June 16, 1942. F. W. CHRISTY 2,286,464

WIPER

Filed Feb. 24, 1941 2 Sheets-Sheet 1

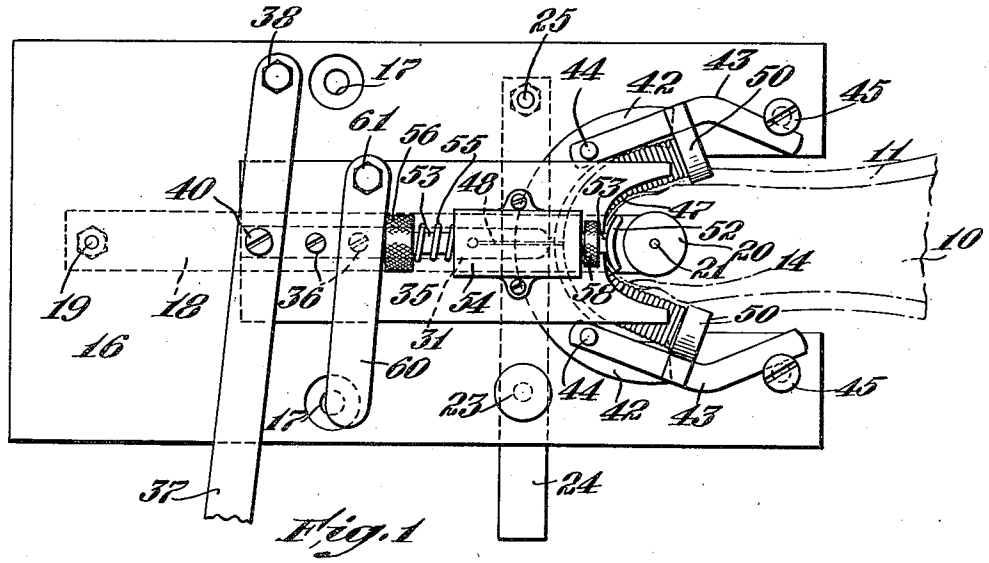


Fig. 1

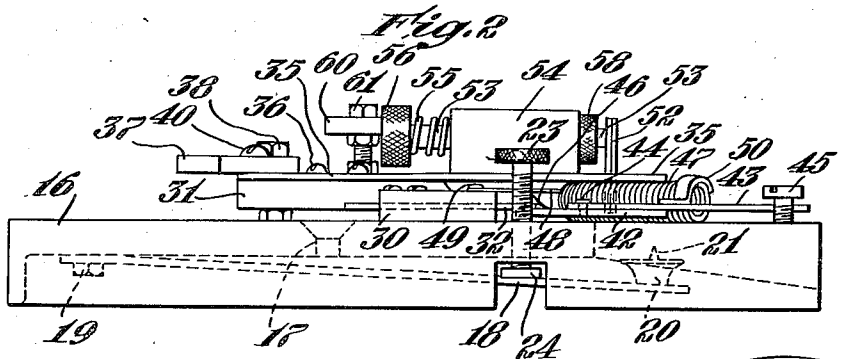


Fig. 2

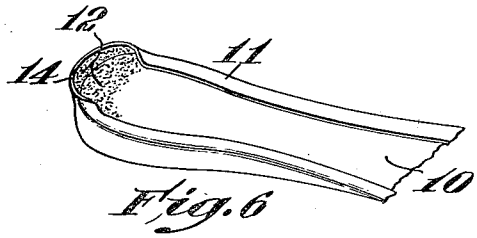


Fig. 6

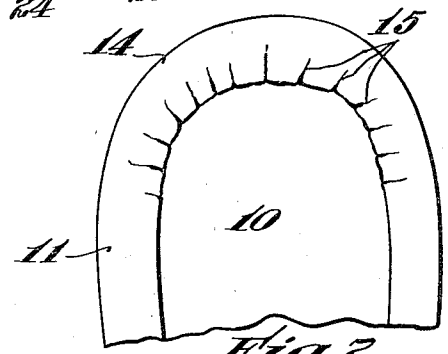


Fig. 7

Inventor
Frank W. Christy
by Pollock, Cushman & Woodbury.
Att'ys.

June 16, 1942. F. W. CHRISTY 2,286,464

WIPER

Filed Feb. 24, 1941 2 Sheets-Sheet 2

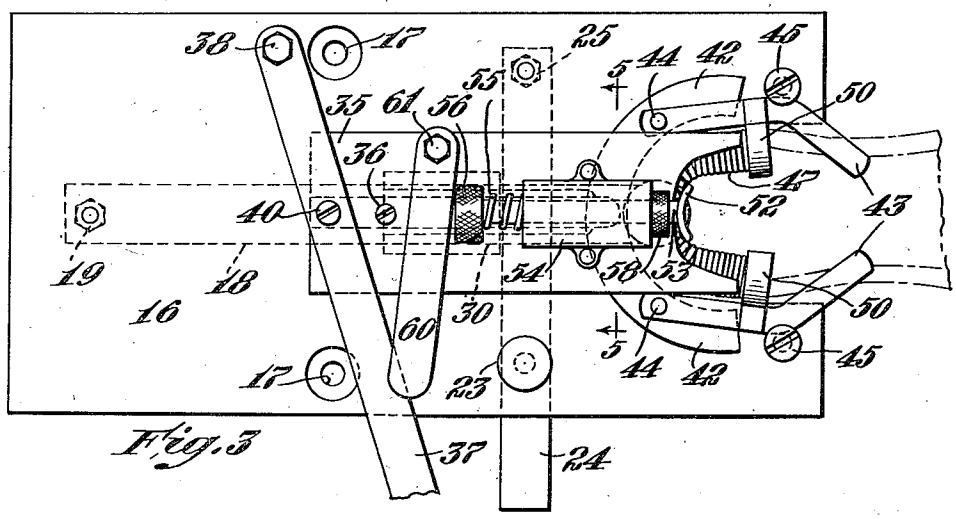


Fig. 3

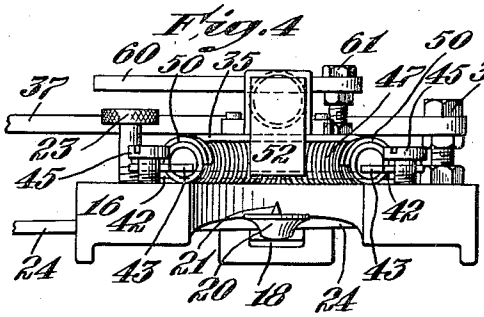


Fig. 4

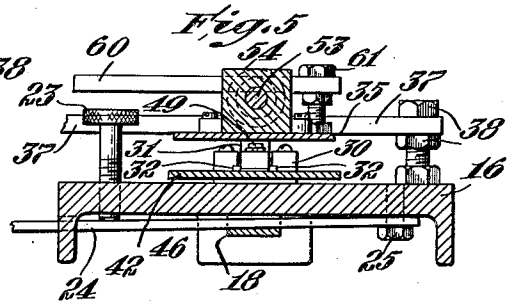


Fig. 5

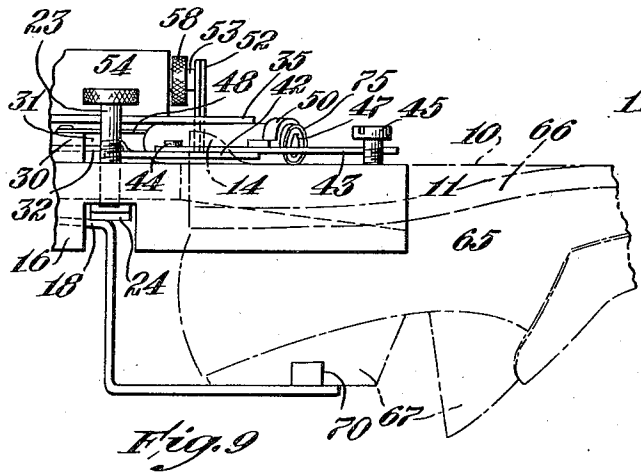


Fig. 9

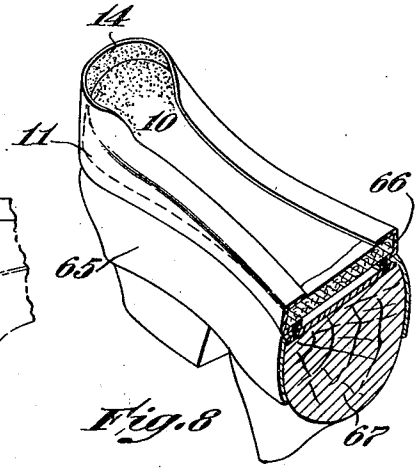


Fig. 8

Inventor
Frank W. Christy
by Roberts Cushman & Woodbury
Att'ys.

Patented June 16, 1942 2,286,464

UNITED STATES PATENT OFFICE

2,286,464

WIPER

Frank W. Christy, Beverly, Mass., assignor to Golden Leatherboard Co., Haverhill, Mass., a partnership consisting of Hyman Golden, Harry Brown, and Abraham Bluestein

Application February 24, 1941, Serial No. 380,156

4 Claims. (Cl. 12—14)

This invention relates to the manufacture of shoes and more particularly to a wiper for the heel portion of a shoe.

An important object of this invention is to provide an improved wiper which may be used for wiping the facing or other sheet material inwardly from the curved edge of the heel portion of a shoe uniformly against the flat face or bottom thereof.

Another object is the provision of a simple and efficient wiper for the heel portion of a shoe.

A further object is the provision of a wiper in which the wiping element comprises a coil spring which is both longitudinally and transversely resilient.

Further objects will be apparent from the following description and the annexed drawings.

In the drawings

Fig. 1 is a plan view of a machine embodying my invention with a shoe heel shown by dot-dash lines in position for the wiping operation;

Fig. 2 is a side elevational view of the machine shown in Fig. 1;

Fig. 3 is a plan view of the machine of Figs. 1 and 2 but showing the position of the wiper at the completion of the wiping operation;

Fig. 4 is an end view of the machine of Figs. 1 and 2;

Fig. 5 is a section on the lines 5—5 of Fig. 3;

Fig. 6 is a perspective view of a wedge heel showing its facing material as it appears prior to being operated upon by the wiper;

Fig. 7 is an enlarged plan view of a portion of a wedge heel showing the facing material as it appears after being operated upon by the wiper;

Fig. 8 is a perspective view, with parts broken away and shown in section, of a shoe on a last with the heel facing material as it appears prior to being operated upon by the wiper; and

Fig. 9 is a side elevation of a machine embodying my invention with a shoe on a last shown by dot-dash lines in position for the wiping operation.

A wedge heel 10 (Fig. 6) is used in certain styles of women's shoes. One face is secured to the bottom of the shoe and the outer sole is subsequently secured to the other face of the wedge heel. The wedge heel is provided with a facing strip or binding 11 to supply the desired finish for the side of the heel which is visible in the completed shoe.

The facing strip 11 is secured to the heel in the position shown in Fig. 6 by an operator who applies a coating 12 of latex or other suitable cement to the side and face portions of the heel and to one side of the facing strip and who then applies the coated side of the facing strip to the side and adjacent face portions of the heel, as shown in Fig. 6. This leaves an upstanding portion 14 of the facing strip at the rear or curved part of the heel. The operator is unable by hand to fold said portion 14 against the face of the heel without forming irregular wrinkles or fold lines. Among other uses the machine of this invention is adapted to wipe this upstanding portion 14 of the facing material from the curved edge of the heel uniformly against the adjacent coated face of the heel, so that the facing material becomes cemented thereto as shown in Fig. 7. It will be observed that after such a wiping operation the wrinkles or fold lines 15 are quite regular, are not unduly large and do not extend to the junction line between the side and face of the heel so that they do not unduly interfere in the subsequent shoe making operation when an outer sole is secured to the face of the heel and the wrinkles are not visible from the side of the completed shoe.

Referring to the machine illustrated in Figs. 1 to 5 inclusive, a base plate 16 is provided with a pair of holes 17 through which screws (not shown) are passed to secure the plate firmly to the top of a work bench (not shown). A slightly resilient bar 18 serves as a support for the heel. This bar has one end secured to the under face of the plate 16 by a bolt 19. The other end of the bar 18 has a supporting member 20 secured thereto, which member is provided with a centrally disposed prong 21 adapted to be inserted in the bottom face of a wedge heel to retain the heel against sliding movement during the wiping operation.

The elevation of the supporting member 20 may be controlled by the set screw 23, the lower end of which engages the crossbar 24, one end of which is held in fixed position by a bolt 25. The slight resiliency of the supporting bar 18 normally maintains its top face in contact with the lower face of the cross-bar 24. The free end of the supporting bar 18 and the supporting member 20 may be adjusted as to height by merely turning the set screw 28 so as to either lower or raise the crossbar 24 which engages the supporting bar 18. The free end of the supporting bar 18 may be temporarily lowered by the operator by pressing downwardly on the free end of the crossbar 24. This operation may be used when the heel lift is initially inserted in the machine. Thus the free end of the crossbar 24 is depressed, the heel lift is placed in the proper posi-

tion upon the prong 21, and the pressure upon the crossbar 24 is then released after which the resiliency of the bar 18 carries the free end of said bar upwardly until the crossbar 24 contacts the lower end of the set screw 23.

A block 30 (Figs. 2 and 5) is secured to the top surface of the base plate 16 and this block is provided with a longitudinally extending undercut groove. A slide member 31 having horizontal flanges 32 is adapted to slide freely longitudinally of said undercut groove.

A plate 35 is secured to the top face of the slide 31 by screws 36. The handle 37 has one end secured for pivotal movement about the bolt 38 which is secured to the base plate 16 (Fig. 5). The handle 37 is pivotally secured to the plate 35 and the slide 31 by the screw 40 which passes through a slot in the handle 37. Thus as the handle 37 is moved in a counterclockwise direction about the bolt 38 (looking at Fig. 1) the slide 31 slides from left to right along the undercut groove in the block 30 (looking at Fig. 1) to the position shown in Fig. 3.

A U-shaped member 42 is welded at 46 to the adjacent end of the slide 31 so that it moves in unison therewith. Two arms 43 are pivotally secured respectively to the legs of the member 42 by the enlarged headed studs 44. The outer sides of the arms 43 respectively engage the stems of the bolts 45 which are secured to the base plate 16. Thus as the handle 37 is rotated in a counterclockwise direction (looking at Fig. 1) to move the slide 31, the attached U-shaped member 42, and the arms 43 from left to right, the engagement between the sides of the arms 43 and the bolts 45 causes the arms to rotate about their pivots 44 and thus to move toward each other to the position shown in Fig. 3.

A relatively stiff coil spring 47 is mounted to slide longitudinally in unison with the slide 31 and the U-shaped member 42. One end of a wire 48 is secured to the slide 31 by a stud 49 and the other end is secured to one of the centrally disposed coils of the spring 47, thereby securing the spring to the slide. The ends of the spring are flexed toward each other and are slipped loosely, respectively, within the curved members 50 which are secured respectively to the arms 43. The spring is thus arranged to provide a U-shaped wiping element. The top surface of the spring 47 engages the lower surface of the plate 35 at all times so that said surface of the spring is held at a fixed elevation. The ends of the spring 47 continuously tend to force the arms 43 away from each other and thus to hold their outer faces continuously in contact with the respective adjacent sides of the bolts 45.

When a shoe heel is mounted on the supporting member 20 in proper operative position (Fig. 1) the curved end of the heel extends toward the curved portion or base of the U-shaped coil spring 47 with the plane of its upper face substantially coinciding with the lowermost portion of the spring and with the upstanding portion 14 of the facing material 11 extending within the U-shaped opening formed by the spring.

In operation the handle 37 is moved in a counterclockwise direction (looking at Fig. 1). This causes the spring 47 to be moved from left to right (looking at Figs. 1 and 2) to the position of Fig. 3 and simultaneously causes the ends and sides of the spring to be moved toward each other (to the position shown in Fig. 3). The plate 35 engages the top of the spring during this movement so that the lowermost portion of the periphery of the spring is forced against the face of the portion 14 of the facing material 11 and uniformly wipes said portion 14 inwardly against the top face of the heel. Since the coil spring is slightly transversely resilient, the lowermost portion of the periphery of the spring may be elevated slightly during the wiping motion, permitting it to rise over the slight humps formed by the wrinkles and thus preventing catching of the spring upon these humps or tearing of the facing material 11. It will be observed that due to the use of the U-shaped coil spring and to the flexing of its ends and sides toward each other during wiping, the facing material is wiped inwardly around the curved portion of the heel substantially at right angles to the tangent at each point of contact with the spring.

After the wiping stroke has been completed the handle 37 is rotated in the opposite direction about its pivot 38 thereby returning the slide 31 and the spring 47 from the position shown in Fig. 3 to the original position shown in Fig. 1. The wedge heel is then removed and the resultant wiped product is shown in Fig. 7.

The curved plate 52 is not essential to satisfactory operation of the wiper, but in some cases its use improves the uniformity of the final product. Its function is to press the portion 14 of the facing material against the adjacent innermost portion of the spring 47 to thereby releasably grip the portion 14 of the facing material between one of its faces and the spring 47. During the wiping operation the portion 14 of the facing material is gradually drawn downwardly between the plate 52 and the spring 47 until it is completely drawn beneath the lower end of the plate and completely wiped against the face of the heel.

The plate 52 is secured to one end of the horizontal plunger 53 which passes loosely through the block 54 secured to the plate 35. A coil spring 55 has one end seated against the end piece 56 and the other end seated against the end of a recess in the block 54. A stop member 58 is secured to the plunger 53 and by its engagement with the adjacent end of the block 54 it limits the movement of the plunger by the spring 55. The spring 55 thus normally holds the plate 52 in engagement with the adjacent portion of the wiper spring 47. The plate 52 is moved out of engagement with the wiper spring by rotation of the handle 60, one end of which is pivotally supported on the bolt 61. When the handle 60 is rotated in a counterclockwise direction (looking at Figs. 1 and 3) it engages the end piece 56 and moves the plunger 53 from left to right (looking at Figs. 1, 2 and 3) compressing the spring 55 and moving the plate 52 away from the spring 47. While held in this position a heel supported on the member 20 may be elevated by releasing the downward pressure upon the crossbar 24 so that the portion 14 of the facing material enters the space between the plate 52 and the wiper spring 47, then when the pressure on the handle 60 is released the spring 55 forces the plunger 53 from right to left (looking at Figs. 1, 2 and 3) and causes the plate 52 to press the portion 14 of the facing material against the adjacent innermost portion of the wiper spring 47. The strength of the spring 55 is such as to cause the desired amount of friction to be created upon the portion 14 of the facing material as it is drawn downwardly between the plate 52 and the wiper spring 47 during the wiping operation.

In Fig. 8 of the drawings a shoe embodying a platform sole and wedge heel is illustrated. In such a shoe the edge of the upper 65 is stitched to one edge of the facing material 11. One face of the wedge heel 10 is cemented to one face of the platform sole 66 and the sole is laid upon the upper supported upon a last 67. One side of the facing material 11 and the exposed face of the wedge heel and sole are then coated with a suitable cement and the facing material is folded by hand smoothly over the edges of the sole and wedge heel leaving the heel portion 14 of the facing strip standing upwardly, as shown in Fig. 8.

Fig. 9 of the drawings shows a modification of the machine suitable for supporting the heel when embodied in a shoe like that shown in Fig. 8. This machine is the same as that of Figs. 1 to 5 except that the supporting bar 18 is bent downwardly and its free end is provided with a lug 70 adapted to fit into a socket of the last to thereby support the last in the position shown in Fig. 9. The operation of the machine is the same as the operation of the machine of Figs. 1 to 5, which has been explained above.

In Fig. 9 the periphery of the wiper spring 47 is provided with a thin coating 75 of rubber. This coating of rubber provides greater friction between the wiper and the material which is being wiped, thus causing the wiper to exert a stronger pulling force upon said material during the wiping operation. It is useful when wiping relatively stiff or relatively smooth faced materials.

It will be apparent to those skilled in the art that departures from the constructions and arrangements which have been illustrated in the drawings may be made without departing from the spirit and scope of my invention, as defined in the appended claims.

I claim:

1. A device for operating on the heel of a shoe comprising a coil spring having its end portions arranged to provide a U-shaped wiper, means for supporting the shoe heel with its curved rear end extending toward the curved base portion of the U-shaped opening of said spring, with the plane of its face which is to be operated upon substantially coinciding with the wiping edge of said spring and with the facing material for the side of the heel extending outwardly from said face of the heel and within the U-shaped opening of said spring, means for moving said spring substantially parallel to said face of the heel and in engagement with the outer side of said facing material and means for simultaneously flexing the legs of said spring toward each other, whereby said facing material is uniformly wiped from the curved edge of the rear end of the heel against said face thereof.

2. A device for operating on the heel of a shoe comprising a coil spring having its end portions arranged to provide a U-shaped wiper, means for supporting the shoe heel with its curved rear end extending toward the curved base portion of the U-shaped opening of said spring, with the plane of its face which is to be operated upon substantially coinciding with the wiping edge of said spring and with the facing material for the side of the heel extending outwardly from said face of the heel and within the U-shaped opening of said spring, a member extending in a plane substantially parallel to said wiping edge of said spring and spaced therefrom, said member being constructed and arranged to prevent substantial movement of said wiping edge of the spring in a direction transversely away from said face of the heel, means for moving said spring substantially parallel to said face of the heel and in engagement with the outer side of said facing material and means for simultaneously flexing the legs of said spring toward each other, whereby said facing material is uniformly wiped from the curved edge of the rear end of the heel against said face thereof.

3. A device for operating on the heel of a shoe comprising a coil spring having its end portions arranged to provide a U-shaped wiper, means for supporting the shoe heel with its curved rear end extending toward the curved base portion of the U-shaped opening of said spring, with the plane of its face which is to be operated upon substantially coinciding with the wiping edge of said spring and the facing material for the side of the heel extending outwardly from said face of the heel and within the U-shaped opening of said spring, means for releasably engaging the inner side of said outwardly extending facing material, means for moving said spring substantially parallel to said face of the heel and in engagement with the outer side of said facing material, and means for simultaneously flexing the legs of said spring toward each other whereby said facing material is uniformly wiped from the curved edge of the rear end of the heel against said face thereof.

4. In a device for operating on the heel of a shoe having means to support the shoe with the plane of its face which is to be operated upon at a predetermined elevation and with the facing material for the side of the heel extending outwardly from said face of the heel adjacent the curved rear end thereof, the improvement which comprises a coil spring having its end portions arranged to provide a U-shaped wiper, means for supporting said spring with its wiping edge substantially coinciding with the plane of said face of the heel and the curved inner edge of said U-shaped opening located adjacent the outer side of said outwardly extending portion of said facing material, means for moving said spring substantially parallel to said face of the heel and in engagement with the outer side of said facing material, and means for simultaneously flexing the legs of said spring toward each other whereby said facing material is uniformly wiped from the curved edge of the rear end of the heel against the face thereof.

FRANK W. CHRISTY.