March 5, 1935. T. WERKMAN 1,993,425

SHOE HEEL CONSTRUCTION

Filed April 2, 1934

Fig. 1

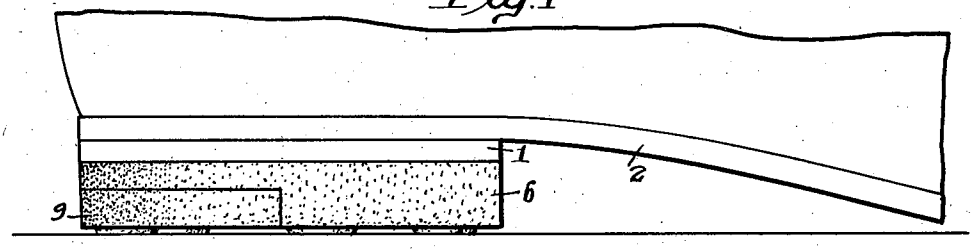


Fig. 2

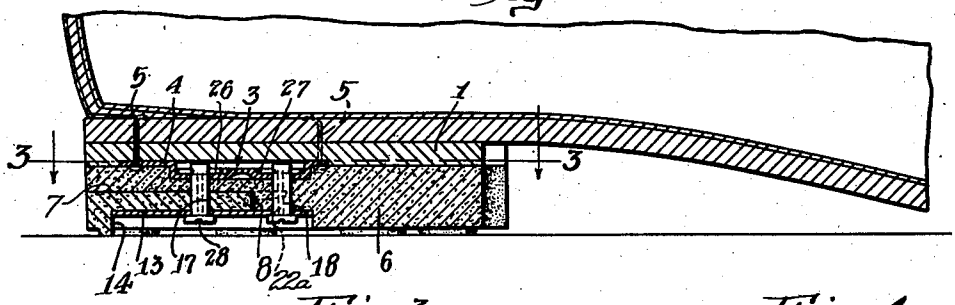


Fig. 3

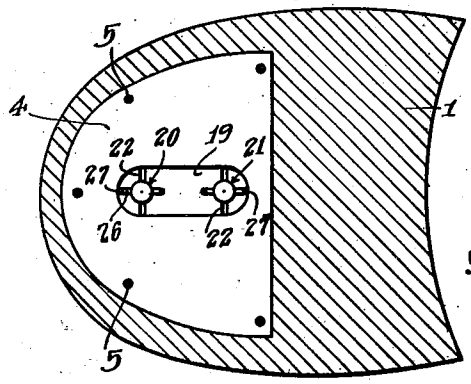


Fig. 4

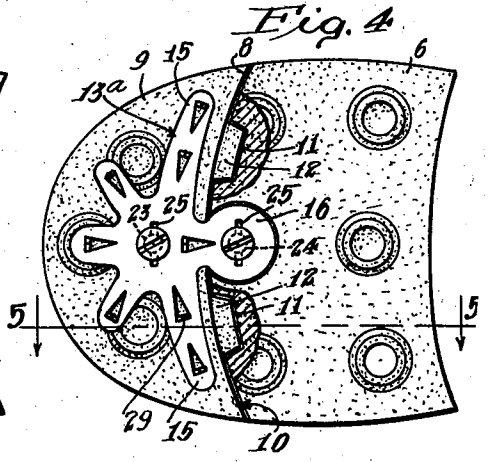


Fig. 5

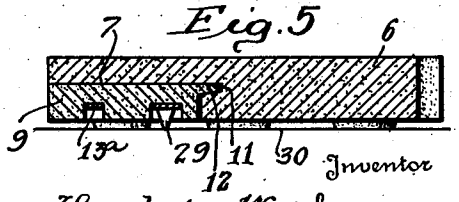
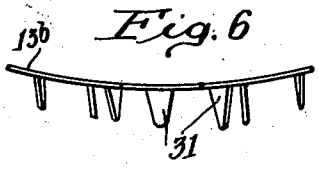


Fig. 6



Inventor

Theodore Werkman

By Lyon & Lyon

Attorneys

Patented Mar. 5, 1935 1,993,425

UNITED STATES PATENT OFFICE

1,993,425

SHOE HEEL CONSTRUCTION

Theodore Werkman, Los Angeles, Calif.

Application April 2, 1934, Serial No. 718,645

6 Claims. (Cl. 36—36)

This invention relates to a construction of shoe heels, and the invention is particularly adaptable when applied to rubber heels. Ordinary rubber heels usually become worn at the rear edge, and generally slightly to one side of the longitudinal axis of the heel, and soon have to be replaced with an entire new rubber heel. This occasions a considerable loss of good rubber in the forward part of the heel.

One of the objects of this invention is to provide a heel with a quick detachable rear section, which, when worn, can readily be removed and replaced with a new unworn section. One of the objects is to provide a construction for securing the detachable section in such a way that it can be readily removed, and replaced without the necessity of employing a shoe-maker.

A further object of the invention is to provide simple means for securing the detachable section to the body of the heel, in such a way that the removable sections are symmetrical with respect to the longitudinal axis of the heel, so as to enable these sections to be interchangeable, that is to say, a removable section may be attached either to the heel of a right shoe, or a left shoe. One of the advantages of this, is that in case the wear on the rear of the heel section occurs toward one side, such a heel section can be removed and placed on the other shoe, thereby equalizing the wear upon it, and virtually doubling the period of usefulness of the heel.

A further object of the invention is to provide a construction, which will hold the removable section very securely on the heel body, and to provide simple means for preventing the lateral shifting of the removable heel section on the heel body.

A further object of the invention is to provide a clamping plate, which is employed in securing the detachable heel section to the heel body, and to give the clamping plate a construction, which enables it to be provided with spurs which can adapt the plate to perform the functions of an ice creeper, to prevent a rubber heel from slipping on ice. This overcomes one of the objections to rubber heels, that do not give a secure footing on ice, particularly when it is wet. It is also an object of the invention to construct this clamping plate so that it is interchangeable with other plates having sharp spurs to transform the heel into an ice creeper, and also to provide interchangeable clamping plates provided with spurs, which enable the heel to be transformed into a spiked heel for the use of golfers.

Further objects of the invention will appear hereinafter.

The invention consists in the novel parts and combination of parts to be described hereinafter, all of which contribute to produce an efficient shoe heel construction.

A preferred embodiment of the invention is described in the following specification, while the broad scope of the invention is pointed out in the appended claims.

In the drawing:

Figure 1 is a side elevation of a rear portion of a shoe broken away, and illustrating the heel embodying my invention.

Fig. 2 is a vertical section taken through the heel, and rear portion of the shoe broken away in a front and rear direction.

Fig. 3 is a horizontal section taken through the heel on the line 3—3 of Fig. 2.

Fig. 4 is a bottom plan of the heel, with certain parts broken away and shown in section, and illustrating the heel with a clamping plate having short sharp spurs adapting the heel to perform the functions of an ice creeper or "hold-fast."

Fig. 5 is a cross section taken on the line 5—5 of Fig. 4, and further illustrating means for preventing lateral movement of the detachable heel section on the heel body.

Fig. 6 is a side elevation of one of the interchangeable clamping plates, and illustrates such a plate formed with relatively long spikes, adapting the heel for transformation into a spiked heel for golfers.

Referring more particularly to the parts, 1 indicates a lift, which is usually formed of leather, and which is attached to the sole 2 of the shoe immediately under its heel. In applying my invention, I prefer to form a shallow recess 3 on the under side of the lift, in which recess I secure an anchor plate 4. This anchor plate preferably consists of a piece of sheet metal conforming substantially to the shape of the heel, and secured in the recess by any suitable means, such as nails 5 driven through the plate from the under side, and clinched over the upper face of the sole. Below the anchor plate I attach a heel body 6, and the rear and under portion of this body is formed with a deep recess, bounded above by a horizontal face 7, and on the forward side by a substantially vertical face or shoulder 8. This shoulder 8 extends transversely to the longitudinal axis of the heel, and preferably in such a way that this line is symmetrical with respect to the longitudinal axis of the heel. I prefer to have this shoulder 8 in the form of a curved line on a

large radius, extending across the heel as indicated in Fig. 4. Fitting into this recess, I provide a detachable heel section 9, which fits to the contour of the heel, and which is provided with a curved forward face 10 fitting against the shoulder 8.

The body 6 of the heel may be secured to the under side of the lift 1, by any suitable means. This means is not illustrated, but if desired, may include cement placed between the abutting faces of the heel body and the lift 1. The shoulder 8 and the curved forward face 10 of the removable section 9, are provided with interlocking means to prevent lateral movement of the detachable heel section 9. Any suitable means may be employed for this purpose, but I prefer to provide the shoulder with two sockets 11 located equidistant from the longitudinal axis of the heel, and I provide the forward face 10 with two corresponding projections or lugs 12, that are received in these sockets 11.

On the under side of the heel, I provide a clamping plate 13, which is received in a recess 14 which is formed in the under side of the heel. This recess is formed partially in the detachable section 9, and partially in the body 6 beyond and forward of the shoulder 8, (see Fig. 2). The clamping plate 13 is preferably formed with a plurality of outwardly projecting tongues 15, which extend in a general radial direction from the center of the plate, and the recess 14 has a contour to fit the outline of this plate. This increases the secureness of the plate when fastened in position. The body portion of the plate 13 is received in the recess 14 to the rear of the shoulder 8, but the clamping plate has a tongue 16 that extends forwardly, being received in the forward portion of the recess 14.

The clamping plate is preferably made out of a resilient metal plate, which tends by its own resiliency, to assume a concavo-convex form, (see Fig. 6). The plate is attached with its concave side uppermost.

I provide simple detachable means for securing the clamping plate to the anchor plate 4, and I prefer to accomplish this by means of two clamping bolts 17 and 18, which are applied as indicated in Fig. 2. In order to accomplish this, I prefer to provide the anchor plate with a downwardly offset area forming a shallow pocket 19, and this offset area is countersunk down into the upper side of the heel body. Small openings 20 and 21 are punched in the anchor plate at the pocket 19, and at these openings, at diametrically opposite points, radial slots 22 are formed. These slots are in alignment with slots 22*a* cut in the wall of the holes for the bolts 17 and 18 where they pass through the heel body 6 and the detachable section 9. Openings 23 and 24 are formed in the clamping plate in alignment with the openings 20 and 21 of the anchor plate, to receive the bolts 17 and 18. The openings 24 and 23 are provided with radial slots 25 similar to the slots 22. The bolts 17 and 18 are provided with cross pins 26. The slots in the plates permit these clamping bolts 17 and 18 to be inserted when the pins are in alignment with the slots. After being inserted, the inner ends of the bolts will be received in the pocket 19, and by rotating the bolts thereafter, the locking pins 26 can be brought out of line with the slots 22, so as to secure the bolts in position.

In order to insure that the bolts cannot rotate back to their releasing position, I prefer to provide the metal of the anchor plate at the bottom of the pocket 19, with short radial grooves 27, which are preferably disposed at about 90° from the radial position of the slots 22. The bolts are provided with screwdriver slots 28, which enable them to be rotated into their locking position after their inner ends have been passed through the anchor plate.

With this construction, it will be evident that when the detachable heel section 9 has become worn, the bolts 17 and 18 can be very readily rotated through 90° to their releasing position, in which the cross pins 26 will come in line with the slots 22, 22*a*. The bolts can then be removed and a new heel section 9 substituted.

For ordinary use the plate 13 will be of plain form, that is to say, it will be devoid of spurs or spikes, but I prefer to provide interchangeable plates such as the plate 13*a* indicated in Fig. 4. provided with integral downwardly projecting spurs 29. When desired to give the heel the effect of an ice creeper, one of these plates 13*a* will be substituted. The tips of the spurs 29 are preferably sharp as shown in Fig. 5, and should lie substantially in line with the bottom face 30 of the heel. (See Fig. 5). If desired, they can project slightly below this face.

In order to enable the heel to carry spikes when desired, I provide an interchangeable clamping plate 13*b*, constructed as illustrated in Fig. 6. This plate is substantially the same as the plate 13*a*, except that instead of forming short sharp spurs, I provide relatively long downwardly projecting spikes 31, which preferably have blunt tips, such as indicated. These spikes will project down a considerable distance below the bottom face 30 of the heel, and will give the heel a good grip on the ground, to prevent the heel from slipping in playing golf.

It is understood that the embodiment of the invention described herein, is only one of the many embodiments this invention may take, and I do not wish to be limited in the practice of the invention, nor in the claims, to the particular embodiment set forth.

What I claim is:

1. In a shoe heel construction, a heel body having a transverse recess formed in its lower face at the rear portion thereof, said recess having a curved shoulder extending transversely on the heel body, a heel section fitting substantially to the contour of the heel body and having a curved forward face fitting against said curved shoulder, said shoulder and said curved forward face having interlocking means for preventing lateral movement of the heel section on the heel body, a clamping plate lying under the said heel section and having a forwardly extending tongue located substantially on the central axis of the heel body, quick detachable means passing through the body of the clamping plate and the said heel section for securing the same to the heel body, and quick detachable means passing through said tongue for securing the same to the heel body.

2. In a shoe heel construction, a heel body having a transverse recess formed in its lower face at the rear portion thereof, said recess having a curved shoulder extending transversely on the heel body, and disposed symmetrically with respect to the longitudinal central axis of the heel, a heel section fitting substantially to the contour of the heel body and having a curved forward face fitting against said curved shoulder, said shoulder and said curved forward face having interlocking means for preventing lateral movement of the heel section on the heel body, a clamp-

ing plate lying under the said heel section and having a forwardly extending tongue located substantially on the central axis of the heel body, quick detachable means passing through the body of the clamping plate and the said heel section for securing the same to the heel body, and quick detachable means passing through said tongue for securing the same to the heel body.

3. In a shoe heel construction, a heel-lift, an anchor plate secured to the under face thereof, a heel-body of elastic material attached to the under side of the heel-lift, having a transverse recess formed in its lower face at the rear portion thereof, said recess having a shoulder extending transversely on the heel body, a heel section of elastic material fitting into the said recess, fitting substantially to the contour of the heel body, and having a forward face fitting against said shoulder, said shoulder and said forward face having interlocking means for preventing lateral movement of the heel-section on the heel-body, a clamping plate lying under the said heel-section, said clamping plate being of resilient material and tending by its own resiliency to assume a concavo-convex form with the concave side of the plate disposed upwardly, said plate having a forwardly extending tongue projecting across the said shoulder, a locking-bolt passing through the body of said clamping plate and having means at its inner end for detachably interlocking with the anchor plate, and a locking-bolt passing through the said tongue and having means for interlocking with the forward portion of said anchor plate.

4. In a shoe heel construction, a heel-lift, an anchor plate secured to the under face thereof, a heel-body of elastic material secured to the heel-lift under the anchor plate and having a transverse recess formed in its lower face at the rear portion thereof, said recess having a shoulder extending transversely on the heel-body and located under the said anchor plate, a heel-section of elastic material fitting into the said recess and fitting substantially to the contour of the heel-body, and having a forward face fitting against said shoulder, said shoulder and said forward face having interlocking means for preventing lateral movement of the heel-section on the heel-body, a clamping plate having a body lying under the said heel-section and having a tongue extending across the said shoulder, a locking bolt passing up through the body of said clamping plate, and having means at its inner end for detachably interlocking the same with the anchor plate, and a locking bolt passing upwardly through the said tongue and having means at its upper end for interlocking with the forward portion of said anchor plate.

5. In a shoe heel construction, a heel-lift, an anchor plate secured to the under face thereof, a heel-body of elastic material secured to the heel-lift under the anchor plate and having a transverse recess formed in its lower face at the rear portion thereof, said recess having a shoulder extending transversely on the heel-body and located under the said anchor plate, a heel-section of elastic material fitting into the said recess and fitting substantially to the contour of the heel-body, and having a forward face fitting against said shoulder, said shoulder and said forward face having interlocking means for preventing lateral movement of the heel-section on the heel body, a clamping plate having a body lying under the said heel-section and having a tongue extending across the said shoulder, a locking bolt passing up through the body of said clamping plate, and having means at its inner end for detachably interlocking the same with the anchor plate, and a locking bolt passing upwardly through the said tongue and having means at its upper end for interlocking with the forward portion of said anchor plate, the body of said clamping plate having a plurality of spurs projecting downwardly on the under side thereof.

6. In a shoe heel construction, a heel-lift, an anchor plate secured to the under side of the heel-lift, said anchor plate having a downwardly offset area forming a shallow pocket on its upper face, a heel-body of elastic material attached to the underside of the heel-lift, said heel-body having a transverse recess formed in its lower face at the rear portion thereof, said recess having a shoulder extending transversely on the heel-body, a heel-section of elastic material fitting into the said recess, fitting substantially to the contour of the heel-body and having a forward face fitting against said shoulder, interlocking means between the shoulder and the forward face for preventing lateral movement of the heel-section on the heel-body, a clamping plate lying under the said heel-section, said clamping plate being of resilient material and tending by its own resiliency to assume a concavo-convex form with the concave side of the plate disposed upwardly, said plate having a forwardly extending tongue projecting across the said shoulder, a locking-bolt passing through the body of said clamping plate and having a transverse locking pin at its inner end, the offset portion of said anchor plate having an opening to receive the inner end of the said bolt, and enable the same to interlock by rotation of the bolt after the pin is passed into the said pocket, a locking-bolt passing upwardly through the said tongue and having a locking pin on its upper end, said anchor plate having an opening therein to receive the inner end of the last-named bolt, and cooperating with the same when the bolt is rotated, to lock the bolt to the anchor plate, the body of said clamping plate having extensions projecting toward the sides of the heel and in a general radial direction from the first-named locking-bolt and operating to exert an upward pressure against the under face of the heel-section.

THEODORE WERKMAN.