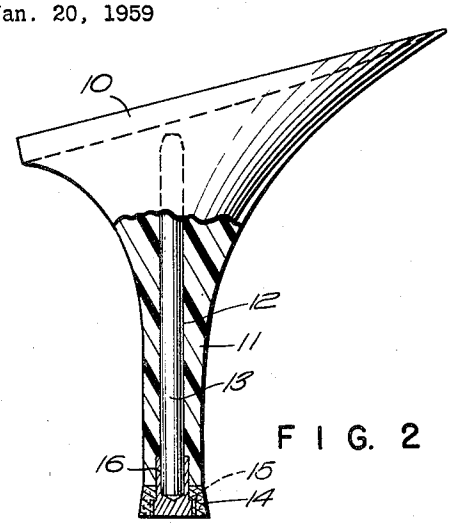


FIG. 2

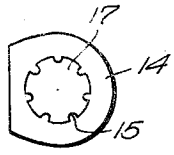


FIG. 3

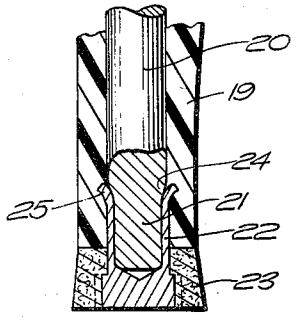


FIG. 4

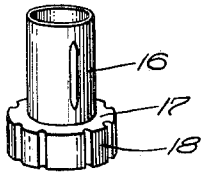


FIG. 5

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REINFORCED HEEL WITH REPLACEABLE TAP

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1 Claim. (Cl. 36—34)

My present invention relates to the shoe making art and more particularly to a novel construction of a heel and tap.

The principal object of the present invention is to provide a reinforced heel having a replaceable tap.

A further object of the present invention is to provide a very narrow plastic woman's heel with a permanent reinforcing core and a replaceable tap.

Another object of the present invention is to provide a reinforced heel in which the reinforcing member forms a support for a replaceable tap.

A further object of the present invention is to provide a reinforced heel with a tap which is simple and easy to install or replace.

With the above and other objects and advantageous features in view, my invention consists of a novel arrangement of parts more fully disclosed in the detailed description following, in conjunction with the accompanying drawings, and more particularly defined in the appended claim.

In the drawings,

Fig. 1 is a perspective view of a heel embodying my invention.

Fig. 2 is an enlarged side elevation partly in section.

Fig. 3 is a bottom view of the tap.

Fig. 4 is an enlarged vertical section of the tap mounting showing a modified form of my invention.

Fig. 5 is a perspective view of the tap supporting rivet.

The modern woman's high heel is made extremely thin, usually one half inch or less in diameter, and molded of plastic material. To prevent breaking under strain it has been proposed to provide a tap held in place by a reinforcing metal core which is screwed or otherwise forced into a vertical opening extending into the narrow portion of the heel. These constructions have been found to possess certain disadvantages. They cannot be removed without loosening them and destroying their support for the heel. Therefore the tap is not replaceable and metal taps have been used designed to wear for the life of the heel. These metal taps are annoying, loud and tend to scratch the floors and furniture, The present invention provides a reinforced heel and tap construction which forms a permanent reinforcement for the heel and utilizes a readily replaceable tap which can be of any desired material.

Referring more in detail to the drawings, the heel of the present invention may be molded of plastic material with the conventional broad top portion **10** tapering downwardly to the extremely narrow shank **11**. The shank **11** is provided with a vertical opening **12** which extends from the bottom end through the narrow portion **11** and preferably almost to the top of the heel as shown in Fig. 2. I now provide a tempered steel reinforcing rod **13** which is rounded at each end and which may be inserted from either end into the opening **12**. It is contemplated that the rod **13** form a reinforcing core for the heel portion **11** and must therefore fit tightly into the opening **12** so that it must be forced into the opening.

If desired an adhesive may be used on the rod or core **13** or the outside surface may be roughened or fluted. As can be seen in Fig. 2, the rod **13** is slightly longer than the opening **12** so that its bottom end extends upwardly a short distance from the bottom end of the heel portion **11**.

The tap **14** may be formed of any desired material such as leather, nylon, rubber, etc. The tap **14** is formed with a central opening having a narrow portion forming a shoulder **15** as shown in Fig. 2. Referring to Fig. 5, I now provide an attaching rivet having a hollow cylindrical body portion **16** and an integral enlarged head **17** with flutes or serrations **18** around the perimeter thereof. The attaching rivet is forced into the tap **14** into the position shown in Figs. 2 and 3. The large tap opening is preferably the same diameter as the small diameter of the fluted head **17** so that when the rivet **16** is passed through the narrow portion of the opening the head **17** must be forced into the tap with the flutes **18** biting into the material. In the form shown the bottom surface of the head **17** is flush with the bottom of the tap **14** and acts as a heel plate to lengthen the wear on the tap.

The inside diameter of the rivet section **16** is equal to the outside diameter of the reinforcing core **13**. Now when the tap is positioned over the bottom of the heel the exposed portion of the core **13** will enter the rivet **16** for a short distance. A sharp blow on the bottom of the tap **14** will hammer the rivet inwardly so that it is forced between the outer surface of the reinforcing core **13** and the plastic heel portion **11** as shown in Fig. 2. It will be found that the rivet portion **16** is tightly pinched in this position and the tap cannot be manually removed. The tap is now in place and since the walking pressure is upwardly, it will not fall out. To replace the tap it will be found that a pair of pliers can be used to remove the tap with a strong pull and a twisting motion. The cobbler can then easily put a new tap in place by hammering it into the position shown in Fig. 2. If desired the head **17** can be made thinner than that shown in Fig. 5 so that the tap can be molded or formed over the head to completely cover the metal.

With the above construction the reinforcing core **13** is never removed and only the tap is replaceable. While it is desirable that the reinforcing core **13** extend downwardly into the rivet beyond the bottom end of the heel, this is not necessary. Therefore, should the metal heel of the existing types of reinforcing cores become worn out the cobbler can cut or grind the heel and the protruding portion of the reinforcing core and then replace the tap with the type of construction shown herein. It is thus contemplated that the tap of the present invention can be used wtih the reinforcing core shown in Figs. 1 and 2 or as a replacement for the general type of constructions now in use. The outside of the rivet portion **16** may also be roughened or fluted as shown in Fig. 5. Also, threads may be positioned on the outside of the rivet and the inside of the opening.

Additional holding strength may be provided by the construction shown in Fig. 4. In this construction the narrow portion of the heel **19** is provided with a reinforcing core **20** which is slightly greater in diameter than the core **13** shown in Fig. 2. However, the lower end **21** is the same diameter and adapted to fit into the rivet holding member **22** of the tap **23**. In forming the narrow portion **21**, a curved shoulder **24** is formed in the core **20**. When the tap **23** is now hammered into position the upper edge of the rivet **22** will be forced to flare outwardly at **25** by the shoulder **24** and bite into the surrounding plastic material of the heel **19**. This will serve as an additional holding means to anchor the tap in place.

The above construction thus provides a reinforced plastic heel having a readily replaceable tap. By supplying

the cobblers with the taps, the owner of the shoe can replace a worn out tap or replace one type of material with another type without disturbing the reinforcing functions of the core. Furthermore, it will be found that this type of construction is simpler and more economical to manufacture and easier to assemble. The cores can be made with both ends alike so that they can be forced into their openings without examination. Taps can be made of different materials to suit the requirements of the purchasers. Other advantages of the present invention will be readily apparent to a person skilled in the art.

I claim:

A reinforced heel and tap comprising an integral one-piece heel having a broad top portion tapering to a very narrow heel portion, said heel portion having a central vertical opening extending upwardly from the bottom end through said very narrow heel potrion, an elongated solid reinforcing core seated tightly in said opening, the lower end of said core extending downwardly from the bottom end of said heel, said reinforcing core having a smaller diameter at the lower end forming a tapered shoulder spaced from the lower end thereof, a tap at the bottom of said heel, and means for holding said tap on said heel, said means including a tubular hollow rivet extending from said tap into said heel opening and between said heel and said reinforcing core, said rivet having an inside diameter equal to the outside diameter of the lower end of said reinforcing core, said rivet flaring outwardly at said shoulder to engage said heel when said tap is forced on to said heel and said rivet is forced over the lower end of said reinforcing core.

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