

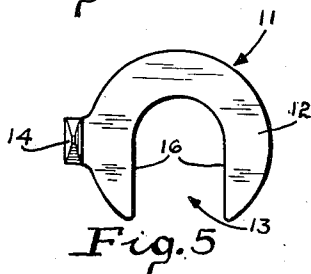
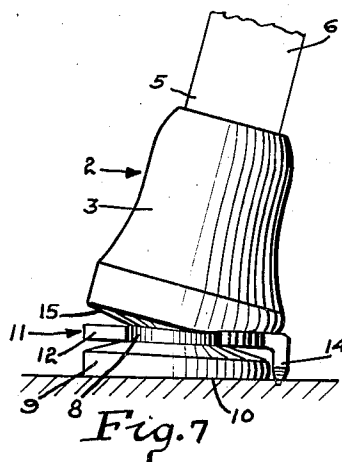
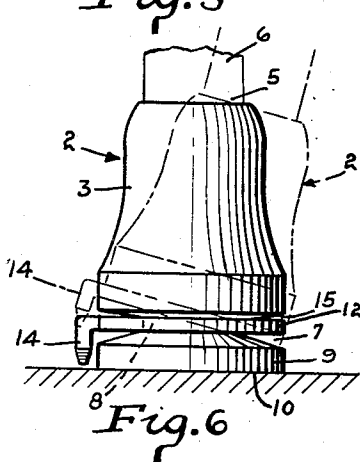
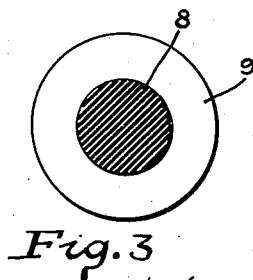
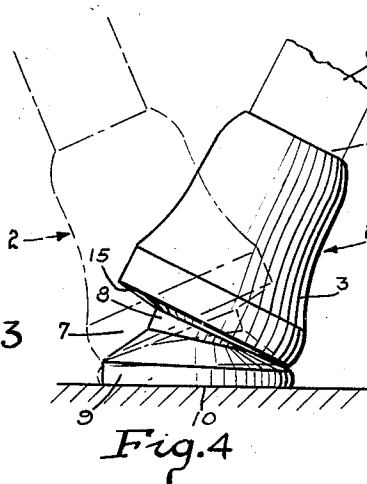
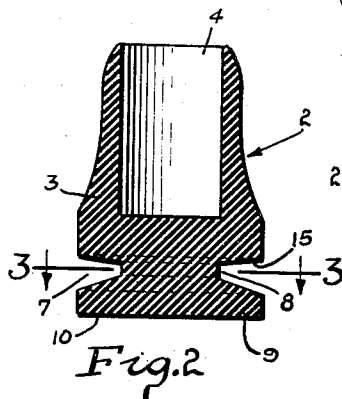
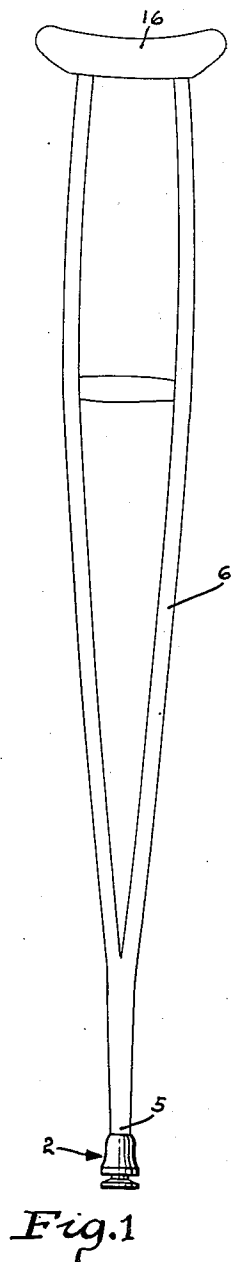
Feb. 4, 1941.

C. B. JOHNSON

2,230,406

ANTISLIP DEVICE

Filed Oct. 10, 1938



INVENTOR
CONRAD B. JOHNSON
BY *Paul, Paul Moore & Gies*
ATTORNEYS

UNITED STATES PATENT OFFICE

2,230,406

ANTISLIP DEVICE

Conrad B. Johnson, Eau Claire, Wis.

Application October 10, 1933, Serial No. 234,131

5 Claims. (Cl. 135—53)

This invention relates to new and useful improvements in antislip devices and more particularly to such a device adapted for use in connection with a crutch or cane to prevent lateral slip of the crutch, when in use.

Accidents frequently occur when using a pair of conventional crutches or a cane, particularly when the surface over which one may be passing is slippery. This results because of the ground-engaging end portions of the crutches not being capable of gripping or adhering to the slippery surface, when weight is applied to the crutches, particularly if the crutches are disposed at an angle. Numerous attempts have been made to prevent such lateral slip of crutches upon a slippery surface as, for example, rubber tips and other gripping devices have been applied thereto. These have proven unsatisfactory because they do not increase the effective ground-engaging surface of the end of the crutch, particularly when the crutch is disposed at an incline, when supporting a load. On the other hand, such devices often tend to reduce the effective ground-engaging area of the crutch, when the crutch is tilted at an angle.

It is therefore desirable that some means be provided whereby crutches and canes may be rendered substantially slip-proof, even when used on a slippery surface, whereby a cripple or other person using a pair of crutches, may walk about substantially without danger of falling, because of the crutches slipping on the ground or sidewalk.

An object of the present invention therefore, is to provide a device adapted to be used in connection with a crutch, whereby the ground-engaging portion or shoe of the crutch will be yieldably secured to the crutch in such a manner that, regardless of the angle or inclination of the crutch with respect to the ground or floor, the ground-engaging portion or shoe thereof will so grip or adhere to the surface upon which it is placed, that the danger of the crutch slipping on the ground or floor is entirely eliminated, whereby it is possible to walk over slippery or icy surfaces without the slightest danger of the crutches slipping out sidewise and causing the person to fall.

A further object of the invention is to provide an antislip device comprising a body portion having means by which it may readily be secured to the lower end of a crutch, and said body portion having a ground-engaging portion or foot secured thereto by means of a flexible neck of reduced diameter, which permits free swinging

movement of the crutch about said foot, and also limited rotary movement thereof, without moving the ground-engaging portion of the device out of contact with the ground or floor upon which it may be supported.

Other objects of the invention reside in the novel construction of the device, which comprises a body, preferably of rubber, having a socket therein for receiving the lower end of the crutch, and said body having an annular groove formed in the lower portion thereof, which defines a flexible neck about which the body portion of the device may pivot, and a flat disk-like ground-engaging portion or foot being connected to said body portion by said neck, whereby said body portion may be laterally tilted with respect to the surface of the ground, without moving or tilting the ground-engaging foot upon the ground or floor; in the provision of an antislip device for crutches which, in addition to preventing slippage of the crutch on the ground or floor, also serves as a cushion to prevent shocks and jolts being transmitted to the body, each time the crutch engages the floor; and in the provision of an antislip device for crutches, having means whereby a creeper attachment may readily be attached thereto, said attachment having a spur adapted to dig into or pierce the ground or icy surface to act as an added preventative against slippage, when traveling over icy surfaces.

Other objects of the invention will appear from the following description and accompanying drawing and will be pointed out in the annexed claims.

In the accompanying drawing there has been disclosed a structure designed to carry out the various objects of the invention, but it is to be understood that the invention is not confined to the exact features shown as various changes may be made within the scope of the claims which follow.

In the drawing:

Figure 1 is a view showing the invention applied to the lower end of a crutch;

Figure 2 is an enlarged vertical sectional view of the device showing it detached from the crutch;

Figure 3 is a sectional plan view on the line 3—3 of Figure 2;

Figure 4 is a view showing how the crutch may be tilted without reducing the frictional contact of the ground-engaging portion or foot of the device with the ground;

Figure 5 is a view showing an attachment for the device to prevent slippage;

Fig. 6 shows the creeper attachment fitted on to the antislip device; and

Figure 7 shows the spur of the creeper attachment engaged with the ground.

5 The novel device herein disclosed is generally indicated by the numeral 2, and comprises a body 3 having a socket 4 adapted to receive the lower end 5 of a conventional crutch or cane 6, as shown in Figure 1.

10 An annular groove 7 is formed in the lower portion of the body 3 and defines a neck 8 which, as shown in Figure 2, is connected to the body 3 at one end and has a suitable ground-engaging foot 9 formed at its lower end.

15 The neck 8 is considerably smaller in diameter than the body 3 and foot 9, and is made of suitable flexible material such, for example, as rubber, whereby the neck may flex to permit the body 3 to tilt about the foot 9 as a pivot, as clearly

20 illustrated in the full and dotted lines in Figure 4. Preferably, as shown in Figure 2, the diameter of the neck 8 is substantially equal to the diameter of the lower end of the crutch or cane, or in other words, substantially equal to the diam-

25 eter of the socket 4. These proportions provide the proper flexibility between the foot 9 and the body 3. Also, the upper surface of the foot 9 preferably slopes downwardly and outwardly to provide ample clearance for the shoulder 15 when

30 the neck 8 is flexed by angular disposition of the socket portion 4 with respect to the foot 9 as shown in Figure 4. The bottom surface 10 of the device may be slightly roughened, if desired, or it may be made concaved, if desired, to increase

35 its gripping action upon the ground or floor. The entire device is preferably molded of rubber, whereby it may be manufactured at small cost in quantity production. It may readily be attached to the lower end of the crutch or cane by means

40 of the socket 4, and when secured to the crutch, the neck 8 will provide sufficient flexibility to permit free swinging movement of the crutch with respect to the foot 9, and also a limited rotary

45 engaging portion 9 with respect to the ground or floor.

In Figures 5, 6, and 7, I have shown a creeper attachment, generally indicated by the numeral 11, which comprises a body portion 12 having an

50 open slot 13 adapted to receive the neck 8 of the device 2. The creeper attachment 11 is shown provided at one side with a downwardly extending spur or prong 14 which is of such length that when the crutch is in substantially a vertical position, as shown in Figure 6, the terminal of the

55 prong 14 will not dig into the ground. When the creeper 11 is attached to the device 2, it is preferably so arranged that the prong 14 will be disposed at right angles to the plane of the crutch, so that when it is desired to use the

60 creeper, the crutch is used in such a manner that the prong is on the inside of the crutch, or on the side next to the person. When thus positioned, the prong 14 will dig into the ground surface each time the weight of the body is placed

65 on the crutch, because the crutch is usually held in an inclined position with the lower end spaced outwardly from the body, when in use. When the prong 14 is thus positioned, it will be noted, by reference to Figure 7, that each time the

70 weight of the body is placed on the crutch, the shoulder 15 of the device 3 will engage the upper surface of the creeper 11 and force the prong 75 downwardly into contact with the ground. When

the creeper is not to be used, the crutch is turned so that the prong 14 will be spaced outwardly from the body of the person, whereby the prong will be elevated with respect to the ground, as indicated by the dotted lines in Figure 6, each time the weight of the body is placed on the crutch. The creeper attachment is comparatively small in size and may readily be carried in a pocket, when detached from the crutch.

10 The opposed walls 16 of the slot 13 are so spaced apart that when the creeper is fitted onto the device 2, the walls 16 will frictionally contact the periphery of the neck 8 with sufficient pressure to retain it thereon. It will also be understood that each time the weight of the body is placed on the crutch, the neck will expand so that the creeper is securely held in place each time the prong 14 thereof engages the ground.

15 The novel device herein disclosed has been found very practical in actual use. Because of the foot 9 being connected to the body 3 by the flexible neck 8, the angular positions assumed by the crutch, when in use, will not affect or reduce the frictional contact of the foot 9 with the

20 ground, whereby the danger of the bottom of the crutch relatively slipping or sliding on the ground, is substantially eliminated. Also, because of the flexibility of the neck 8, whereby the foot 9 is capable of relatively moving with respect to the

25 body 3, the device serves as a cushion to prevent shocks being transmitted to the body through the crutch, each time the lower end of the crutch engages the ground. The neck 8, because of its reduced diameter, also permits limited rotary movement of the body 3 with respect to the foot 9,

30 whereby the supporting head 16 of the crutch may adapt itself to the arm pit without exerting undue pressure against portions of the person's body, when relatively rotating the crutch with respect to the ground, as is more or less common, when walking.

35 In the drawing, I have shown the neck 8 as being cylindrical in cross-section, but it is to be understood that it may be otherwise shaped without departing from the scope of the invention. The essential thing is that it must be so constructed that the foot 9 is flexibly connected to the body 3 of the device 2.

I claim as my invention:

1. A device for preventing lateral slip of the lower end of a crutch or cane comprising a body having a socket adapted to receive the lower end portion of the crutch, and a ground-engaging portion secured to said body by a flexible neck, said neck having a diameter substantially equal to the diameter of said socket thereby permitting universal swinging movement of the crutch about said ground-engaging portion without tilting the latter out of engagement with the ground.

2. A device for preventing lateral slip of the lower end of a crutch or cane comprising a body having a socket therein for securing it to the crutch, said body having a ground-engaging foot connected thereto by a restricted portion, said restricted portion having a diameter substantially equal to the diameter of said socket, said body, foot and restricted portion being integrally formed or molded of rubber, whereby the restricted portion is free to flex or yield, thereby to permit swinging movement of the crutch about said foot, without tilting said foot out of engagement with the ground.

3. A device for preventing lateral slip of the lower end of a crutch comprising a body having means by which it may be secured to the crutch,

said body having an annular groove in its lower portion defining a flexible neck, and an element detachably received in said groove and having means for engaging a slippery surface, when 5 weight is applied to the crutch, thereby to prevent slippage of the lower end of the crutch.

4. A device for preventing lateral slip of the lower end of a crutch comprising a body having means by which it may be secured to the crutch, 10 said body having an annular groove in its lower portion defining a flexible neck and a ground-engaging foot, the flexibility of said neck permitting the crutch to swing or tilt with respect to said foot, without tilting the latter, and a creeper 15 element received in said groove and having a depending spur adapted to pierce a slippery surface whereby it may cooperate with said ground-engaging foot to prevent the lower end of the

crutch from relatively slipping on a slippery surface, when the weight of a person is imposed on the crutch.

5. A device for preventing lateral slip of the lower end of a crutch comprising a body having 5 a socket for receiving the lower end portion of the crutch, said body being formed with an annular groove defining a flexible neck and a foot, said neck having a diameter substantially equal to that of said socket, a side wall of said groove 10 diverging radially outwardly with respect to a horizontal plane through said neck to provide additional clearance with respect to the other wall of said groove when the foot is angularly disposed with respect to the socket portion of said 15 body.

CONRAD B. JOHNSON.