Feb. 19, 1963 T. MOUSTAKIDIS ETAL 3,077,680

REMOVABLE SHOE HEEL

Filed Aug. 10, 1961

Fig. 1

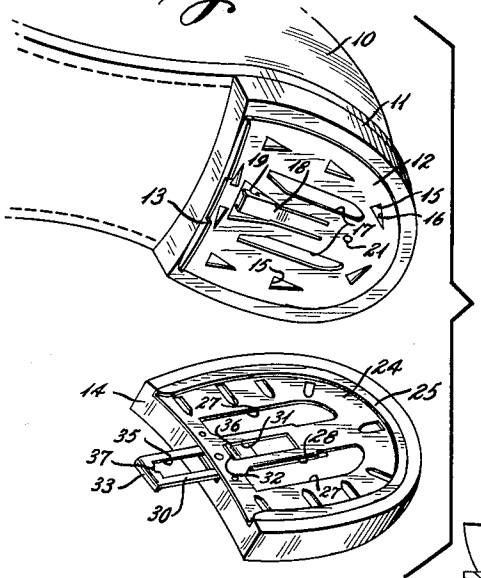


Fig. 2

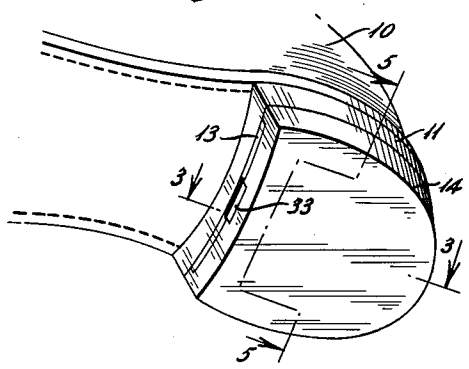


Fig. 5

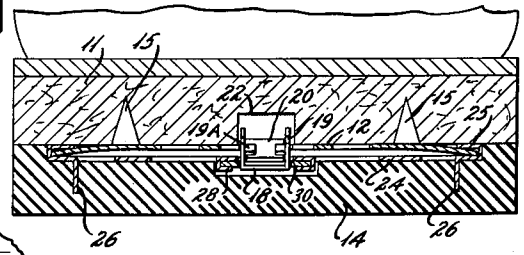


Fig. 3

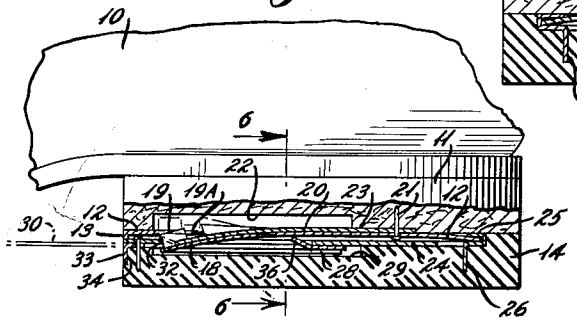


Fig. 6

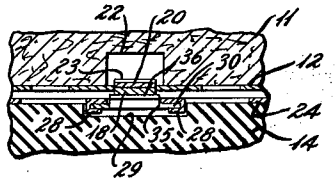
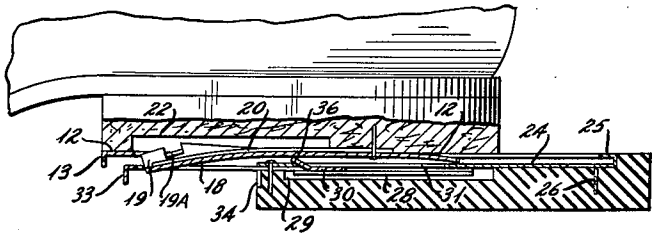


Fig. 4



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REMOVABLE SHOE HEEL

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The present invention relates to a readily replaceable heel for shoes and more particularly to a mechanical connection between the portion of the heel which engages the ground and the base of the heel so that when the heel tap becomes worn it can be readily replaced without requiring the services of a professional.

Heretofore, various means have been provided to secure a heel to a shoe and some have included mechanical connections by which the wearer of the shoe may replace the heel tap without the services of a professional, but the structures heretofore used have been inefficient for the purpose of ease of replacement.

It is an object of the present invention to provide a releasable connection between the heel tap and the base of the heel which can be readily operated by the wearer of the shoe without the necessity of loss of time and the expense of having professional services.

Another object is to provide a releasable connection for attaching two elements which securely retain the two elements in connected relation and also provides for selective separation when desired.

Other and further objects will be apparent as the description proceeds and upon reference to the accompanying drawing wherein:

FIG. 1 is a perspective of a portion of the shoe with the present invention applied to the base of the heel and to the heel tap, showing the parts in separated position with the detent operating slide in position to release the detent;

FIG. 2 is a perspective of a fragment of a shoe, showing the heel secured to the shoe in its operative relation;

FIG. 3 is a longitudinal section taken substantially on line 3—3 of FIG. 2, showing the detent in its operative position and the detent release in its operative position and illustrating one of the struck out portions connecting the attachment plate to the heel tap;

FIG. 4 is a section similar to FIG. 3, showing the detent release in its detent releasing position and showing the heel in its semiattached condition, illustrating the stop action of the detent on the detent operating slide which prevents unintentional complete removal of the heel tap;

FIG. 5 is a section taken substantially on line 5—5 of FIG. 2, showing the channel connection of the attaching plate to the base plate and showing the detent in the channel and in the slot in the detent operating slide; and

FIG. 6 is a section taken substantially on line 6—6 of FIG. 3, showing the channel which maintains the slide in its proper operating position with the slide in its inoperative position and the detent in its operative position.

Briefly stated, the present invention in a detachable heel structure for a shoe includes a base plate mounted on the base of a heel by means of struck out portions with such plate having its back and side margins spaced from the corresponding margins of the base of the heel and being spaced from the base of the heel at least the thickness of the base plate. Cooperating with the base plate is an attaching plate secured to the heel tap within a recess in the heel tap by means of struck out portions of the attaching plate and such attaching plate carries a detent releasing slide which cooperates with a detent on the base plate for releasing the detent on the base plate to permit removal of the heel tap, the heel tap attaching plate having a channel-shaped margin which slideably engages the sides and back of the base plate, thereby providing for ease of attachment and detachment of a heel plate and permitting easy replacement without professional assistance.

More specifically, on a shoe 10 the usual heel base 11 is secured in the usual manner by nails or the like and mounted on the outer surface of such base 11 is a base plate 12 of a shape generally corresponding to the shape of the base of the heel with the front margin thereof substantially flush with the front of the heel and having a downwardly extending flange 13 for engagement with the front edge of a heel tap 14. The base plate 12 has its margins along the sides and back spaced from the heel base 11 by an amount substantially the thickness of the base plate 12 for receiving the inwardly turned channel of an attaching plate hereinafter described.

The base plate 12 is provided with struck out fingers 15 formed from the material struck out which leaves openings 16 with such fingers forced into the heel base 11 securing the base plate 12 to the heel base. It will be apparent that nails can be used in place of the struck out elements 15. Cut-outs 17 are provided to reduce weight and a detent 18 is formed by slitting the base plate along longitudinal lines which diverge toward the front edge and such detent is substantially rectangular and provided with flanges 19 adjacent the front end thereof. To increase the resiliency of the detent 18 a leaf spring 20 is mounted in contact with the detent 18 and held in position by a nail 21 passing through the base plate and the spring 20, the spring 20 being held in position to provide the desired resiliency in the detent, it being apparent that a recess 22 is provided in the heel base to permit retraction of the detent and a leaf spring seat recess 23 provides for the proper reception of the leaf spring 20 so that the desired resiliency is maintained. The front end of the spring 20 is held by tabs 19A struck out of the flanges 19.

The heel tap 14 is provided with a recess for receiving the tap attaching plate 24, which plate is generally the shape of the heel tap with its front edge extending substantially flush with the front edge of the heel tap and its side and rear margins being of channel shape formed by a laterally extending channel including a top flange 25 around the sides and back of the attaching plate, which flange 25 is received between the heel base 11 and the corresponding side and back of the base plate 12 as clearly shown in FIGS. 3 and 5, whereby the attaching plate 24 can be slid onto the base plate 12 by a sliding movement of the attaching plate from the rear of the shoe toward the front of the shoe.

The attaching plate 24 is received within the opening in the upper surface of the heel tap 14 as described above and is retained therein by struck-out elements 26 which curl around and clinch in the material of the heel tap 14.

Cut-outs 27 are formed in the attaching plate 24 and a portion of the material from the cut-outs forms flanges 28 which extend downwardly into a slide receiving recess 29 in the heel tap 14 and provide guiding action for a detent releasing slide 30. A longitudinally extending opening 31 extends from approximately the center of the attaching plate 24 to adjacent the front of such attaching plate terminating in a forward edge 32 providing a keeper which is adapted to be engaged by the flanges 19 of the detent 18. The slide 30 includes a downwardly extending operating flange 33 which normally is received in a recess 34 in the front of the heel providing a smooth front edge as shown in FIG. 3, but the handle 33 can be operated by the insertion of a sharp instrument or a finger nail to cause the slide 30 to move to its operative position as shown in dotted lines in FIG. 3 pushing the detent 18 to its dotted line position, permitting the heel tap 14 to be slid rearwardly to the position of FIG. 4.

The slide 30 is provided with a detent receiving opening 35 which is adapted to register with the opening 31 and

the detent releasing slide includes an upwardly extending lug **36** at its rear end which is adapted to engage the adjacent surface of the detent **18** causing the detent to move to its inoperative position shown in dotted lines in FIG. 3. It will be noted that the front end of the opening **35** of the slide **30** is provided with a notch **37** leaving end portions adjacent the notch for engagement with the detent **18** and flanges **19** as shown in FIG. 4 so that the heel tap **14** cannot be completely removed as the detent **18** abuts the front end of the opening **35** as clearly shown in FIG. 4 and to completely release the heel the detent must be pushed upwardly so that it is released from the front end of opening **35** and the heel tap can then be removed.

From the above descritpion it will be apparent that the invention is particularly efficient for ready replacement of the heel so that a person may maintain his shoes in a condition free of the "down at the heels" appearance.

It will be obvious to those skilled in the art that various changes may be made in the invention without departing from the spirit and scope thereof and therefore the invention is not limited by that which is illustrated in the drawing and described in the specification, but only as indicated in the accompanying claims.

What is claimed is:

1. A replaceable heel structure comprising a base plate for attachment to the base of a heel in permanent assembled relation, said base plate having a flange along the front of the heel extending away from the base for engagement with a heel tap, said base plate having its margins along the sides and back spaced from the base of the heel, said base being provided with a detent extending from adjacent the rear to adjacent the front flange and terminating short of the flange, spring means for urging said detent outwardly of the plane of said base plate and away from the base of the heel, a heel tap of a shape corresponding to the base of said heel and having an attachment plate recess formed therein with a margin along the sides and back of said heel for engaging the base of the heel of the shoe outwardly of the base plate, said attaching plate being provided with an inturned margin along its sides and rear for engagement with the sides and rear of said base plate in snug relation, means struck out of the attachment plate extending into the heel tap securing said attachment plate to the tap in substantially permanent relation, said attachment plate being provided with a longitudinal opening extending from the mid portion to adjacent the front margin and terminating short of the front margin, flanges formed in said attaching plate adjacent said longitudinally extending opening for guiding a detent operating slide, a detent operating slide slideably mounted in the channel formed by said flanges on said attachment plate for guiding said detent releasing slide, a lug projecting from said slide through said longitudinally extending opening for engaging the detent on said base plate, the detent on said base plate being arranged to cooperate with the front end of said longitudinally extending opening of said attachment plate, said slide being provided with a longitudinally extending slot of substantially the length of the longitudinal opening in said attachment plate, fastening means extending through said attachment plate and through the slot in said slide for engaging the ends of the slot in said slide to limit the movement thereof and maintain assembled relation therebetween, said lug on said slide being movable from

an inoperative position adjacent the center of the heel to an operative position adjacent the front of the heel for moving the detent out of operative relation with the front end of the opening in said attachment plate, the plane of operation of said slide being such that the end of the slot in said slide will engage the projecting end of said detent, preventing unintentional removal of the heel tap from the shoe even though the slide is moved to the detent releasing position.

2. Structure for detachably connecting two elements comprising a base plate for attachment to one element and an attaching plate for securement to the other element, interengaging channel means operable by movement in the plane of said plates for positively securing the plates against transverse movement to the plane of the plates, detent means on one of said plates to secure the plates against movement in the plane of the plates, keeper means on the other of said plates for cooperating with said detent means, and detent releasing means mounted on said other plate to render said detent means inoperative so that said plates may be separated by movement in the plane of said plates.

3. The invention according to claim 2 in which the keeper on the other plate is an edge portion of the plate and the detent means includes flanges for engaging said keeper edge portion.

4. Structure for mounting a heel on a shoe comprising a base plate of the general shape of a heel and provided with a flange at the front end thereof and having the margins along the sides and back spaced from the corresponding margins of the base of the heel, means to secure said base plate to an element of the heel, an attaching plate having its periphery of generally the same shape as said base plate and having a channel along the sides and back thereof for receiving the sides and back of the base plate in positive relation preventing removal in a direction transverse to the plane of said plate, means to secure said attachment plate to another element of the shoe, a detent on one of said plates for engagement with a portion of the other of said plates to maintain said plates in assembled relation, and detent operating means mounted in non-separable relation on one of said plates for causing the detent to be released to permit separation of the plates by movement of the attachment plate away from the flange of said base plate.

5. The invention according to claim 4 in which the detent is mounted on the base plate and has its operative portion adjacent the flange thereof so that the flange prevents movement in one direction while the detent prevents movement in the other direction.

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