April 21, 1931. C. G. TURNER 1,801,379

SHOE

Filed July 10, 1929

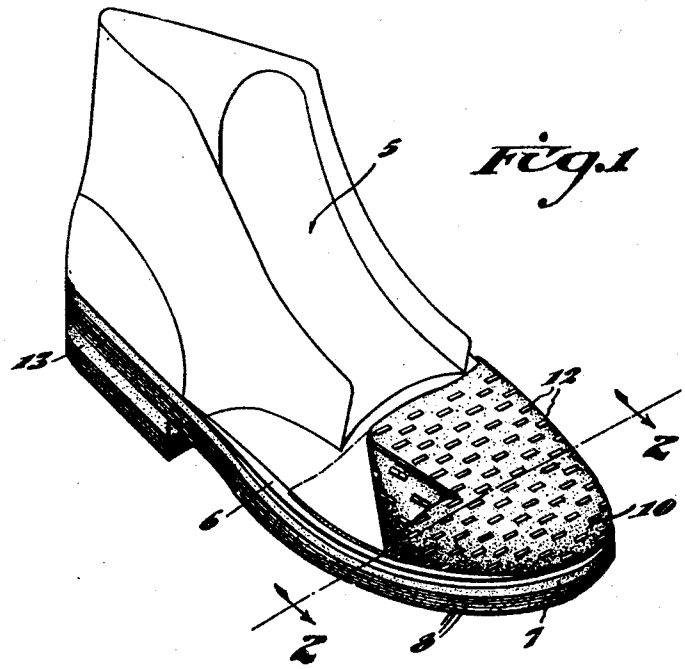
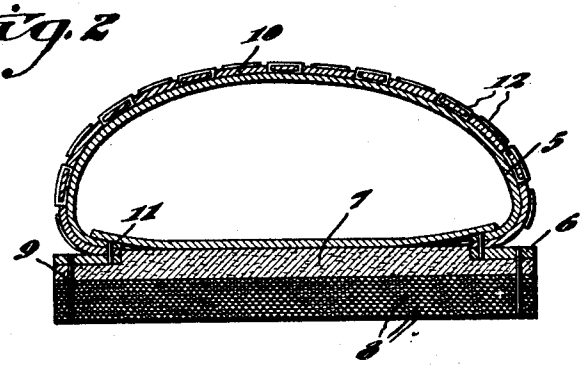


Fig. 1

Fig. 2



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UNITED STATES PATENT OFFICE

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SHOE

Application filed July 10, 1929. Serial No. 377,282.

This invention relates to shoes, and is particularly directed to a shoe in which the sole is of an improved construction protecting the wearer from abnormal heat and jagged material. It has been found that the workment in rolling mills, standing at their work on extremely hot surfaces, suffer a great deal of inconvenience and are frequently injured by the intense heat of the surfaces which approximates 250 to 300° F. One of the difficulties which has been experienced is that the ordinary vegetable tanned leather sole becomes extremely brittle, drying out under the heat, and cracks, thus exposing the foot of the worker to the hot surface. Another disadvantage encountered is that in handling the sheets of steel, a great deal of the time the workman uses his foot to hold down the sheets while manipulating and separating the same and the sharp steel cuts the sole and injures the worker's foot.

It is an object of this invention to provide a sole of laminated construction in which the layers are co-related to provide an extremely durable heat and wear resisting ground contact portion, and an attaching portion which takes up the heat from the ground contact portion and becomes extremely pliable for preventing cracking of the sole.

A further object arising out of the foregoing construction is to provide that when the contact sole, due to length of service, becomes worn and deteriorated, the same may be removed and replaced by attaching a new sole to the pliable base sole, which acts merely to take up the heat and as an attaching sole and which is not damaged by contact with the ground.

Chrome leather has been found ideal for the intermediate sole, providing a substantial foundation for the laminated fabric sole attached thereto and becomes greasy and more pliable when subjected to abnormal heat.

It is a further object of this invention to prevent contact of the chrome sole with the hot surface of the floor, it being readily apparent that in any type of shoe having the chrome sole as the contact surface the workman would have an insecure footing because the sole when subjected to the heat becomes greasy and causes him to slip. The surface on which the workman is compelled to stand often becomes very smooth due to the dragging of the metal over the same.

Another object is to provide a shoe having a heel of laminated construction, having the same characteristics of durability and replacement as the sole thereof.

Further objects and advantages will be more fully set forth in a description of the accompanying drawings, in which:

Figure 1 is a perspective view illustrating the improved shoe of the present invention, a portion of the toe guard being cut away and lapped back to more fully illustrate the same.

Figure 2 is a sectional view taken on line 2—2, Figure 1.

Generally described, the sole construction of the present invention comprises a base sole of chrome leather and a plurality of layers of corded fabric stitched to the base sole and forming a laminated exterior or contact sole. This sole is secured to the upper by any conventional means, preferably stitching. A secondary layer of leather is provided enclosing the toe portion of the shoe and stitched along with the toe portion of the upper to the base sole, this providing a toe covering having the characteristics of toughness and durability hereinafter set forth.

Referring specifically to the drawing, the shoe upper is generally indicated at 5 and is of common construction. As illustrated in the sectional view, the sole of the present invention is attached by means of welt strips 6, it being understood that this is arbitrary and merely selected for the sake of illustration.

The sole comprises a chrome leather layer 7 suitably skived along its upper marginal edges for joinder with the welt strips, and a plurality of layers 8 of corded fabric adhesively joined together and to the chrome leather layer. The corded fabric does not fray or ravel and when bound together by glue forms a laminated outer sole which is extremely tough, and which can be made any thickness desired by varying the number of plies. The sole thus formed is stitched to the

welt strips by means of a continuous line of stitching 9.

In this formation of the upper, a secondary layer of leather 10 is provided and formed about the toe portion of the upper and is suitably stitched to the upper along with the welt strips by a line of stitching 11. This secondary layer is a protective covering for the toe and is studded with metal clips 12 to prevent cutting of the leather by sharp edges, contact with which occurs frequently during the rough usage of the shoe.

The covering as designed, resists cuts and protects the toes from the heat. It has been constructed pliable and flexible in order that it cannot be bent or deformed to impinge the foot of the wearer, it being believed that it is impossible to protect the toes from heavy objects and more good is done by providing a flexible form of guard which cannot be permanently deformed upon the foot of the wearer. The guard, therefore, functions purely as a protector against cuts and heat.

The heel 13 of the shoe has the laminated contact portion formed in the same manner as the sole. When the fabric sole becomes worn or deteriorated, it is readily replaced by removing the same from the chrome leather base sole and applying new laminations.

The fabric laminations being in direct contact with the heated surface, become extremely hot and this heat is conducted into the chrome leather. The tendency of the fabric to burn or dry out is lowered by virtue of the proximity of the chrome leather sole which under heat becomes very pliable and greasy and moistens the fabric layers. Pliability in the base sole is always retained due to the softening thereof, and this action has a beneficial effect in that the fabric layers are secured on a soft flexible foundation and consequently there is no splitting of the sole and exposure of the worker's foot.

When dry heat is applied to chrome leather the effect is to cause what might be termed "sweating of the leather" during which action a certain percentage of the chrome solution which is unabsorbed by the leather, moves from the chrome leather into the fabric laminations. This action tends to prevent burning or breaking down of the fabric under heat. Because of the quality of chrome leather, being impervious to moisture, it does not become pulpy and lose its shape under the influence of perspiration coming from the worker's feet. The chrome leather is not ordinarily deemed suitable as a leather for foot wear because it does not permit breathing of the foot through the same, but in this instance it is more to the advantage of the worker to keep the heat out, even though in doing so he is caused some discomfort due to the insulation afforded by this type of leather. However, the slight discomfort caused to the steel mill worker by the wearing of a chrome sole is so insignificant compared to that which would be caused by the high heat passed through the ordinary vegetable tanned sole that it need not be considered. The fabric laminations and the base sole of chrome leather, therefore cooperate, the fabric laminations protecting the chrome sole from the wear caused by friction and sharp edges, and the chrome sole acting to protect the laminations from the damaging effect of the high heat by the loosening of the portion of the solution into the laminations.

Having described my invention, I claim:

1. In a safety shoe; a laminated sole, comprising, a base layer of chrome leather, and a plurality of fabric sheets attached to the under side of said base layer, the sweating of the chrome leather, induced by a heated environment, causing the chrome solution to saturate the plurality of fabric sheets for dampening and softening the same.

2. In a safety shoe, an upper, a laminated sole for said upper, comprising, a layer of chrome leather attached to the upper, and a laminated sole portion composed of corded fabric laminations bound together, said laminated portion attached to the layer of chrome leather, whereby sweating of the chrome solution from the chrome leather, induced by a heated environment, transfers the chrome solution to the laminated fabric layer for cooling and softening the same.

In witness whereof, I hereunto subscribe my name.

CHRISTIAN G. TURNER.