United States Patent

[11] 3,633,906

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[54] **A WALKER WHICH HAS A ROCKING MOVEMENT**
4 Claims, 7 Drawing Figs.

[52] **U.S. Cl.** ..... **272/70.3,** 297/5, 135/45 A
[51] **Int. Cl.** **A61h 3/00**
[50] **Field of Search** 272/70.3, 70.4; 135/45

[56] **References Cited**

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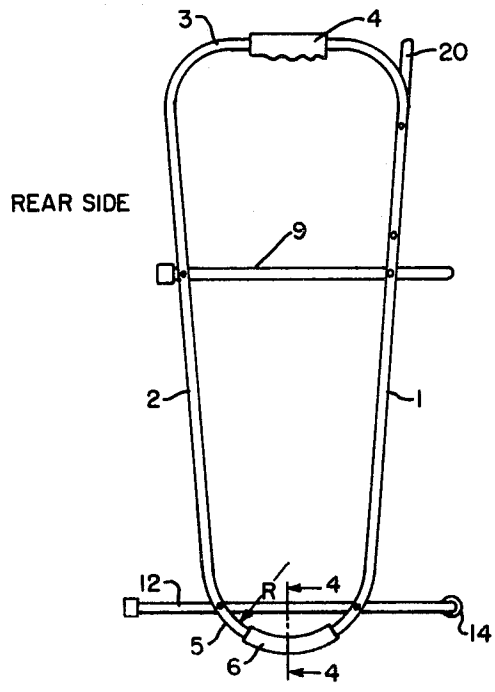
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720,989	4/1942	Germany	272/70.4

Primary Examiner—Richard C. Pinkham
Assistant Examiner—Richard Dror
Attorney—Arthur F. Robert

ABSTRACT: A walker having a generally upright frame conventionally providing a pair of hand grips at its upper end and characterized by a pair of rounded bottom runners substantially semicircularly curved for forward-and-rearward rocking engagement with the floor between forwardly inclined and rearwardly inclined positions and a U-shaped lower cross-member for engaging the floor at such positions to restrict rocking movement thereto.



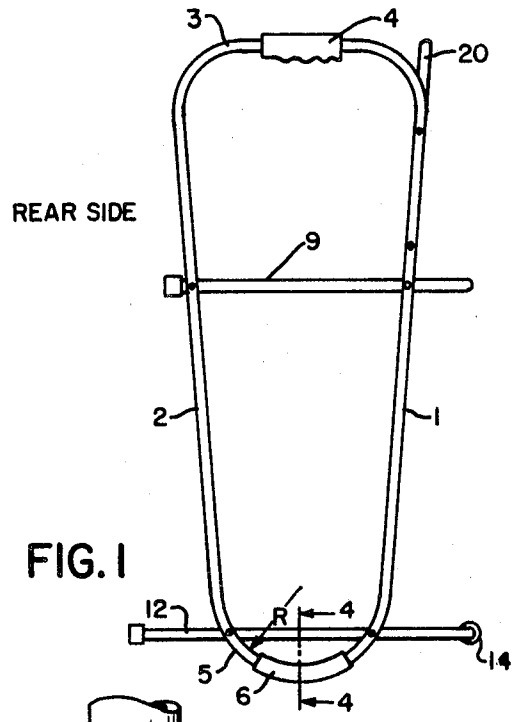


FIG. 1

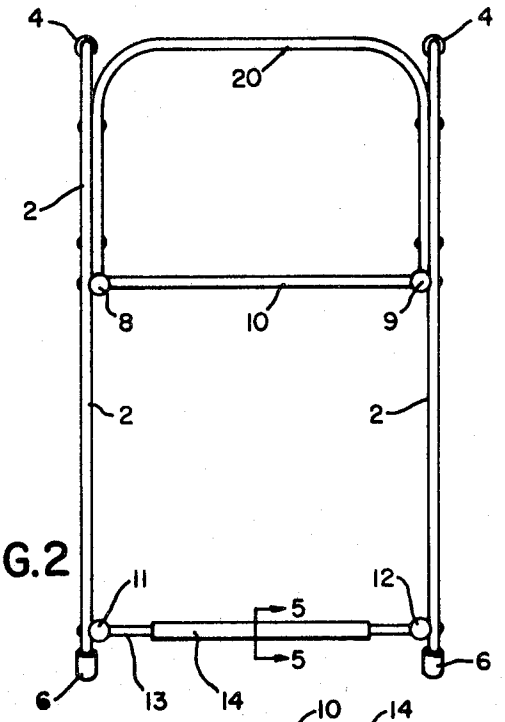


FIG. 2

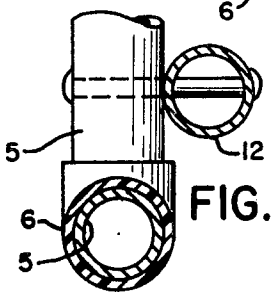


FIG. 4

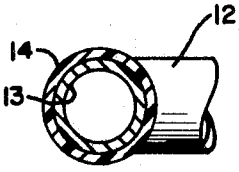


FIG. 5

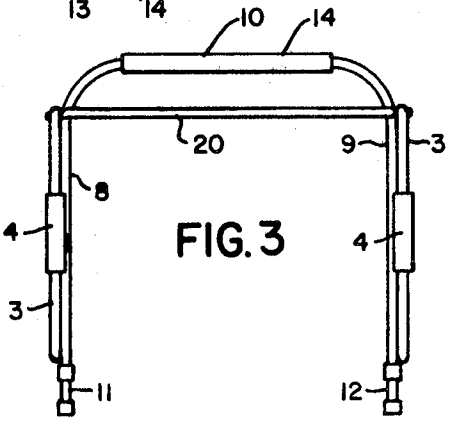


FIG. 3

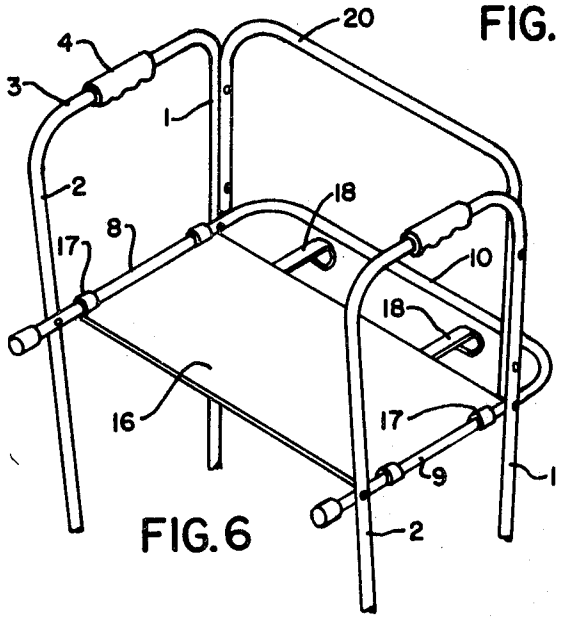


FIG. 6

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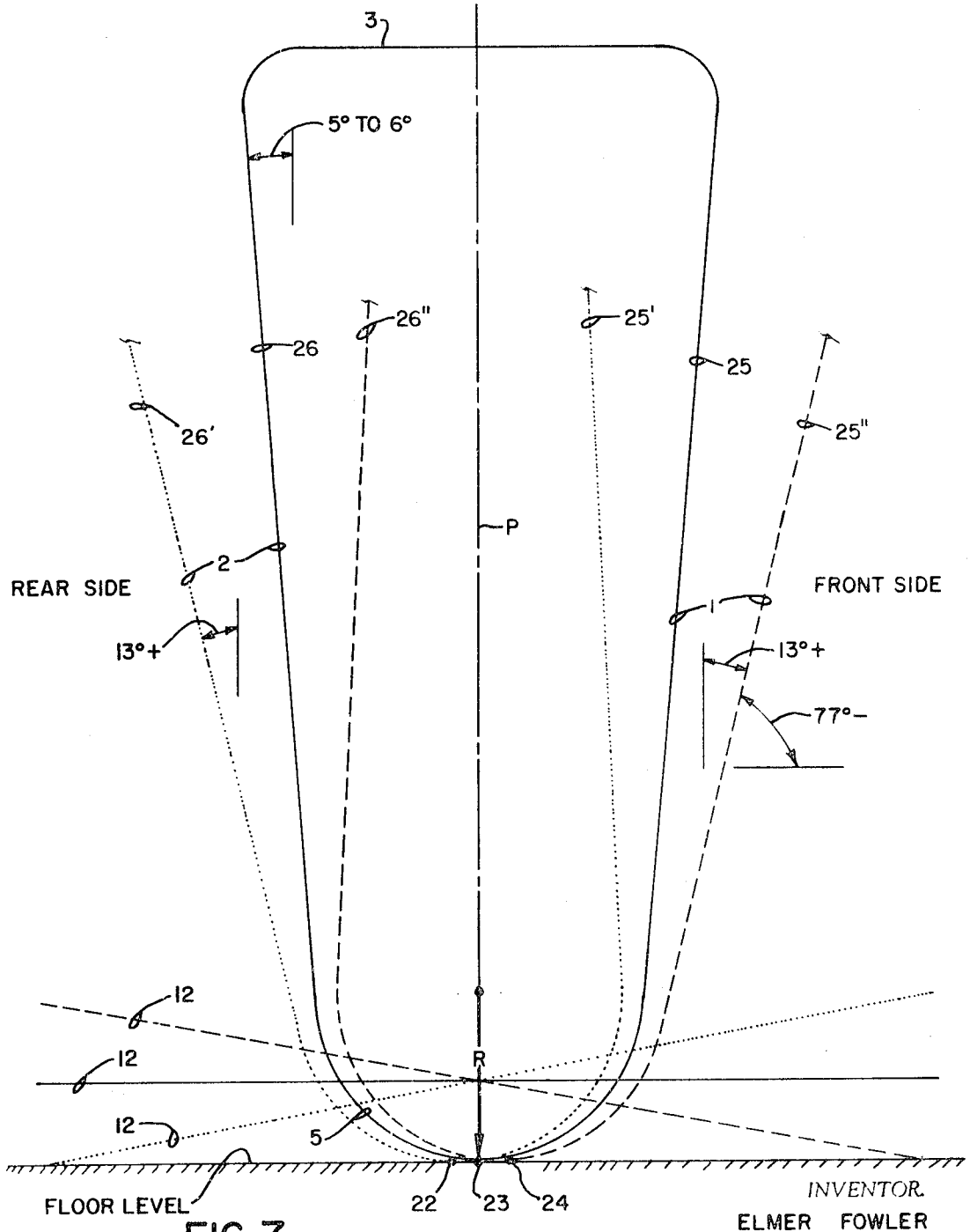


FIG. 7

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WALKER WHICH HAS A ROCKING MOVEMENT

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to devices for providing support to aged, infirm and like persons when and as they walk, such devices being commonly called walkers.

2. Description of the Prior Art

The Ecroyd U.S. Pat. No. 2,989,114 discloses a walker having an upright frame providing a pair of laterally spaced hand grips at its upper end and a horizontal rearwardly open U-shaped floor-engaging crossmember at its lower end. The legs of Ecroyd's U-shaped floor-engaging crossmember are flatly curved on a large radius to form floor-engaging runners for accommodating a forward-rearward rocking movement of the walker.

SUMMARY OF THE INVENTION

Objects of the Invention

The principal objects of the invention are: to provide an improved walker of the rocking type; and to provide one, which is improved both structurally and functionally or operationally.

Another important object of the invention is to provide a rocker type of walker which, in operation, makes the user more aware of its safe operational limits and which, within those limits, is comfortably easy to operate, has a superior feel and gives the user a warranted feeling of confidence in the safety of its use.

Statement of the Invention

All of the objects of my invention may be achieved in a walker comprising: an upright rigidly integrated frame which is arranged to accommodate a user at its rear end, said frame presenting, at its upper end, laterally spaced means engageable by a user for user support and walker manipulating purposes, and, at its lower end, laterally spaced floor-engaging runners which are roundly curved on a short radius for forward-rearward rocking movement on the floor between steeply inclined forward and rearward positions; and stop means on at least one side of said frame for engaging the floor to restrict the forward-rearward rocking movement of the walker to at least one of said inclined positions.

BRIEF DESCRIPTION OF THE DRAWINGS

The preferred embodiment is illustrated in the drawing wherein:

FIG. 1 is a right side elevational view of a walker constructed in accordance with my invention and arranged approximately midway between its extreme forwardly and rearwardly inclined positions;

FIG. 2 is a rear end elevational view of the walker as it appears in FIG. 1;

FIG. 3 is a top plan view of the walker as seen in FIG. 2;

FIGS. 4 and 5 are fragmentary sections taken along lines 4—4 and 5—5;

FIG. 6 is a fragmentary perspective view of an upper end portion of the walker; and

FIG. 7 is a schematic view showing the walker, in full lines, as it appears in its FIG. 1 position, and showing, in dotted and dash lines, how it appears in its forwardly and rearwardly inclined positions.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The preferred embodiment, as illustrated, specifically comprises: an upright rockable frame having left and right sides and front and rear ends; stop means for restricting the rocking movement; a seat; and a backrest.

Frame

The upright frame may be of any suitable rigidly integrated construction presenting, at its top or upper end, laterally spaced means engageable by a user for user support and rocker-manipulating purposes, and, at its lower end, laterally spaced floor-engaging runners which are substantially semicircularly curved on a short radius for forward-rearward rocking movement between steeply inclined forward and rearward positions. As shown, it is composed of a pair of laterally spaced, vertically arranged side members and a pair of vertically spaced, horizontally arranged, crossmembers and these members are preferably composed of tubular metal, preferably a lightweight metal, such as aluminum or magnesium of sufficient rigidity for safe use in a walker.

The vertical side members are identically constructed, each comprising a pair of vertical (preferably downwardly converging) front and rear legs **1** and **2** connected together, at their upper ends, by a horizontal top member **3**, preferably having a hand grip **4**, and also connected together, at their lower ends, by a bottom runner **5** which is roundly or sharply curved on a short radius R. As is evident in FIGS. **1** and **7**, each bottom leg interconnecting floor-engaging runner **5** curves somewhat from one leg to the other. As is evident in FIGS. **1** and **7**, each bottom leg-interconnecting floor-engaging runner **5** curves somewhat semicircularly from one leg to the other. The floor-engaging portion of the runners preferably is covered by a short tightly fitting section of rubber tubing **6** or equivalent material having a coefficient of friction sufficiently high for nonslip purposes.

Both of the horizontal crossmembers are of "U" shape and both are arranged with their respective bights on the front end of the walker. The upper crossmember is located at seat level which is normally about 20 to 23 inches above the floor. It has its left leg **8** connected to the front and rear legs **1** and **2** of the left side member. Its right leg **9** is similarly connected to the legs of the right side member while the front ends of its legs **8** and **9** are rigidly interconnected by its bight **10**.

The lower crossmember is located about 2 or 3 inches above floor level and similarly arranged with its left and right legs **11** and **12** similarly connected to the left and right side members and similarly interconnected by its front bight **13**. All connections, between the side members and crossmembers, should be such as to insure rigidity; hence while bolted connections are shown, welded or other suitable connections may be employed.

Stop Means

It is desirable to restrict the forward-rearward rocking movement of the walker to front and rear positions, which are steeply inclined. While this may be done in any suitable way by any suitable means, it can be easily and conveniently done by extending the front bight **13** of the lower crossmember forwardly to a degree such that its tubular rubber (or other) cover **14** will engage the floor when the walker reaches its front steeply inclined position and by extending the rear end of the legs **11** and **12** rearwardly to a degree such that they (or their end covers) will engage the floor when the walker reaches its rear steeply inclined position.

Before passing, it may be noted that front and rear stop means are highly desirable not only for restricting the rocking movement of the walker but also for enabling the walker to remain upright in each position. Without stop means, the walker would support itself only in a horizontal position. However, it is not necessary to have both front and rear stops but it is more desirable to have the front stop because the average user should have no difficulty in holding the walker in a rear position of desired inclination, which may vary from time to time.

Seat

Where desired, a seat panel **16** may be used and, through hooks **17** at its left and right sides, supported upon the legs **8** and **9** of the upper crossmember. The seat shown is provided, along its front edge, with another pair of front hooks **18** by which it may be hung on some horizontal part of the chair when the user wants to make some other use of the space normally occupied or obstructed by the seat.

Back Member

Where a seat is used, it may be desirable to provide the walker with a backrest of at least elementary form. Accordingly, another crossmember **20** of downwardly open U-shape is arranged between the front pair of legs **1** of the left and right side members and suitably secured thereto.

Operation

In FIG. 7, the FIG. **1** position of the walker is indicated in full lines, its rearwardly inclined position in dotted lines and its forwardly inclined position in dash lines. Furthermore, the vertical transverse center plane of the FIG. **1** position is indicated by the centerline P while the contact points of the runners **5** are designated **22**, **23** and **24** for the rear, center and forward positions of the walker. The vertical transverse center plane of the frame and of the walker is normal to the floor when they are in their common center position. That same plane inclines steeply from the floor in each of the forward and rearward positions of the walker. The points **22**, **23** and **24** in FIG. 7 make clear that, during full rocking movement, each runner engages the floor along a line of rolling contact extending over a relatively small fraction of the runner's length.

The dimensions used in FIG. 7 are based on an actual walker standing about 34¾ inches high with a runner radius R approximating 5 inches. In the full line position shown in FIG. 7, the legs **1** and **2** diverge upwardly from the vertical at an angle approximating 5° to 6°, the runners **5** of the walker engage the floor at a point **23** and the bottom side of the lower crossmember is elevated about 2 inches above the floor.

Now, when the walker is rocked to its dotted rearwardly inclined position, each runner **5** will roll from its center contact point **23** rearwardly to its rear contact point **22** while a point **25** at the **25''** elevation on its front leg **1** will move rearwardly upward to a position designated **25'**. Likewise, a point **26** at the same elevation on its rear leg **2** will move rearwardly downward to a position designated **26''**. Similarly, the lower crossmember will move to a position wherein the rear ends of its legs **11** and **12** engage the floor and thereby prevent the walker from being moved rearwardly beyond the dotted rearwardly inclined position shown in FIG. 7.

When the walker is rocked forwardly from its dotted line rearwardly inclined position to its dashline forwardly inclined position, each runner **5** will roll on the floor from its rear contact point **22** through its center contact point **23** to its forward contact point **24**. Simultaneously, point **25** on front leg **1** will move forwardly downward from position **25'** to position **25''** while point **26** will move forwardly upward from its rear position **26'** to its foremost position **26''**. During the foregoing forward rocking movement, the front bight **13** of the lower crossmember will move forwardly downward to engage the floor at a point spaced from 12 to 13 inches forwardly from contact point **24** and thus stop the rocker in its extreme forward position.

When the walker is not in use, it may stand or support itself in either of its inclined positions. In use, the ordinary user will normally stand or walk at the rear end of the walker without interfering with or being interfered by the seat **16**. In some cases, however, a specific user may want to stand or walk within the walker, in which case the seat **16** may be hung by its hooks **18** from bight **20** of the walker.

As a user takes or prepares to take a step forward, he will rock the walker forwardly toward and possibly into its extreme forwardly inclined position. When the user's forward step is completed, he need only lift the lightweight walker a very slight distance from the floor whereupon it will normally swing forwardly to a degree such that, when lowered into engagement with the floor, it will then be in or near its extreme rearwardly inclined position.

It will be readily appreciated that the walker is comfortably easy to operate. The front and rear stops not only enable the walker to stand alone in either of its inclined positions but they also make the user more aware of the safe operational limits of the walker. For a reason not entirely understood, the walker appears also to have a superior feel which alone, or in combination with the stop means, gives the user a feeling of confidence in the safety of the use of the walker.

The front and rear stops also enable the walker to stand alone in either of its inclined positions. The sharp or round substantially semicircular curvature of the runners provides smooth, firm rolling contact from the rearwardly inclined position to the forwardly inclined position but renders the walker incapable of self-support at all points between those positions. That substantially semicircular curvature also reduces the contact of the runners with the floor to something approaching point contact along a line of short length. With a radius approximating 5 inches, this line of contact has a length approximating 0.75 to 1.0 inches on each side of the vertical center plane P of the walker. The superior feel of the walker may stem from this curvature of the runners and the resultant short but smooth firm rolling contact of the runners adjacent to and through the center plane of the walker.

I claim:

1. A walker to support aged, infirm and like persons when and as they walk, comprising:

A. an upright rigidly integrated frame, which is arranged to accommodate a user at its rear end, said frame including

1. a pair of laterally spaced, vertically arranged U-shaped side members, each providing
   a. a pair of front and rear vertical legs, and
   b. a bottom leg-interconnecting floor-engaging runner curving from one leg to the other for back-and-forth rocking movement between forward and rearward positions and through an interposed center position, said runner engaging the floor along a line of rolling contact extending over a fraction of the leg to leg curvature of said runner, the vertical transverse center plane of the frame being normal to the floor in said center position and inclining steeply from the floor in each of said forward and rearward positions,
2. a horizontally elongate member interconnecting the upper ends of said front and rear legs, and
2. a pair of vertically spaced upper and lower rearwardly open U-shaped crossmembers rigidly mounted on the frame with their bights extending horizontally across the front side of the frame and with the bight of the lower of said U-shaped crossmembers spaced forwardly beyond the common vertical plane of the front legs,
   a. said lower crossmember being spaced above the floor when the walker is in its center position,
   b. the bight of the lower crossmember being arranged to engage the floor when the walker is rocked into its forward position so as to stop further forward movement.

2. The walker of claim **1** including:

A. a pair of rear horizontal legs, one for the lower end portion of each side member,

1. each rear leg being mounted on its side member to extend
   a. above the floor when the walker is in its center position, and
   b. rearwardly from the rear end of the walker in position to engage the floor when the walker is rocked into its rearward position so as to stop further rearward movement.

3. The walker of claim **2** wherein:

A. the front vertical legs diverge upwardly; and

B. when the walker is in its center position, the spacing of the rear horizontal legs above the floor approximates that of the lower crossmember.

4. The walker of claim 1 wherein:

A. the leg to leg curvature of each runner is substantially semicircular.

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