

Jan. 12, 1960

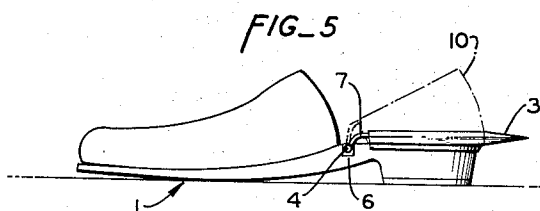
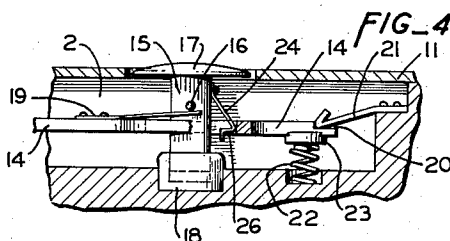
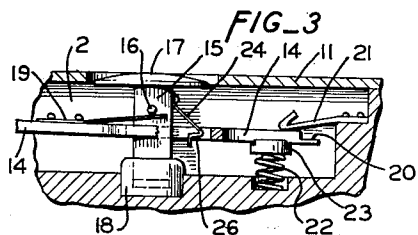
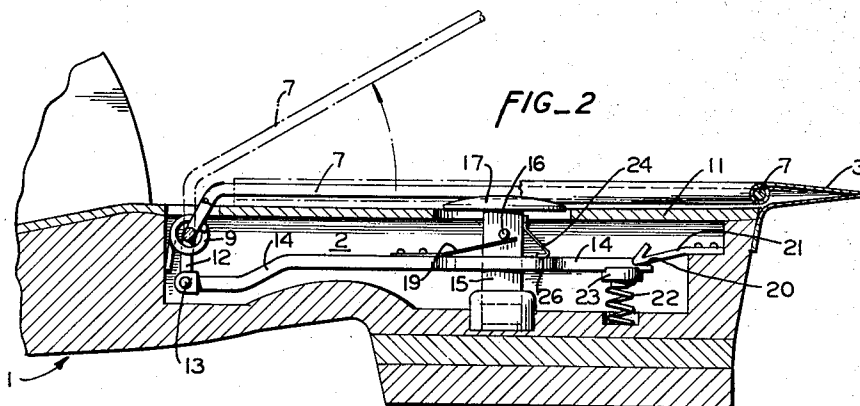
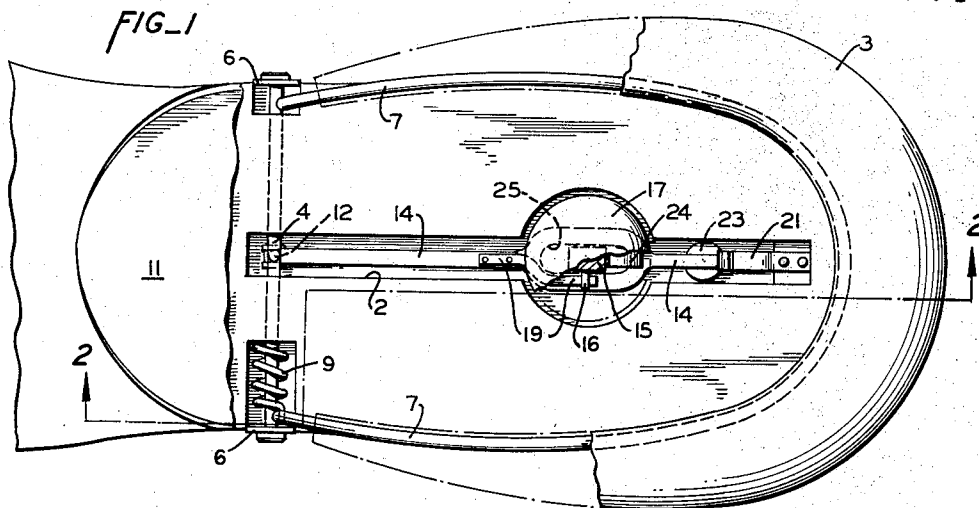
S. A. MINERA

2,920,402

SHOE WITH MOVABLE COUNTER

Filed March 18, 1957

2 Sheets-Sheet 1



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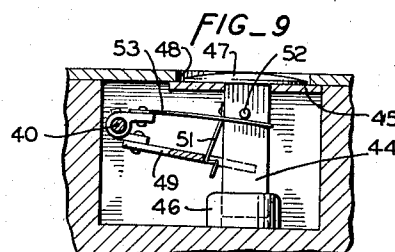
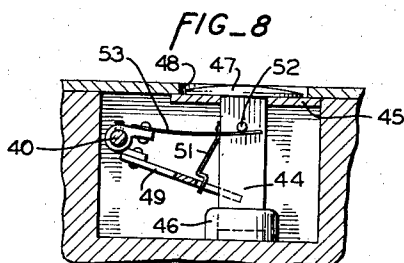
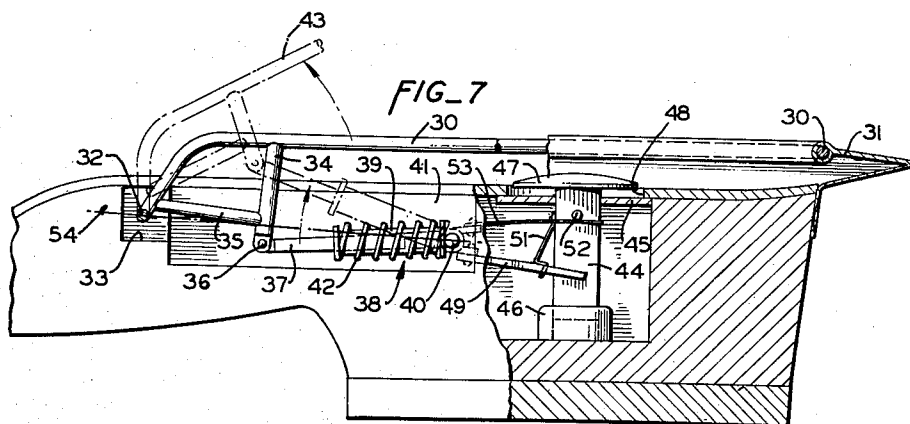
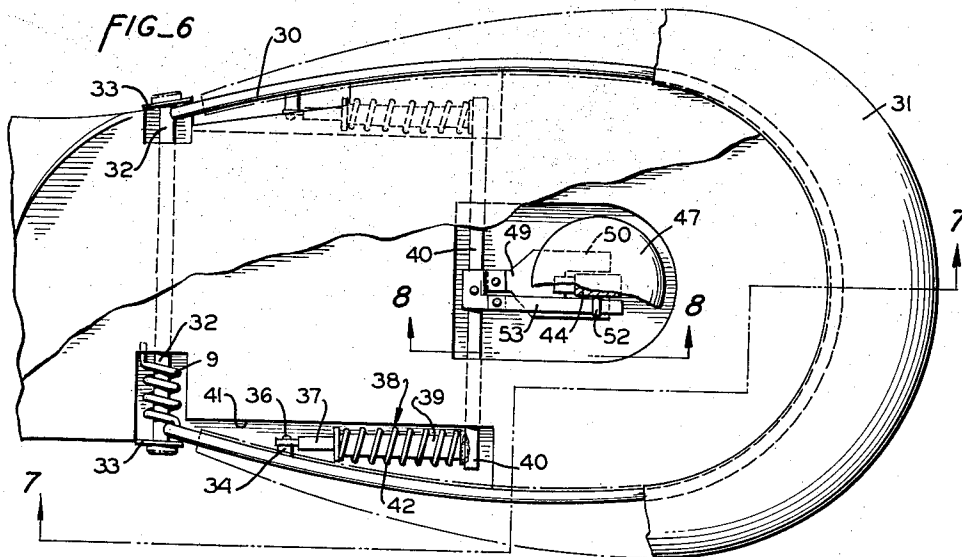
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2,920,402

SHOE WITH MOVABLE COUNTER

Filed March 18, 1957

2 Sheets-Sheet 2



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1

2,920,402

SHOE WITH MOVABLE COUNTER

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2 Claims. (Cl. 36—58.6)

This invention relates to shoe or slipper construction, and has for one of its objects the provision of a low top shoe or slipper having a flexible heel counter and means for automatically holding said counter in lowered position out of the way of a foot within the slipper so such foot can be removed from the slipper by a substantially straight rearward movement thereof relative to the slipper, and which slipper is also provided with means for automatically releasing the lowered and held counter upon the foot of the wearer being inserted into the slipper and said foot being pressed downwardly on the sole.

In explanation of the above, prior attempts to accomplish the above result of lowering the counter and locking it in lowered position have required some sort of manipulation of the foot that is within the slipper in order to permit the locking mechanism to perform its function. For example, the counter may be readily moved to lowered position by the hand or by the other foot of the wearer or by any object the wearer may wish to use, but unless the foot within the slipper is lifted, the counter will not stay down. This is usually because the foot that is within the slipper actuates the means for releasing the counter from its locked position.

With the present invention, the counter is released from its lowered position by the downward pressure of the foot against the sole after the foot is within the slipper, but upon the wearer again lowering the counter it will be locked in lowered position while the weight of the wearer is still on the sole, and upon the foot being removed from the slipper or upon the heel of the foot being lifted, the counter will be automatically re-set for its subsequent release when the foot is again against the sole or when the heel portion of the foot is lowered.

The provision of means for accomplishing the above operation is the main object of the invention, and such means eliminates the objection heretofore made with respect to slippers having collapsible heel counters. The objection has usually been made because the attempt to lift the heel of one foot while using the other foot to push the heel counter down, is somewhat awkward and may be impossible with persons who are in any way incapacitated or weak.

Other objects and advantages will appear in the description and in the drawings.

In the drawings,

Fig. 1 is a plan view of one form of the invention showing the heel portion of a shoe or slipper with the insole partly removed to show the mechanism used.

Fig. 2 is a sectional view taken generally along line 2—2 of Fig. 1 and indicating the mechanism when the slipper is not in use and when the foot is out of the slipper.

Fig. 3 is a fragmentary sectional view similar to part of Fig. 2 showing a part of the mechanism when the slipper is in use with the weight of the foot on the sole.

Fig. 4 is a view similar to that of Fig. 3 showing the mechanism when the counter is locked in down position with the weight of the foot still on the sole.

Fig. 5 is a reduced size side elevational view illustrating the slipper when the flexible heel counter is locked in

2

lowered position, and showing in dot-dash line the position of the heel counter when it is elevated.

Fig. 6 is a plan view of the heel portion of a slipper or shoe showing a different mechanism than is shown in Fig. 1.

Fig. 7 is a sectional view taken generally along line 7—7 of Fig. 6 showing the mechanism in a position with the heel counter held lowered and when the slipper is not in use and a foot is not in the latter.

Fig. 8 is a fragmentary sectional view showing a portion of the mechanism of Fig. 7 when the weight of the foot is on the sole and the heel counter is in elevated position behind the heel.

Fig. 9 is a view similar to that of Fig. 8 but showing the mechanism of Fig. 8 when the heel counter is locked in lowered position while the foot is still on the sole.

In the detailed description, the words "forward," "forwardly," "rear," "rearwardly" and words of similar connotation are intended to refer to directions relative to the toe and heel portions of a shoe or slipper. A part directed "forwardly" extends toward the toe and one that extends "rearwardly" extends toward the heel end of the slipper. The "rear" side of an element is the side that faces toward the heel, etc. Also while the word "slipper" is used, it is intended to cover any type of footwear to which the invention is applicable.

In detail, the sole of the slipper is generally designated 1, and the heel portion of the slipper, as shown in Fig. 1, is formed with a recess 2 in its upper side, within which recess is positioned the mechanism for actuating the heel counter 3 of the slipper.

Across the forward portion of the recess 2 is a shaft 4 that extends transversely across the width of the sole, which shaft is supported at its ends for rotation in bearings each of which may be in the upright leg of an angle bracket 6 having its horizontal leg secured in any suitable manner to sole 1.

A substantially U-shaped frame 7 is rigidly secured at its ends to the end portions of the shaft 4, and this frame supports the flexible heel counter 3 along the upper edge of the latter.

Shaft 4 is in a position approximately at the instep of the sole 1, and the frame 7 is adapted to extend rearwardly from the ends of shaft 4 around the heel of the foot of the wearer when such foot is in position on said sole. The counter 3 is formed to collapse or to fold outwardly as seen in the drawings when the frame 7 is substantially horizontal, but when the shaft 4 is rotated (counter clockwise in Fig. 1) to swing the closed end of the U-shaped frame upwardly, said counter will be relatively taut and will function as a stop to limit the upward movement of frame 7.

A torsion spring 9 around the shaft 4 may be secured at one end to a fixed portion of the sole 1 and may engage one of the arms of frame 7 at its other end for yieldably urging the frame 7 to its elevated position indicated at 10 in Fig. 5.

Obviously a spring corresponding to spring 9 may be adjacent to both ends of shaft 4 if desired, the said spring being shown exposed in Fig. 1 by removal of part of the insole 11 that extends over the recess 2, and which insole will hide the mechanism within said recess and will also form a support for the foot.

An arm 12 rigid with shaft 4 projects downwardly therefrom radially of its axis, and the lower end of said arm is connected by a horizontal pivot 13 with one end of a horizontally extending latch bar 14.

Said latch bar 14 extends rearwardly in the recess 2 and since the spring 9 constantly tends to rotate shaft 4 counterclockwise (as seen in Fig. 1) said spring will constantly tend to move the bar 14 rearwardly.

Intermediate the ends of the bar 14 is a vertical post

3

15, which post has a pin 16 projecting laterally from one side thereof. The upper end of said post is provided with a circular foot engaging horizontal plate 17.

Said post 15 may be supported at its lower end portion within a support 18 secured to sole 1 for vertical reciprocation in said support and may be rectangular to prevent rotation.

A leaf spring 19 is secured at one of its ends to bar 14 and is bowed upwardly from said one end to yieldably engage the underside of pin 16 thereby yieldably urging the post 15 and the plate 17 thereon to an elevated position, and when said plate is in said elevated position it is at a level above that of the upper side of the sole 1 and of the sole 11.

The upper side of the rear end of the bar 14 is cut away to form a notch 20 at said rear end.

Secured rigidly to the sole of the slipper at its rear end and at the rear end of recess 2 is a latch element 21 that projects forwardly from the rear end of recess 2 to engage in notch 20. This element is rigid.

A helical spring 22 reacts between the bottom of the recess and a slide block 23 that slidably engages the underside of the rear end of bar 14 to yieldably urge said rear end of the bar upwardly into engagement with the latch element 21.

Secured to the post 15 above the bar 14 is a leaf spring 24 that is bowed away from the post in a downward direction from its upper end, said upper end of said spring being the end that is secured to the post.

Bar 14 may be formed with an eye 25 through which the post 15 freely extends, and the lower end portion of the spring 24 extends horizontally toward post 14 as at 26 from the lower end of the outward bow thereof and said portion 26 is adapted to extend over the bar 14 at the rear end of eye 25 therein. The forward end of part 26 may extend downwardly in said eye and away from said post, as indicated in Figs. 2 to 4.

The outer sides of the eye 25 may function as guides for the bar 14 to prevent substantial lateral movement of the rear end of the bar with respect to the post, although the said bar, being connected to shaft 4 will be also held against such movement by said shaft.

The eye 25 in bar 14 being elongated longitudinally of the bar, said bar may move rearwardly were it not for the rear end being yieldably held upwardly so that the notch 20 engages the element 21.

In the position shown in Fig. 1 the slipper is ready for the foot of the wearer. The U-frame 7 is depressed and the heel counter 3 is collapsed since the latch element 21 holds bar 14 against rearward movement and as long as the bar is so held the frame 7 will be held down.

The plate 17 is elevated with the portion 26 of spring 24 over the latch bar, and spring 19 will yieldably hold said plate elevated.

Upon the foot being placed in the slipper and against the sole 1, the plate 17 will be depressed (Fig. 3) thus pushing the rear end of the latch bar downwardly and freeing it from being held by the latch element 21. This freeing of the latch bar permits its rearward movement and permits frame 7 to spring up to its elevated position under the influence of the torsion spring 9 thus elevating counter 3 to the dot-dash line position 10 of Fig. 5 and also permits spring 24 to ride off the bar 14 at the rear end of eye 25 and to enter said eye.

When the wearer wishes to remove the slipper, it is merely necessary to push the rear end of frame 7 downwardly to the position shown in Fig. 2 and when this is done the latch bar 14 will be moved forwardly so that the notch 20 will again receive the latch element 21 (Fig. 4). At the same time the spring 19 will be placed under increased tension and the lower end 26 of spring 24 will be pushed forward somewhat but will remain inside the eye 25. The frame 7 will be locked against springing

4

upwardly, and as soon as the spring 24 is released for upward movement out of eye 25 by removal of the foot from the plate 17. The post 15 will be elevated under the influence of spring 19 and again portion 26 of spring 24 will engage over the latch bar 14 at the rear end of the eye as in Fig. 2 and the cycle can be repeated.

The spring 22 is stronger than the spring 19, hence the tension of spring 19 will not prevent spring 22 from moving the rear end of bar 14 upwardly as soon as the bar is moved forwardly so that the notch 20 will receive element 21.

In the form of the invention as seen in Figs. 6 to 9, the same result is accomplished.

The U-frame and counter are substantially the same as in Figs. 1 to 5 and are designated 30 and 31, and the ends of the U-frame are rigidly secured to a horizontal shaft 32 that is rotatably supported in bearings on plates 33.

Arms 34 respectively rigid with each side of U-frame 30 project downwardly therefrom at points adjacent to the shaft 32, but spaced rearwardly from the latter. Reinforcing extension 35 may connect the lower ends of arms 34 with the ends of the frame 30 at shaft 32 if desired.

Pivotally secured to the lower ends of arms 34 by coaxial pivots 36 are the forward ends of the forward sections 37 of telescopic links generally designated 38, the rear sections being indicated at 39. The rear ends of the rear sections 39 are rigid with a horizontal shaft 40, which shaft is rotatably supported at its ends in bearings carried by plates 41, the latter being rigid with the sole.

An expansion coil spring 42 around link 38 functions to keep the section expanded or extended and since the pivots 36 are below the level of straight lines extending between the shafts 32, 40 (in Fig. 7) the toggle effect produced will keep the frame 30 in its lowered position until pivots 36 are moved upwardly to pass the center line 54 extending between shafts 32, 40, when the expansion of spring 42 will cause the frame 30 and counter 31 to move to elevated position 43.

A vertical post 44 similar to post 15 in Fig. 2, is slidably supported at its upper end in a plate 45 secured to the insole that corresponds to insole 11 for vertical reciprocable movement, and a support 46 slidably guides the lower end of the post, said support being secured to the sole.

A circular plate 47 is carried by the upper end of the post 44 and said plate is adapted to be received in an opening or recess 48 in the insole so its upper surface will be flush with the upper surface of the insole when the post is depressed.

Rigidly secured to the shaft 40 is a rearwardly and slightly downwardly extending arm 49 that is forked at its rear end to provide legs 50 extending to opposite sides of the post 44. The closed end of the fork is adjacent to the forward side of the post, and above said closed end is a leaf spring 51 that extends generally vertically and that is secured at its upper end to the front side of post 44. The spring 51 bows forwardly as it extends downwardly from its upper end so that the lower end of the spring is over the closed rear end of the arm 49 at the juncture of the portions 50 forming the fork.

A pin 52 projects from one side of post 44 and a leaf spring 53 is rigidly secured at one end to shaft 40 and extends rearwardly and under pin 52 to engage said pin for yieldably supporting the post.

As has already been explained, Fig. 7 shows the slipper in a position ready to receive the foot of the wearer. The frame 30 and counter 31 are depressed and are held down by the expansion force of spring 42, and the post 44 with its foot engaging plate are elevated with spring 51 engaging the arm 49.

Upon a foot being placed in the slipper and against the

5

sole, the plate 47 and post 44 will be moved downwardly, and this will cause spring 51 to swing arm 49 downwardly thus rotating shaft 40 in a clockwise direction (as seen in Fig. 7) until the links 38 are swung upwardly and pivots 36 cross the center line 54 that extends between the centers of shafts 32, 40. The frame 30 and counter 31 will also start to move upwardly, and as soon as the center line 54 is crossed by pivots 36 the continued upward movement of the frame 30 and counter 31 to the limit of the latter will be under the expansive influence of spring 42, and at this time the leaf spring 51 will have passed beyond the edge of the closed end of the arm adjacent thereto and the spring 53 will have swung downwardly to no longer urge the post 44 upwardly (Fig. 8) so no upward force will be on the plate 47 to cause discomfort to the wearer.

When the slipper is removed, it is merely necessary to push the rear end of the frame 30 downwardly to its lowered position, which will result in the pivots 36 crossing the center line 54 in a downward movement, and as soon as this line is passed the counter will be held down by the force of spring 42. In the meantime the plate 49 will swing upwardly above the spring 51 and spring 53 will exert an upward force on pin 52 for tending to elevate the post and plate 47, and said post will move back to the position shown in Fig. 7 as soon as the foot is removed from the slipper.

It should be noted in Fig. 9 that the lower end of spring 51 is still below the arm 49, and when the post 44 is elevated under the tension of spring 53 the lower end of spring 51 will snap to a position over arm 49 at the juncture between its forked outer end. Also the lower end of spring 51 is formed with a step, similar to the lower end of spring 24 in Fig. 3, to limit movement of the spring in direction away from the post 44 (or 15 in Fig. 2) by engagement of the lower end of spring 51 with arm 49 in Fig. 7. All this is accomplished without manipulating the foot that is within the slipper, except that the foot must be removed before the plate 47 will move to its elevated position.

From the foregoing explanation it is seen that the wearer is not conscious of any pressure against the sole of the foot by reason of the mechanism in the sole of the slipper or shoe, since the upper surface of plate 17 or 47 is flush with the upper surface of the sole and no upward pressure is transmitted to the plate when the slipper is on the foot.

In each form of the invention, the lowered counter-frame and counter will automatically be released by means actuated by downward pressure of the foot in the slipper, but the counter-frame and counter will be locked in their lowered positions when the foot is in the slipper and exerts said downward pressure, thus no manipulation of the foot that is within the slipper is required, such as lifting it or any portion thereof from the sole in order to effect locking of the counter-frame and counter in lowered position.

While the counter 3 and 31 are illustrated as a flexible covering, it is obvious that in a beach slipper, for instance, it may be no more than a mere cord or strap connecting the rear end of the frame with the sole, or the frame alone may be used if the spring 9 and spring 42 are such that their force is expended when the counter-frame is at the desired height as shown in the drawings. Hence the word "counter" as used herein and in the claims is intended to cover the frame with or without the flexible part 3 or 31 unless the latter are specifically described.

The detailed description and the drawings are not intended to be limitations on the invention since the forms illustrated have been selected as several examples of the invention for the purpose of the disclosure.

I claim:

1. In a shoe having a sole that includes a heel portion having an upper surface on which the heel of a wearer's foot is adapted to be supported and having a heel counter

6

supported for movement from a lowered foot releasing position approximately at the level of said upper surface to an elevated foot retaining position and vice versa, yieldable means connected with said counter for yieldably holding said counter in said elevated position and at all times yieldably urging said heel counter toward said elevated position, holding means respectively connected with said counter and with said sole automatically movable into holding relation for holding said heel counter in said lowered position upon movement of said heel counter from said elevated position to said lowered position when said upper surface supports the heel of a wearer's foot and the weight of such wearer thereon, releasing means for releasing said holding means from holding relation with respect to said counter to permit movement of the latter from its said lowered position to said elevated position thereof under the influence of said yieldable means, said releasing means being carried by said heel portion over the latter in a position for engagement with the underside of the heel of the wearer's foot when the latter is in said shoe, means supporting said releasing means for downward movement under the downward pressure of the heel of a wearer's foot thereon from an upper position elevated above said surface when the latter is in foot supporting relation, to a lower position substantially even with said upper surface, and means actuated by said downward movement of said releasing means for releasing said holding means.

2. In a shoe having a sole that includes a heel portion having an upper surface on which the heel of a wearer's foot is adapted to be supported and having a heel counter supported for movement from a lowered foot releasing position approximately at the level of said upper surface to an elevated foot retaining position and vice versa, yieldable means connected with said counter for yieldably holding said counter in said elevated position and at all times yieldably urging said heel counter toward said elevated position, holding means respectively connected with said counter and with said sole automatically movable into holding relation for holding said heel counter in said lowered position upon movement of said heel counter from said elevated position to said lowered position when said upper surface supports the heel of a wearer's foot and the weight of such wearer thereon, releasing means for releasing said holding means from holding relation with respect to said counter to permit movement of the latter from its said lowered position to said elevated position thereof under the influence of said yieldable means, said releasing means being carried by said heel portion over the latter in a position for engagement with the underside of the heel of the wearer's foot when the latter is in said shoe, means supporting said releasing means for downward movement under the downward pressure of the heel of a wearer's foot thereon from an upper position elevated above said surface when the latter is in foot supporting relation, to a lower position substantially even with said upper surface, and means actuated by said downward movement of said releasing means for releasing said holding means, a second yieldable means connected with said releasing means and with said holding means for yieldably urging said releasing means to its said upper position and for yieldably holding said releasing means in its said upper position only upon said holding means being in holding relation with respect to said counter, said releasing means being free from the influence of said second yieldable means when said counter is in its elevated foot retaining position with the heel of the wearer's foot and the weight of such wearer supported on said upper surface.

References Cited in the file of this patent

UNITED STATES PATENTS

747,390	Echols	Dec. 22, 1903
2,736,110	Hardimon	Feb. 28, 1956