

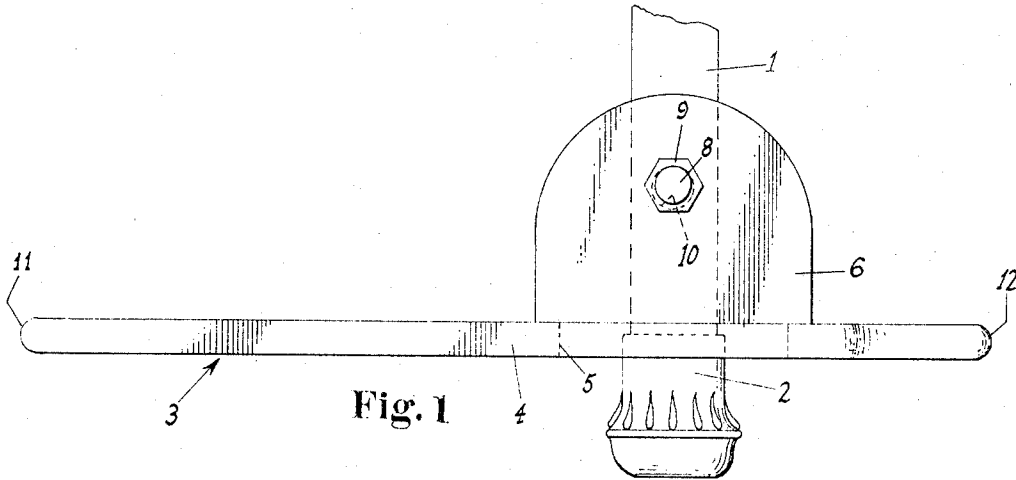
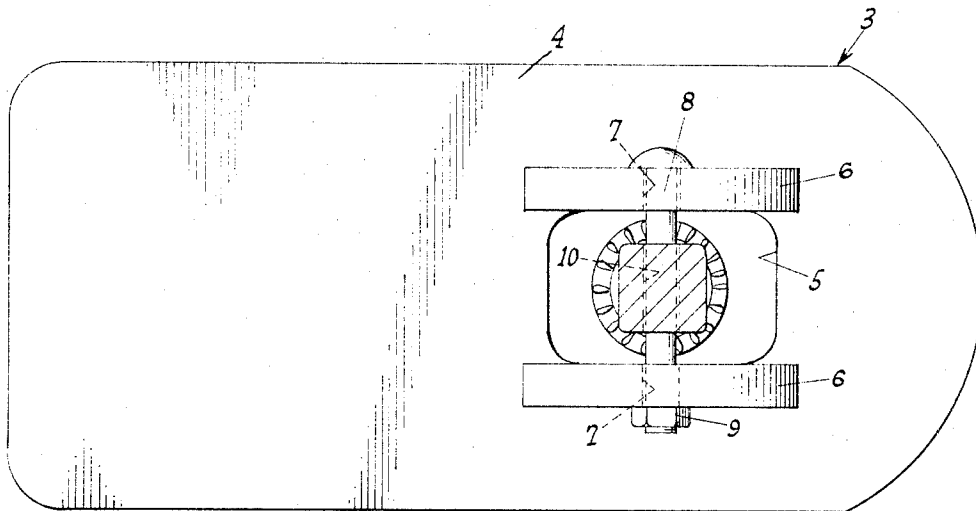
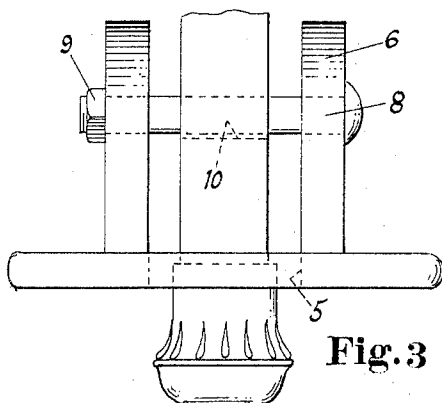
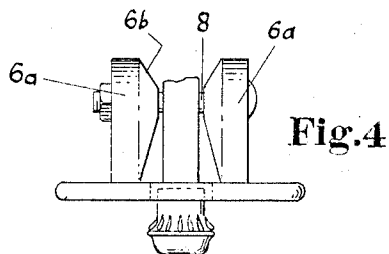
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ATTACHMENT FOR CRUTCHES AND LIKE WALKING AIDS

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ATTACHMENTS FOR CRUTCHES AND LIKE WALKING AIDS

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1 Claim. (Cl. 135—62)

This invention relates to attachments for crutches, canes and like devices for assisting invalids and others in walking.

Most canes and crutches include an elongated support structure having a ground-engaging lower end portion provided with a small diameter tip, which is covered with rubber or other similar material, and which engages the ground or other surface, when the user is walking. This design is acceptable when the surface being traversed is relatively firm. With a crutch or cane tip carrying the load of the weight of the user, considerable pressure is exerted upon the surface being traversed. This is of little consequence on floors, sidewalks, and other firm surfaces. An entirely different situation arises, however, when the user desires to traverse sand, snow, mud, or other relatively soft surfaces.

One object of the present invention is to provide a device which will permit the user to walk upon relatively soft surfaces.

Another object is to provide such a device which will not trip or otherwise cause the user difficulty, when the device is attached to the tips of the canes or crutches.

A still further object is to provide a device which will permit normal use of canes or crutches, when the user is traversing a relatively firm surface.

The device is removable so that it may be attached to the cane or crutch, when the user anticipates need therefore and can be removed when such need is not contemplated. A still further object is to provide a device, which can be used with the present canes and crutches.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention consists of certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claims, it being understood that changes may be made in the construction and arrangement of the parts without departing from the spirit of the invention as claimed.

For the purpose of illustration, a typical embodiment of the invention is shown in the accompanying drawings in which:

FIGURE 1 is a side view of an attachment in accordance with one embodiment of the invention shown mounted on the tip of a crutch;

FIGURE 2 is a top view of the attachment with the crutch tip shown in transverse cross section;

FIGURE 3 is a front elevational view of the attachment shown in FIGURE 1; and

FIGURE 4 is a modification of the design shown in FIGURE 3 shown in a reduced scale.

The particular embodiment shown for purposes of illustration is for use on a crutch of the well-known type having a shank 1 with a tip 2. The tip 2 is provided with a cup of rubber or other similar material, which contacts the walking surface. The weight supporting device or shoe member, indicated generally as 3, comprises a generally rectangular support or base portion 4 with an opening 5 therethrough. The opening 5 is placed on the longitudinal axis of the base 4 toward one end thereof. As shown, this location is approximately one third the length of the base, from the front or leading edge thereof. Upstanding supporting members 6 are fixed to the base on opposite sides of the opening 5. The

supporting members 6 have aligned bores 7 therethrough carrying an axle 8 fixedly mounted therethrough. As shown, the axle 8 is a conventional smooth shanked bolt with nut 9 fixedly securing the bolt in the bores 7 of the supporting members 6. The tip of the crutch has a bore 10 drilled therethrough of a diameter slightly larger than the axle 8. The bore 10 is positioned from the end of the crutch tip a sufficient distance, so that when the supporting device is mounted on the crutch by inserting the crutch tip through the opening 5 of the base 4 and passing the axle 8 through the bore 10 of the crutch tip, the crutch tip will extend through the shoe and project beneath the bottom of the base as more readily seen in FIGURE 1.

Although the shoe as shown in FIGURE 1 is flat, if the shoe is fabricated by laminating wood or molding plastic, the front or tip portion could be curved upwardly slightly, similar to the tip of a ski.

As seen more readily in FIGURES 1 and 2, the opening 5 in the shoe 4 is centered on the longitudinal axis of the shoe and extends both forwardly and rearwardly of the axle 8. Extending opening 5 along this axis permits angular rotation of the crutch tip about the axle 8 to a considerable degree, so that during normal operation the crutch tip will not engage the front and rear edges of the opening 5, while the user of the crutch is walking.

The bore 10 in the crutch tip is slightly larger than the axle 8 to permit slight angular displacement of the shoe with respect to the crutch in the lateral direction, in the event the shoe engages a slightly uneven surface. The upstanding supporting members 6 are spaced apart a sufficient distance to permit this movement without allowing appreciable sideways sliding movement of the crutch tip along the axle 8.

In the modification shown in FIGURE 4, the vertical support members 6a have their inner surfaces 6b diverging outwardly from the axle 8 so that the crutch can pivot laterally a slight amount on the axle 8 without sliding thereon. The amount of angularity of the vertical support members and the difference in diameter between the bore 10 in the crutch and the axle 8 would determine the amount of such sideways or lateral pivoting, and thus the degree of correction for uneven ground.

It will be seen that by mounting the shoe on a conventional rubber tipped crutch, the effective bearing surface can be increased a considerable amount from the conventional tip surface of about 2½ sq. inches. With a shoe approximately 6 inches wide by 12 inches long, the bearing surface is increased to approximately 72 sq. inches (less the area of opening 5) or an increase of approximately 25 times.

In operation, it will be seen the user can operate his crutch in the normal fashion. When it is determined he will be involved in traversing soft areas, which would not support the weight placed on the small tip of a crutch, the shoes can be quickly and easily mounted on the crutches. Until the user reaches the soft area, the crutches will still function in the normal manner. The crutch tip extending through the shoe will engage the firm walking surface. The shoe will be carried in a slightly upward position, say on the order of three-fourths of an inch, depending upon the amount of the crutch tip extending through the shoe. Since the crutch tip is mounted forwardly of the center line of the shoe, the shoe will gravitate pivotally and tend to hang with the back or trailing edge 11 of the shoe extending downwardly, and the front or tip portion 12 of the shoe extending upwardly. Thus the shoe will not tend to catch or otherwise engage the ground in such a way as to trip the user.

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When the user enters upon soft ground, sand or other surfaces which may not support the weight placed upon a crutch tip, the crutch tip will sink into the surface, thus bringing the entire shoe into engagement therewith. The user's weight is then transferred from the crutch through axle 8 to the shoe, and the entire surface of the shoe will act as a bearing surface on the ground. The pivoting action of the crutch tip with respect to the shoe will permit normal walking by the user. As the crutch is lifted from the ground to be extended forward in preparation for another step, the shoe will pivot with respect to the crutch with the trailing edge 11 again extending downward, thus avoiding the tendency of tripping the user when on soft ground or sand. The trailing edge of the shoe can have weight added thereto, if necessary, in order to assure this pivoting action to avoid the possibility of the shoe catching against small obstacles.

The axle 8 could also be a spring loaded rod, or a metal collar could be provided with aligned bores extending through the crutch or not as desired. The invention is directed to the use of a supporting member mounted on a crutch or cane and not the specific means of attaching the bolt or axle means to the vertical supporting members and the crutch.

It is also to be noted that when the shoe is used on sand or snow, which may have a tendency to be slippery if the user is going up or down hill, the crutch tip extending into the surface will reduce the tendency for the shoe to slide, thus further adding to the safety of the user.

It will be apparent from the foregoing that I have provided an appliance for attachment to a conventional crutch or cane, which will permit the user to walk on surfaces, which would normally create great difficulty for the user. The device does not require a special crutch or cane, is readily attachable and removable therefrom by means which, when the device is not mounted, have no effect upon the crutch or cane and the use thereof.

Having fully described my invention, it is to be understood that I am not to be limited to the details herein set forth, but that my invention is of the full scope of the appended claim.

I claim:

An attachment for a walking aid of the type including an elongated support having a ground-engaging lower end portion comprising, in combination,

an elongated shoe member having an opening there-through,

said shoe member comprising a front portion located forwardly of said opening and a rear portion located rearwardly of said opening;

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a pair of upstanding members fixed to said shoe member and spaced apart transversely thereof with each of said upstanding members disposed at a different side of said opening,

said opening being dimensioned to accommodate the ground-engaging lower end portion of the walking aid to which the attachment is applied, in such fashion that such lower end portion extends between said upstanding members, said upstanding members each being provided with a lateral opening, said lateral openings being aligned transversely of said shoe member and alignable with a transverse opening in the lower end portion of the walking aid; and

pivot shaft means carried by said upstanding members extending across said opening and transversely of said shoe member, and said pivot shaft means comprising an axle extending through said aligned openings; and

said pivot shaft means being operative to removably count said shoe member on the ground-engaging lower end portion of the walking aid with said shoe member then free to pivot about said pivotal axis relative to the ground-engaging lower end portion of the walking aid,

said rear portion of said shoe member being heavier than said front portion whereby, when the walking aid is raised to free the lower end portion thereof from the ground, said shoe member will gravitate pivotally to cause said front portion to swing upwardly and said rear portion to swing downwardly, said shoe member thus automatically assuming a position in which said front portion will not tend to catch on or otherwise engage the ground in such manner as to trip the user.

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