June 29, 1954 G. O. EYRICH 2,682,275

TRACTION ATTACHMENT FOR CANES, CRUTCHES, AND THE LIKE

Filed Dec. 3, 1948

Fig. 5

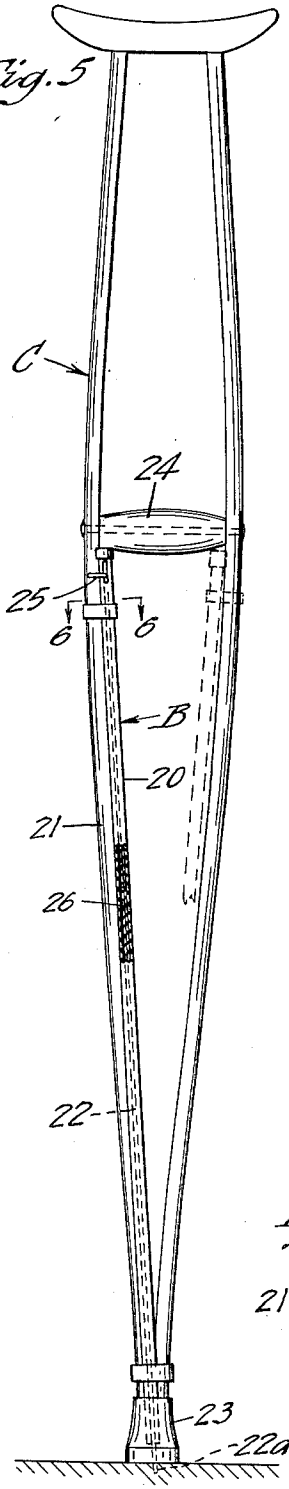


Fig. 2

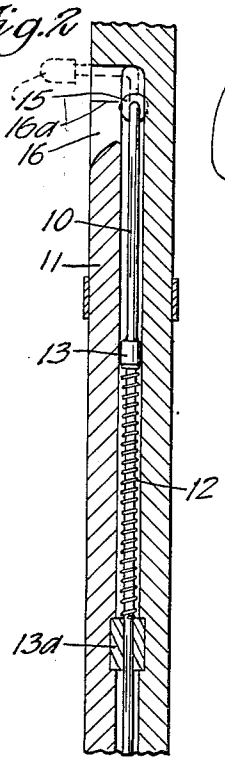


Fig. 3

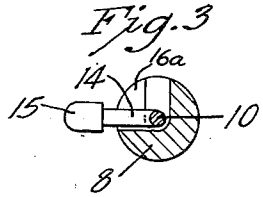


Fig. 4

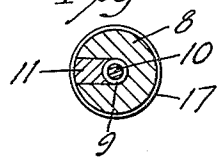


Fig. 6

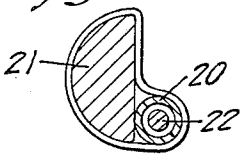
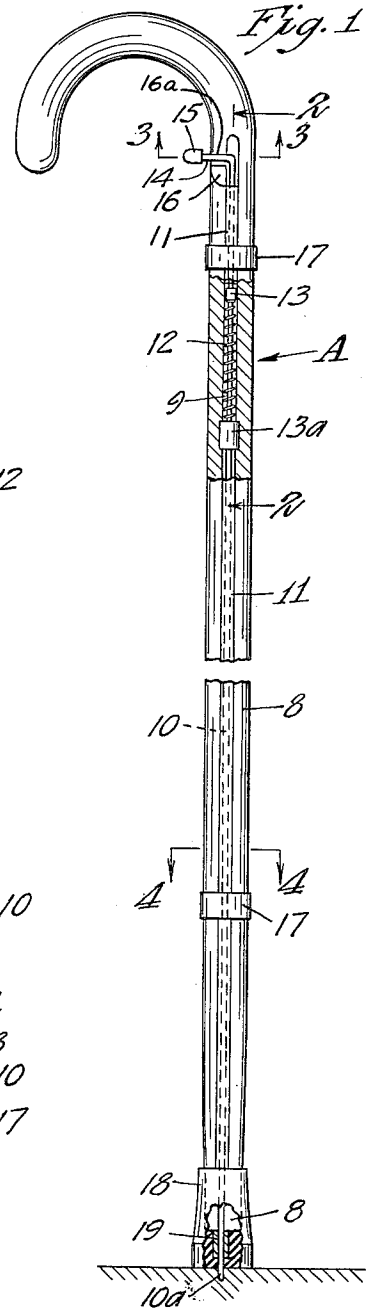


Fig. 1



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TRACTION ATTACHMENT FOR CANES, CRUTCHES, AND THE LIKE

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1 Claim. (Cl. 135—53)

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This invention relates to an easily controllable traction device for walking aids.

When canes or crutches are used on ordinary walking surfaces, it is desirable to have a rubber tip on the lower extremity thereof to provide a cushioning effect as well as satisfactory traction; however, when such walking aids are used on icy surfaces, this soft rubber tip does not have sufficient traction to permit the user adequate stability. Certain projectable traction devices have been provided for use on ice and hard packed snow, but none of these permit the easy control of the position of said traction devices.

It is an object of my invention to provide a novel and improved easily controllable auxiliary traction device for walking aids such as canes and crutches adapted to be easily operated without raising the walking aid from its supporting position.

It is another object to provide a traction device adapted to be attached to conventional walking aids and comprising a projectable element normally retained in retracted position but controllably projectable below the lower extremity of the walking aid while said walking aid remains constantly in supporting position.

These and other objects and advantages of my invention will more fully appear from the following description made in connection with the accompanying drawings wherein like reference characters refer to similar parts throughout the several views and in which:

Fig. 1 is a side elevational view of a conventional walking cane with a portion thereof cut away and having my improved traction attachment mounted therein;

Fig. 2 is a fragmentary longitudinal sectional view taken substantially along the line 2—2 of Fig. 1;

Fig. 3 is a transverse horizontal sectional view taken substantially along the line 3—3 of Fig. 1 showing the control knob in downwardly projected position;

Fig. 4 is a transverse horizontal sectional view taken substantially along the line 4—4 of Fig. 1;

Fig. 5 is a front elevational view of an alternative form of my invention as mounted on a crutch and showing the conduit and control handle in one position by full lines and in another selected position by dotted lines; and

Fig. 6 is a transverse horizontal sectional view taken substantially along the line 6—6 of Fig. 5.

A conventional walking aid such as the cane 8 is illustrated in Figs. 1 through 4 inclusive, and this cane has a groove 9 extending longitudinally along one side thereof and continuously upwardly

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from the bottom extremity to the top of the upstanding portion of the cane adjacent the hand grip thereof. In the form of my invention illustrated, a rod 10 is mounted in groove 9 and extends the full length thereof and has a pointed lower extremity 10*a*. A filler strip 11 is fixed in the outer portion of the groove 9 and retains the rod 10 therein. As best shown in Fig. 2, a spring 12 surrounds an intermediate portion of the rod 10, and an abutment sleeve 13 is fixed to the rod 10 at the upper end of spring 12, and a second abutment sleeve 13*a* is fixed within groove 9 in sliding relation to rod 10 at the lower end of spring 12. It will be seen that the spring 12 as arranged on the rod 10 normally urges the same into upwardly retracted position. An outstanding control arm 14 is fixed to the upper extremity of rod 10, and a control knob 15 is fixed to the outer end of said arm 14.

A retaining notch 16 is formed in the upper portion of said cane in slightly spaced relation below the top extremity of said groove and disposed generally at right angles to the axis of said groove and communicating therewith. The retaining notch 16 has a retaining shoulder 16*a* at the top thereof which is adapted to receive and retain said outstanding arm 14 to hold the rod 10 in downwardly projected position against the resilient force of spring 12. The cane illustrated has a pair of reinforcing and retaining bands 17 mounted therearound to securely hold the filler strip 11 in position within the groove 9. The groove 9 at the bottom of the cane 8 extends laterally inwardly to permit the rod 10 at the bottom portion thereof to lie in the axis of said cane 8 to position the point 10*a* in the center of the bottom extremity thereof. A conventional rubber tip 18 is mounted on the bottom extremity of the cane 8 and has a longitudinal aperture formed therethrough. This aperture is diminished at the bottom portion to sealingly embrace the pin 10 and is enlarged a slight distance above the bottom to permit a sleeve or bushing 19 made as from steel to be mounted therein, and this sleeve 19 closely embraces the rod 10 to prevent lateral displacement thereof and provide substantially rigid contact between the engaged icy surface and the projected pin 10. The upper portion of the rubber cushioning tip 18 is enlarged to receive and tightly embrace the lower extreme portion of the cane 8. This bushing 19 is an important feature of my invention and provides a sure and positive contact between an icy surface and the cane or other walking aid through the ground-penetrating element 10*a*.

The following is a description of the operation

of my device as used in connection with a walking cane such as the cane 8. With the rod 10 in retracted position, the arm 14 and knob 15 are disposed adjacent the side of the cane and do not in any way interfere with the usual and normal operation thereof on ordinary surfaces. However, if the cane is to be used on an icy or slippery surface, the rod 10 may be easily and quickly projected downwardly so that the point 10a extends below the lower extremity of the tip 18 to penetrate said icy surface and provide positive traction for the cane. When the rod 10 is in projected position, the knob 15 and arm 14 are shifted downwardly so that even though they extend inwardly into the hand grip of the cane, they will not interfere with normal use thereof and yet will be within easy reach and control of the fingers of the user. The spring 12 urges the rod 10 upwardly into retracted position, and the notch 16 is provided to engage the arm 14 and hold the rod in projected position. When the rod has been projected downwardly and oscillated substantially through a 90° angle, the arm 14 is positioned within the notch 16 and is retained against the shoulder 16a by the force of the spring 12. Figs. 1 and 2 show the arm 14 engaged in the notch 16 and holding the rod in downwardly projected position. Fig. 2 in the dotted position shows the arm 14 in upwardly retracted position at the top of groove 9, and said arm is disposed generally at right angles in said retracted position to the position thereof when the rod 10 is in projected position. Regardless of whether the rod 10 is in retracted or projected position, the control knob 15 is within easy reach and control of the fingers of the operator and can be instantly shifted from one position to the other while the cane remains in supporting position.

In Figs. 5 and 6 an alternative form of the invention designated by the letter B is illustrated and shows an elongated hollow tubular member or conduit 20 securely fixed to one shank 21 of a crutch designated as an entirety by the letter C. An elongated longitudinally shiftable member 22 with a pointed projectable element 22a formed on the lower extremity thereof is inserted into the conduit 20 and extends therebelow. The conduit 20 closely surrounds said shiftable member 22 and forms a guide therefor to obviate the necessity of any sleeve or bushing in the rubber tip 23 mounted on the bottom of the crutch C. The tip 23 of course does have an aperture therethrough to permit the projectable element 22a to be projected therebelow. The conduit 20 and shiftable member 22 terminate at the upper extremities thereof substantially adjacent the hand grip 24 of the crutch C and permit easy control of the projectable element 22a. An outstanding control arm 25 is fixed to the upper extremity of the shiftable member 22, and a retaining notch similar to notch 16 is formed in the conduit 20 in slightly spaced relation below the upper extremity thereof. A retraction spring 26 is mounted in an intermediate portion of the conduit 20 with its upper end connected to the shiftable member 22 and its lower end fixed to said conduit to urge the projectable element 22a upwardly into retracted position, in substantially the same manner as shown in Fig. 2.

Form B of my invention provides an extremely simple complete attachment unit adapted to be mounted as an entirety on either a can or a crutch. The conduit 20 is anchored securely to

an upstanding portion of the walking aid such as the shank 21 of the crutch C. This conduit 20 would not necessarily need to be a rigid member but could very easily be a flexible conduit with a flexible control cable therein to thereby facilitate adjustment of the position of the control arm 25 to permit any particular user who may be handicapped in certain of his fingers to obtain the most efficient and easily controllable position of said control arm 25. The operation of form B of my invention is substantially similar to that previously described for form A. With the hollow conduit 20 mounted in the optimum position on the walking aid, the control arm 25 is disposed within easy reach of the strongest fingers of the user and is therefore easily controllable by him. With the walking aid such as the crutch C disposed substantially in supporting position, the projectable element 22a may be projected downwardly against the resilient force of spring 26 and the arm 25 oscillated into the retaining notch provided in the upper portion of the conduit 20 to positively lock said projectable element 22a in projected position to permit the lower pointed portion thereof to penetrate an icy surface and provide positive traction for the walking aid thereon.

It will be seen that I have provided an extremely simple traction attachment adapted to be mounted on and work in combination with canes, crutches, and other walking aids to provide auxiliary traction for icy surfaces for said walking aids. I have provided a simple complete unit having a hollow tubular guiding member with a longitudinally shiftable element mounted therein and a projectable ground-penetrating element connected at the bottom thereof for operation by a control handle connected at the top of said longitudinally shiftable member. This attachment can be mounted on an upstanding support member of any walking aid to provide auxiliary traction therefor and controllable within easy reach of the fingers and provided with an easily accessible control handle for operating the normally retracted ground-engaging projectable element. Form A of my invention has no hollow tubular guiding member but is adapted to work in combination with a walking aid in longitudinal sliding relation substantially as described.

One of the most important features of my traction attachment for walking aids, as hereinbefore described, is that the walking aid does not have to be raised from supporting position, and the hand of the user remains constantly on the hand grip of the walking aid during the quick and easy operation of the control handle to shift the ground-penetrating element into retracted or projected position. My auxiliary traction attachment is under quick and instant control of the user at all times.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the parts without departing from the scope of my invention.

What I claim is:

A unitary, ice-traction attachment for a crutch or cane of the type having an upstanding, rigid support with a hand grip affixed to the upper portion thereof, said attachment comprising a rigid, continuous, tubular member extending between said hand grip and the lower ground-engaging end of said upstanding support performing a continuous guide and lateral supporting element and for reinforcing said support, readily attachable

means for rigidly securing said tubular member at widely spaced portions thereof to said support, an elongated, longitudinally shiftable member mounted and guided for vertical shifting movement in said tubular member and having a projectable pointed element formed at the lower extremity thereof in fixed relation thereto and projectable below the lower extremity of said upstanding support, a coil spring surrounding said elongated, shiftable member for urging the same upwardly, a control element fixed at the upper extremity of said shiftable member and positioned adjacent said hand grip to facilitate projection and retraction of the projectable element by the fingers of a hand gripping said hand grip and

means for retaining said control element in a depressed position to fix said projectable element for operation.

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