

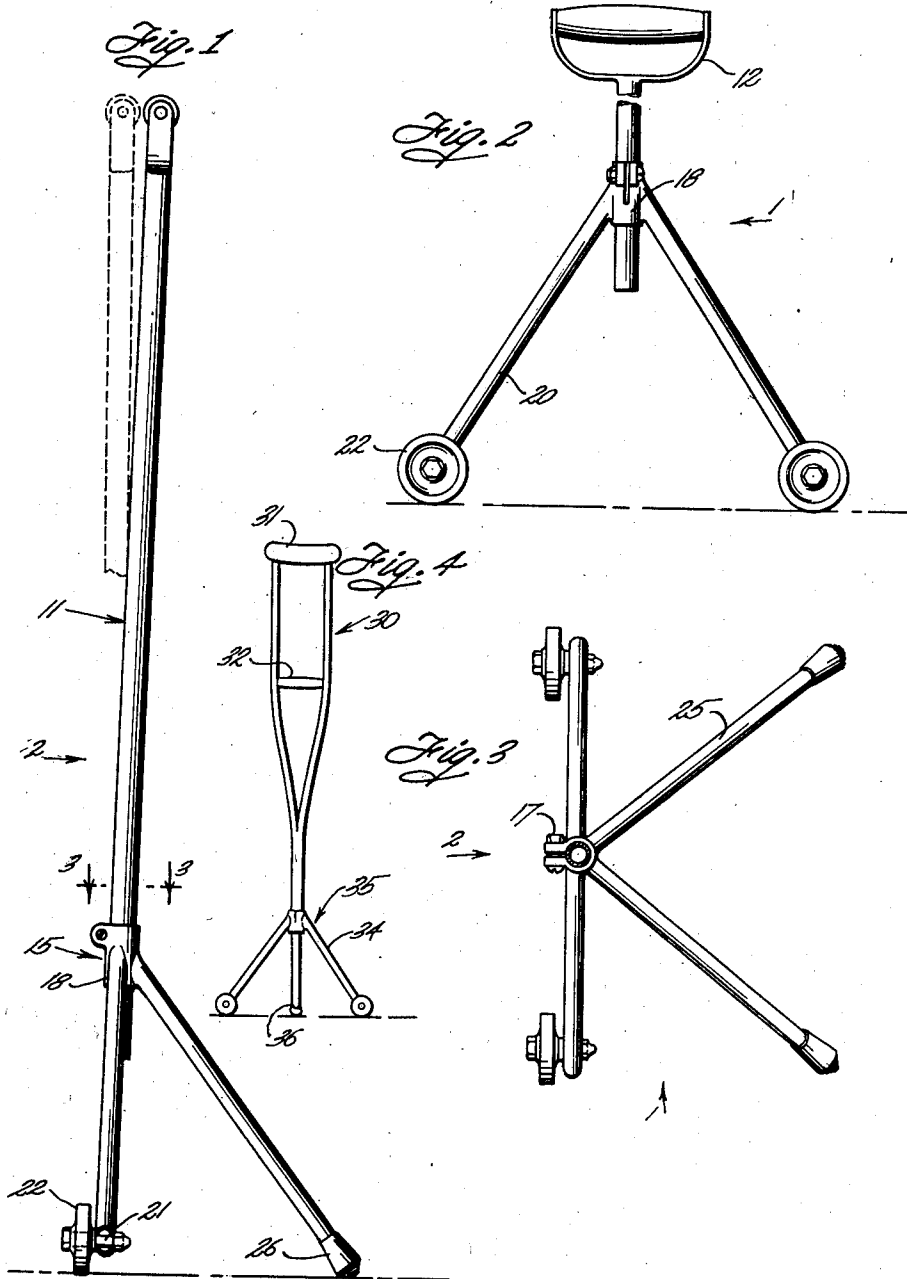
June 10, 1941.

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2,244,869

GLIDER CANE

Filed Sept. 23, 1940



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UNITED STATES PATENT OFFICE

2,244,869

GLIDER CANE

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Application September 23, 1940, Serial No. 357,876

8 Claims. (Cl. 135—47)

Our invention is designated a glider cane as it is a type of cane particularly designed to aid invalids or persons having trouble in walking to walk with the aid of one or two of such canes. Our invention is of particular utility in aiding invalids who have been using crutches and wish to discard them to walk with the aid of our glider canes.

One of the difficulties of persons requiring the use of crutches or similar aids in walking is that it is difficult to shift from the support given by crutches to that given by a cane held in the hand. Moreover in such cases difficulty is sometimes experienced in lifting the cane from the ground without any support while the cane is being advanced as the invalid takes a step. Therefore one of the objects of our invention is to overcome this difficulty by providing a cane with rollers so that the cane may be moved either forwardly or rearwardly at each front or backward step on the rollers thus making a firm contact with the ground and giving a partial support while the cane is being shifted for steps either forwardly or rearwardly.

Another difficulty of an invalid in transition from the use of crutches to canes is in the lack of a firm or rigid support given by a cane on the ground as the body weight is partly supported by one or more canes, therefore another feature of our invention is the employment of a rigid and multi-point support for the cane on the ground so that this will have a certain amount of rigidity instead of the usual one-point of contact with the cane on the ground and thus give the invalid greater assurance of support allowing more weight to be placed on the cane.

Another feature of our invention to accomplish both of the above purposes is to provide the cane with both the rollers and the fixed multiple point support so that the cane may be rolled forwardly or rearwardly for each step on the rollers and then the fixed ground contacts engaged with the ground by a slight tilting of the cane and these with the wheels giving a multiple and stationary support enabling the invalid to more successfully make a decisive step with the desired body weight supported by the cane. Our invention is also of use by persons who while having the ability and strength to walk cannot keep balance and require to push some steadying device as an aid to walking. With one or more of our canes sufficient steadiness may be given for the person to retain their balance.

Our invention also comprehends making the glider with a crutch support, the user thus has

a main rest engaging under the armpits and also with the hand grip of a typical crutch. With the rolling crutch a person may thus shift the crutch without necessity of raising the same from the ground and then by the slight tilting action obtain a firm support.

Our invention is illustrated in connection with the accompanying drawing, in which:

Fig. 1 is an end elevation taken in the direction of the arrow 1 of Fig. 2 or arrow 1 of Fig. 3.

Fig. 2 is a front elevation taken in the direction of the arrow 2 of Fig. 1 or Fig. 3.

Fig. 3 is a horizontal section taken on the section line 3—3 of Fig. 1 in the direction of the arrows.

Fig. 4 is an elevation of a portion of our invention arranged as a crutch.

In our invention we employ a cane rod 11 which is preferably made of strong light thin tubing. This has a hand grip 12 at the top and is of suitable length. The wheel and brace assembly 15 includes a split collar 16 through which the tube fits, this having a side split at the upper portion and clamped around the tube by a clamping nut 17. The lower portion of the collar 18 is made in the manner of a sleeve with a clearance on the rod 11. A pair of diagonal legs 20 extend downwardly from the sleeve being welded thereto. These are substantially in the same plane as the rod 11. Wheel axles 21 extend through perforations in the lower portion of the legs and have wheels 22 mounted thereon, the axles being secured by a nut or other suitable manner, thus the plane of the wheels is parallel to the plane through the legs 20. This is done for simplicity of construction. The brace or prop has a pair of legs 25 which also diverge from the sleeve 18 merging into the collar portion 16. These each are in a plane which intersects the plane of the wheeled legs 20 at an acute angle. The lower ends extend considerably to one side of the plane of the legs 20 and have rubber caps 26 fitted on their lower ends, these being similar to the caps used on crutches and canes. The legs 25 are longer than the legs 20 and diverge at such an angle that viewed from the side preferably one of the legs 20 and its corresponding leg 25 are in the same plane intersecting the vertical plane through the rod 20 and bi-sectioning the angle between the legs 20 at an acute angle. The purpose of this is to have the caps 20 engage a floor surface substantially the same distance from a vertical line through the rod as the distance of the wheels from the axis of such rod. The construction is

made sufficiently rigid so that there is no bend or flexible yielding of any of the legs or of the vertical rod 11 which as above mentioned may be adjusted in the collar 15 to place the hand grip at the proper height for the person using the cane.

In the manner of using the cane for instance by a person who is advancing from the use of crutches, is in making a step and either using one or two of these glider canes, is to hold the device in the position shown in full lines in Fig. 1 in which the rigid legs 25 through the medium of the caps 26 engaging the floor form a brace and stationary device, that is, it cannot very well roll or slip either forward or rearwardly nor sideways while the person places part of his weight on the cane through the medium of the hand grips. After a step has been made the user brings the cane tube 11 to substantially a vertical position as indicated by the dotted line in Fig. 1. This raises the caps 26 above the floor line allowing the device to be freely rolled on the rollers 22 either forwardly or rearwardly depending upon which way the person is progressing. For instance if the person is stepping forwardly they advance the hands the desired distance, again tilt the hand grip outwardly to again engage the caps with the floor line, thus rendering the device quite rigid and again make a step forward. It will thus be seen that with our glider cane although it is made of very light weight for its strength, does not necessitate lifting the rollers off the floor line but when the device is moved either forwardly or rearwardly, it is guided in the plane of the wheels 22 and rolls without much effort on the part of the user. The user preferably handles the device so that the brace legs 25 extend laterally from his side as when two canes are being used this gives a clear space between the canes for movement of the legs and feet, however if the legs 25 extend towards the feet of the user, there is but little inconvenience except that the person using the cane has to be careful not to press outwardly on the hand grip and thus raise the caps 26 above the floor line when making a step.

The caps 26 form feet on the legs 25, hence as the device is quite light and a person has advanced in their walking, the device may be lifted and swung somewhat like a cane bringing for instance in a forward step the rearwardmost wheel and the rearmost foot in contact with the ground and then bringing the other wheel and the forward foot to engage the ground forming a rigid brace for the next full step. An advantage of having the feet 26 in substantially transverse alignment with the forward and rearward wheels is that this gives a distinct four-point support on the floor and a rigid brace. It would be apparent however, that if desired a single brace leg may be utilized at right angles to the plane including the wheel legs 25 and the rod.

In Fig. 4 we illustrate our invention applied to a crutch in which the crutch assembly 30 has the upper curved rest 31 to engage under the armpits and the conventional hand grip 32. The lower stem or rod-like portion has the adjustable sleeve, the first pair of legs provided with the rollers and the second leg or pair of legs giving the lateral brace. As illustrated, the lower frame 33 is adjustably mounted as to the shank of the crutch and has a pair of diverging legs 34 with rollers 35 thereon and a single laterally extending leg 36 provided with a friction foot which may be of the same type as shown in Figs. 1 and 3.

Various changes may be made in the details of the construction without departing from the spirit or scope of the invention as defined by the appended claims.

We claim:

1. In a device as described, a rod forming part of a cane and having a hand grip, wheels at the lower portion of the rod and spaced forwardly and rearwardly relative to the axis of the rod and a fixed rest device connected to the rod whereby in successive steps a person may roll the cane on the wheels or by engaging the fixed device to the ground, retain the device stationary.

2. A device as described comprising a rod forming part of a cane with a hand grip adjacent the upper end, a pair of wheels connected to the lower portion of the rod with the plane of the wheels being in substantial alignment with the axis of the cane rod, one or more fixed legs extending laterally from the rod and adapted to form a stationary rest for the cane when not rolling on the wheels.

3. In a device as described, a rod forming a cane with a hand grip, a frame connected to the lower end of the cane and having axles secured thereto transverse to a front to rear plane through the rod, wheels journaled on the axles, the wheels being positioned substantially equal distances in the front and the rear of the axis of the rod and adapted to substantially follow the same track when the rod with the frame is rolled over a floor on the wheels, a secondary frame secured to the rod and having at least one foot positioned to engage the floor spaced laterally from the wheels to form a brace and retain the wheels and hence the rod from a rolling movement.

4. In a device as described, a rod forming a cane structure with a hand grip, a collar adjustably mounted longitudinally of the rod, a frame connected to the collar and having legs diverging at substantially the same angle from the axis of the rod, each of the legs having an axle transverse to the plane including the legs and the rod and a wheel journaled on each axle, the wheels being positioned substantially equal distances to the front and rear of the rod in reference to a rolling motion of the wheels on a floor, a secondary frame secured to the collar and having at least one leg diverging therefrom laterally from the plane of the legs of the first frame and having a foot to engage the floor, the foot being adapted for raising above the floor by tilting the rod and the frames on the wheels for rolling movement of the said device and when the foot engages the floor the wheels being held stationary and the legs of the secondary frame forming a brace.

5. In a device as described, a rod forming a cane-like structure provided with a hand grip, a collar adjustably mounted on the rod, a first pair of legs diverging from the collar substantially in a plane including the axis of the rod, axles secured to the legs transverse to the said plane and having wheels journaled thereon adapted to follow in the same track when the device is rolled on the wheels, the legs diverging forwardly and rearwardly at substantially equal angles from the axis of the rod, two brace legs secured to the collar and diverging laterally from the plane of the first pair of legs, the second legs also diverging substantially equally from the axis of the rod, each leg having a friction foot to engage a floor whereby when the handle and the legs are tilted from a running position for the foot to engage

a floor, the said feet restrain the rolling movement on the wheels.

6. In a device as described, a frame structure having a pair of wheels positioned to track in a straight line of motion forwardly or rearwardly, one or more friction feet connected to the frame and extending laterally from the line of the wheels, a body supporting structure extending upwardly from the frame and having a hand grip thereon whereby on laterally tilting the frame, the frame with the support may roll on the wheels or be retained stationary with the friction foot engaging a floor.

7. In a device as described, a frame structure having a pair of wheels positioned to track in a straight line of motion forwardly or rearwardly, one or more friction feet connected to the frame and extending laterally from the line of the

wheels, a body supporting structure extending upwardly from the frame having a hand grip thereon and a crutch shoulder support whereby on laterally tilting the frame the frame with the support may roll on the wheels or be retained stationary with the friction foot engaging a floor.

8. In a device as described, a collar, a first pair of divergent legs extending downwardly therefrom and having rollers thereon attached to a track in the same direction in a forward or rearward movement, one or more lateral brace legs connected to the collar and having feet to engage the ground and a crutch member extending upwardly from the collar and having a shoulder support and a hand grip.

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