Dec. 2, 1947. T. GILMOUR 2,431,868

DETACHABLE SHOE HEEL

Filed April 17, 1946

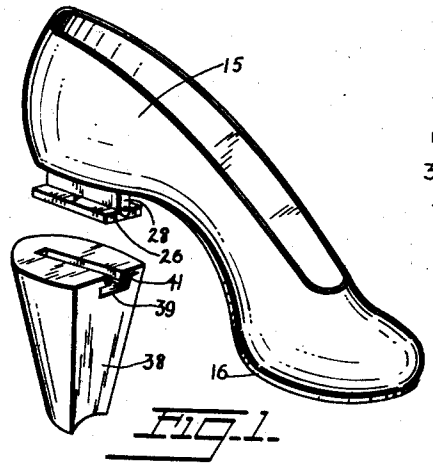

FIG. 1.

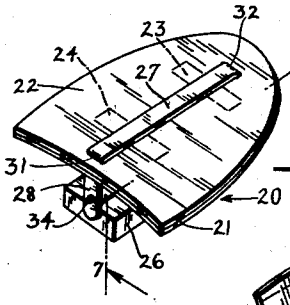

FIG. 2.

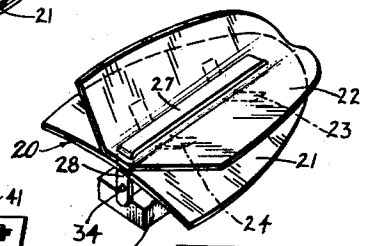

FIG. 3.

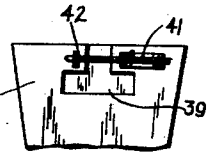

FIG. 5.

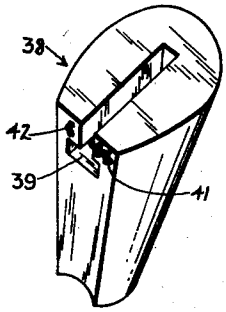

FIG. 4.

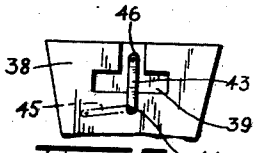

FIG. 6.

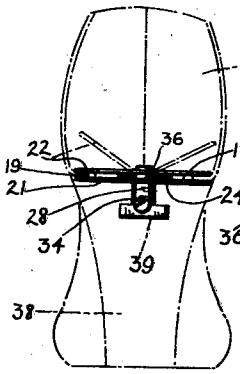

FIG. 7.

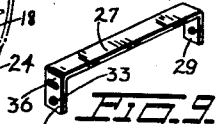

FIG. 9.

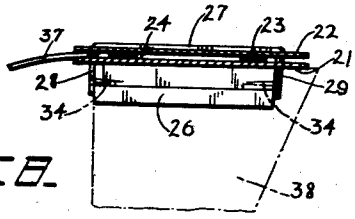

FIG. 8.

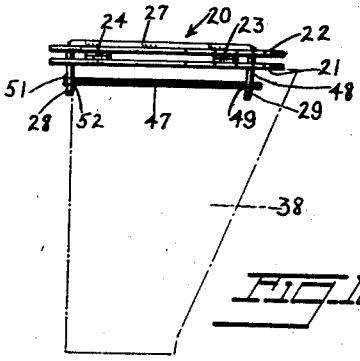

FIG. 10.

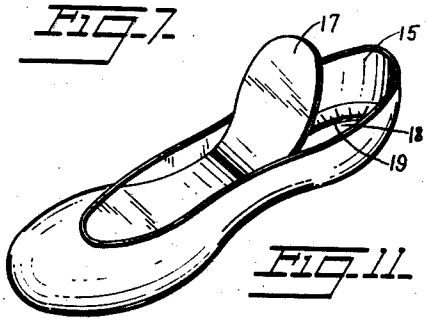

FIG. 11.

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DETACHABLE SHOE HEEL

Thomas Gilmour, Brooklyn, N. Y.

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4 Claims. (Cl. 36—42)

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This invention relates to detachable heels for shoes and more particularly to means for securing and maintaining the base member, to which the heel is detachably connected, within the shoe.

It is an object of the present invention to provide a construction for securing the heel to the shoe wherein no nails are required to effect the connection and no skilled help needed to effect the assembling operation.

It is another object of the invention to provide a heel which is locked to the shoe from the inside thereof and which can easily be disassembled from the shoe since no nails are utilized in the assembling operation.

According to the invention, a shoe is relieved of its fixed heel, if the job is to be done after the shoe has been fully constructed and not while still at the factory, and then the inner sole is raised from the heel to leave an opening within the heel through which the base member is extended and removably clamped to an inwardly extending flange, integral with the upper portion of the shoe and located at the bottom thereof. The base member has a spring-biased top plate hingeable at the middle and such that the side edges can be pulled up and pressed toward one another to permit the entry of that plate through the opening in the heel of the shoe. As this plate is released spring action returns its outer edges toward a rigid under plate so that these edges are forced against the top face of the radially inward extending flange thereby to retain the base member rigidly at the rear end of the shoe. This is done without the use of nails. Depending from the base member is a T-formation on which any style heel having a cooperating T-slot can be slid into place. The heel is slid from the rear of the shoe toward the front thereof. A lock bar on the forward face of the heel can be slid into place across the slot to restrain the heel from being again pulled rearwardly on the T-formation of the base member.

In a modified form of the invention the T-formation may be dispensed with and a screw inserted horizontally through the heel and into downward extensions of a U-shaped member. The U-shaped member extends throughout the middle of the base member and is bent downwardly at opposite ends thereof. With such an arrangement, the screw locks itself while with the slot arrangement an additional lock must be provided in addition to the downwardly extending T-formation.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

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In the accompanying drawing forming a material part of this disclosure:

Fig. 1 is a collective perspective view of a shoe equipped with the present base member and of a heel vertically aligned but not in place on the base member.

Fig. 2 is a perspective view of the base member removed from the shoe with its top plate sprung down.

Fig. 3 is a similar perspective view of the base member with the spring plate edges lifted and pressed toward one another so as to permit the base member to be extended through an opening provided in the bottom of the shoe after which it is released to automatically clamp the base member to the shoe.

Fig. 4 is a perspective view of a heel member with its latch drawn from its position across the slot so as to ready the heel for attachment to the base member.

Fig. 5 is a fragmentary view of the front of the heel looking into the slot with the bolts shown in Fig. 4 drawn across the slot.

Fig. 6 is a fragmentary view similar to Fig. 5 but showing a modified form of locking means.

Fig. 7 is a front view of the base member illustrating the same attached to the radially inward extending flanges of the shoe upper with the heel attached thereto, the folding upper plate being illustrated raised to show how it is positioned when inserted into the shoe.

Fig. 8 is a sectional view showing the base member taken along line 7—7 of frame 2 with the heel in phantom attachment thereof.

Fig. 9 is a detail perspective view of the U-shaped member used for securing the T-formation to the plates of the base member.

Fig. 10 is a side view of a base member in which a horizontally extending screw is used instead of a T-formation and a cooperating T-slot of the heel.

Fig. 11 is a perspective view of the shoe with the inner sole raised to provide an opening in the rear of the shoe through which the base member is inserted for connection with an inwardly extending flange integral with the bottom of the shoe upper.

Referring now to the figures, 15 represents a shoe upper having a sole 16 and an inner sole 17

(Fig. 11). The shoe before it is to be adapted for use with detachable heels may or may not have had the fixed heel attached to it. If the shoe is made in the factory to provide for detachable heels, the fixed heel need not be removed in order to adapt shoes for detachable heels. An opening 18 is provided in the heel as the inner sole 17 is lifted from and out of the upper 15. On the bottom of the upper 15, is a radially inward extending flange 19 integral therewith. It is to this flange that a base member 20 is detachably fixed.

This base member 20 comprises a bottom plate 21 of heel shape and a complementary or cooperating resilient top plate 22 adapted to be folded along its middle as shown in Fig. 3 in order to permit the entry of the base plate through the opening 18 provided in the rear end of the shoe. With it so folded the base plate is brought upwardly through the opening so that the top face of the rigid bottom plate will abut the bottom face of the inwardly extending flange 19. Upon releasing the flexible top plate 22 it is returned by flat springs 23 and 24 carried on the flexible plate 22 for engagement with the top face of the inwardly extending portion 19 thereby to provide a clamping action thereupon and secure the base unit to the shoe upper 15 within the opening 18.

Beneath the rigid plate 21 there is connected a T-formation or T-member 26. This connection is effected by means of a longitudinally extending strip or member 27 (Fig. 9), having downwardly bent ends 28 and 29. These ends extend downwardly through slots 31 and 32 in the center of the base member in order to connect with the T-member. In each of the ends is a hole 33 through which a screw 34 fastens the end to the end face of the T-member 26.

In the end 28 there is a slot 36 near its bend through which a metal reinforcing strip 37 which extends through the shank of the shoe may be inserted thereby to stay the reinforcing strip 37 against transverse displacement.

A heel 38 is adapted to be detachably connected to the base member 20. To effect this connection there is provided in the top end of the heel thereof a T-slot 39, open at the front end of the heel and closed at the rear. To effect the connection, the heel is slid from a point rearwardly of the shoe over the T-member 26.

When in place a latch 41 (Figs. 4 and 5), may be slid across the open end of the slot and connected with a latch plate 42 at the opposite side of the slot. This latch device is constructed in miniature but is much like an ordinary door bolt as used in the household. When it is desired to remove the heel 38 and replace it with another heel of perhaps a different style, the latch bolt is withdrawn from across the slot and the old heel slid rearwardly from the shoe.

As an alternative locking means, a lock spring 43 (Fig. 6) is pivoted on the front face of the heel as indicated at 44 and may be swung from a dotted line position 45 to an upright position 46 into engagement with the T-member on the base. The connection 44 is such as to urge the lock spring 43 into tight engagement with the T-member 26.

It should now be apparent that both in the connection of the base member with the shoe and the connection of the heel with the base member, that no permanent nails or fastening devices are used. By simple operations the heel can be removed from the base member and in turn the base member can be removed from the shoe. If it is desired to have a permanent heel on the base member, screws or other means less easily connected than the locking devices just described may be used.

Referring now to Fig. 10, there is shown the form of the invention in which the T-member is not used, the base member 20 is otherwise of the same construction including the member 27 having the downwardly bent ends 28 and 29. In lieu of the T-member 26 there is utilized a long screw 47 adapted to be threaded through a hole in the heel after the heel has been put in place so that the downwardly bent end 29 enters a slot 48 in the top of the heel and the screw 47 enters a small hole 49 in the end 29.

The screw 47 has a head 51 to which an ordinary screw driver can be applied for making the connection with the screw and the feeding of the same into the heel. A hole 52 is provided in the downwardly bent end 28 for receiving the screw 47. It will be noted that the end 28 will lie flush on the forward face of the heel.

It should now be apparent that there has been provided a construction for securing a heel to a shoe wherein neither skilled help nor nails are required for effecting the assembling operation.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new and desire to secure by United States Letters Patent is:

1. In combination, a shoe upper having an inwardly turned flange in the bottom thereof, an inner sole adapted to be removed to provide an opening through the rear of the shoe, a base member adapted to be extended into the bottom of the opening and detachably connected with the inwardly extending flange of the shoe upper, a heel carried on the base member, said base member including two plates, one of which is adapted to be flexed to permit the insertion of the base member into clamping engagement with the inwardly extending portion of the shoe upper and so that the latter is disposed between the plates, a longitudinally extending member extending throughout the middle of the plates and at the top thereof and having downwardly bent ends adapted to extend through slots in the plate to a point projected from the bottom face of the bottom plate, said member throughout its longitudinal portion retaining the flexible top plate along its middle while its side portions are flexed to permit their entry through the opening in the shoe upper, said top plate including spring means for returning its sides into clamping engagement with the top face of the inwardly extending flange, and means extending between the downwardly bent ends of said member for detachably retaining the heel upon said base member.

2. In combination, a shoe upper having an inwardly turned flange in the bottom thereof, an inner sole adapted to be removed to provide an opening through the rear of the shoe, a base member adapted to be extended into the bottom of the opening and detachably connected with the inwardly extending flange of the shoe upper, a heel carried on the base member, said base member including two plates, one of which is adapted to be flexed to permit the insertion of the

base member into clamping engagement with the inwardly extending portion of the shoe upper and so that the latter is disposed between the plates, a longitudinally extending member extending throughout the middle of the plates and at the top thereof and having downwardly bent ends adapted to extend through slots in the plate to a point projected from the bottom face of the bottom plate, said member throughout its longitudinal portion retaining the flexible top plate along its middle while its side portions are flexed to permit their entry through the opening in the shoe upper, said top plate including spring means for returning its sides into clamping engagement with the top face of the inwardly extending flange, a member of T cross section connected by the downwardly bent ends to the bottom rigid plate of the base, said heel having a cooperating T-slot open at the front face of the heel and adapted to slide from a point rearwardly of the shoe forwardly and into engagement with the base member, and locking means on the heel for securing the same against axial displacement relative to the base member.

3. In combination, a shoe upper having an inwardly turned flange in the bottom thereof, an inner sole adapted to be removed to provide an opening through the rear of the shoe, a base member adapted to be extended into the bottom of the opening and detachably connected with the inwardly extending flange of the shoe upper, a heel carried on the base member, said base member comprising top and bottom plates having aligned slots at opposite ends thereof, a member extending longitudinally over the top plate and having downwardly bent ends projecting downwardly through the registered slots at the opposite ends of the top and bottom plates, and means extending between the downwardly bent ends of the member serving to effect the attachment of the heel to the base member and the bent end of said member at the

end adjacent the forward part of the heel having a slot therein adapted to receive a metal reinforcing strip which may extend through the shank of the shoe whereby to retain said reinforcing strip against transverse displacement within the shoe.

4. In combination, a shoe upper having an inwardly turned flange in the bottom thereof, an inner sole adapted to be removed to provide an opening through the rear of the shoe, a base member adapted to be extended into the bottom of the opening and detachably connected with the inwardly extending flange of the shoe upper, a heel carried on the base member, said base member comprising top and bottom plates having aligned slots at opposite ends thereof, a member extending longitudinally over the top plate and having downwardly bent ends projecting downwardly through the registered slots at the opposite ends of the top and bottom plates, said downwardly bent ends of said members having holes therethrough in axial alignment with one another, said heel having a vertically extending slot for receiving the downwardly bent end at the rear of the base member and a hole therethrough extending longitudinally throughout substantially the entire length of the heel and adapted to receive a screw, and a long screw extending through the downwardly bent ends and the hole in the heel member for detachably fixing the heel to the base member.

THOMAS GILMOUR.

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The following references are of record in the file of this patent:

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