June 14, 1966 F. GARRINGER 3,256,035

WALKER FOR INVALIDS

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Fig.1

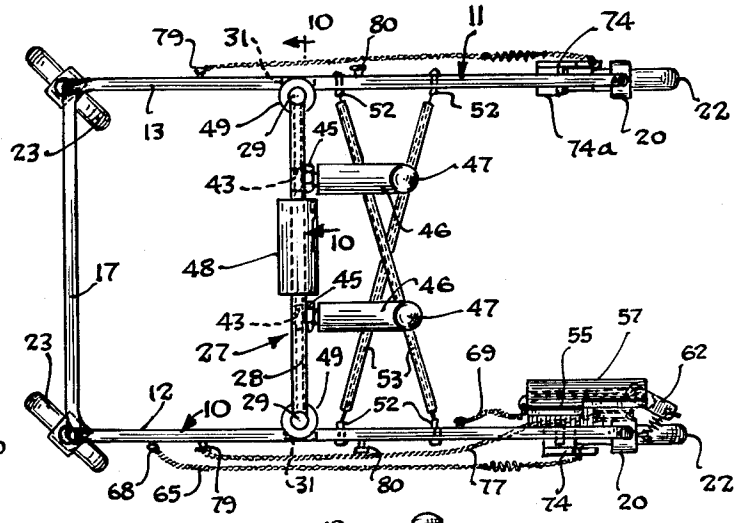


Fig.2

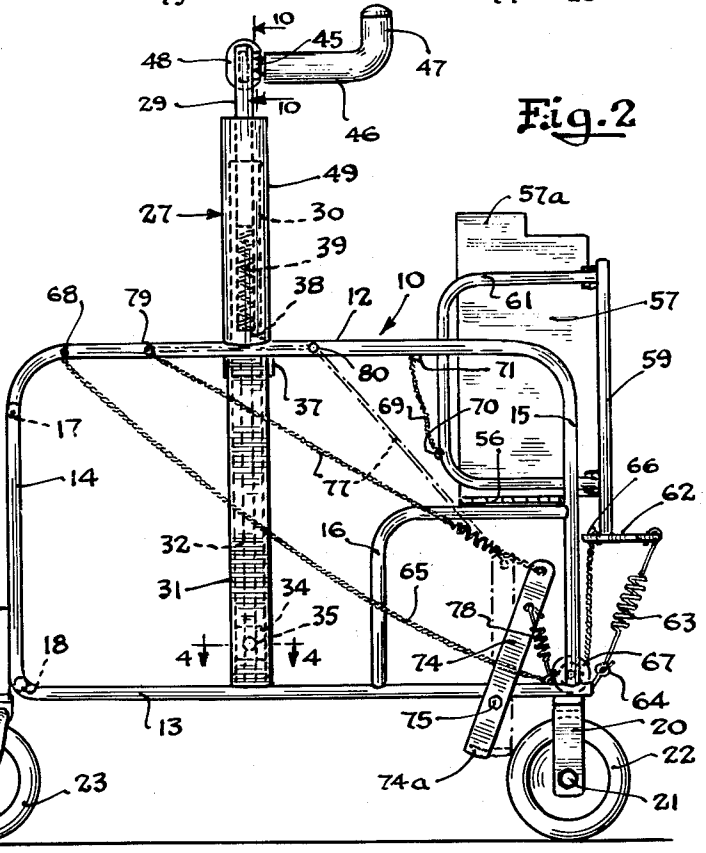


Fig.3

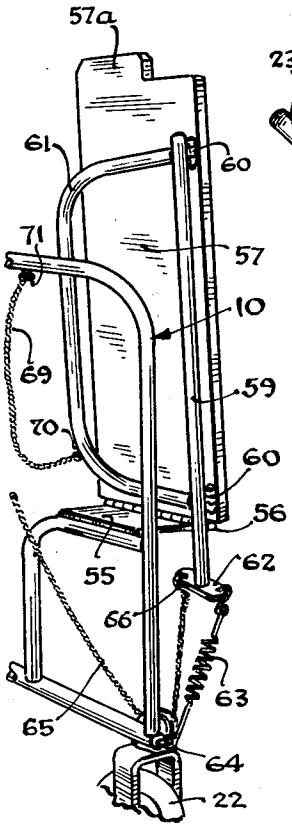
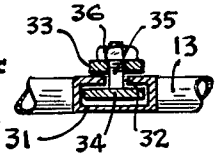


Fig.4



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Fig.5

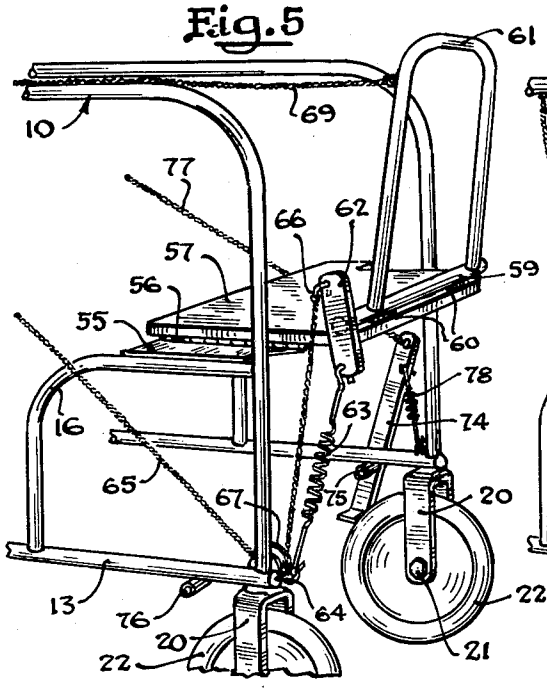


Fig.6

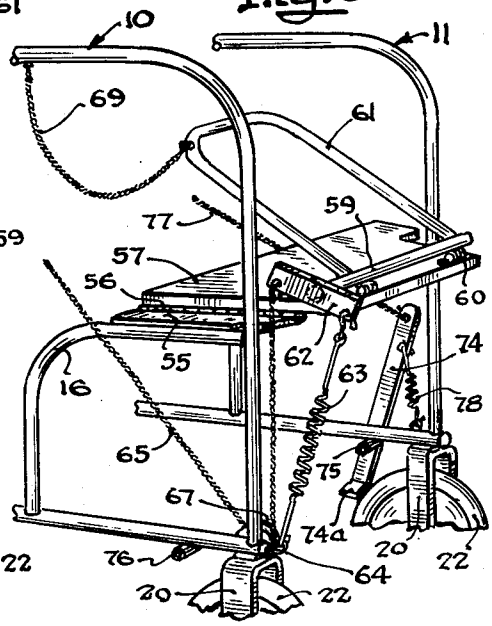


Fig.10

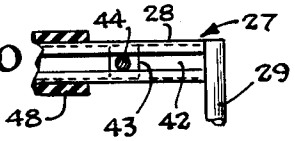


Fig.8

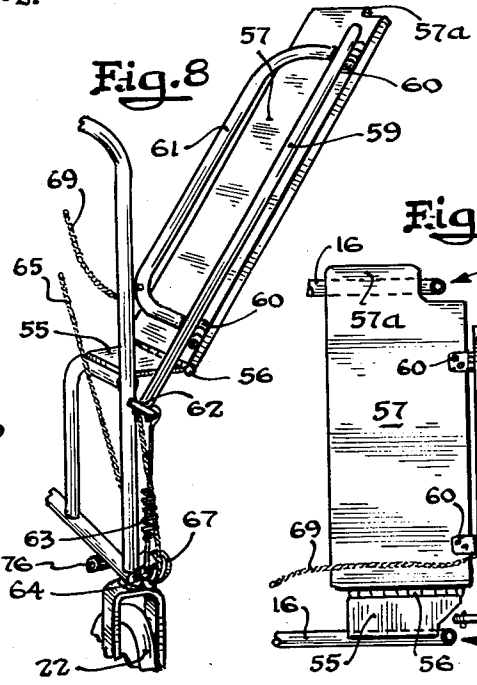


Fig.7

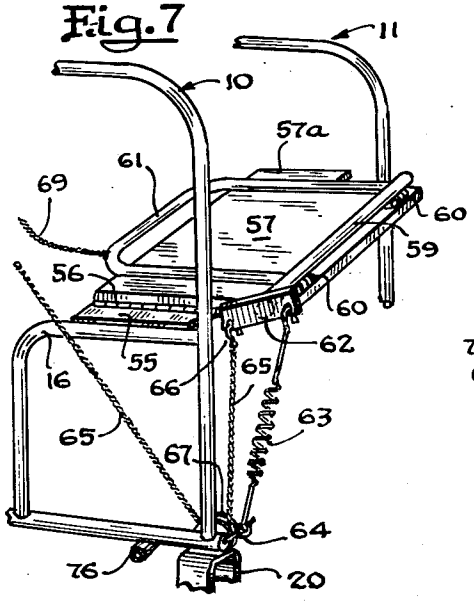


Fig.9

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WALKER FOR INVALIDS

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13 Claims. (Cl. 297—6)

The present invention relates to a walker for invalids incorporating features enabling the user to be largely self sufficient and, thus, requiring minimum of attention from others, and the following disclosure thereof is offered for public dissemination upon the grant of a patent therefor.

The requirements for an ideal walker are somewhat paradoxical. In the first place the invalid should do as much as possible for himself and should be aided only to a minimum extent. This is important because of the desirability that the invalid use his own muscles and dexterity to the greatest possible extent. Conversely however, the walker must not require manipulations by the invalid that are beyond the ability of the invalid to perform. If this requirement is violated, the walker either is useless or the presence of another is required to an extent that is undesirable. The principal object of the present invention is to provide a walker having features which will enable it to be used solely by the invalid, developing the abilities of the invalid to utilize his own muscles, while, at the same time, making the operational problems sufficiently simple so that they are not beyond the invalid's capabilities.

It will be apparent from the subsequent description that numerous features embodied in the present invention contribute to the achieving of this compromise between providing some aid, but not too much, and between calling for the invalid to use his abilities, but not posing problems beyond the invalid's capability.

In the first place, the walker is so designed that an invalid who is ambulatory, even though having severely impaired motor actions, can get into and out of the walker by himself. This not only provides greater freedom for the invalid along with a sense of accomplishment but, obviously, at the same time, reduces the extent to which he must be cared for by others. Other walkers either tend to be beyond the capabilities of the severely handicapped or require a great deal of assistance from another party when the invalid enters or leaves the walker. Once in the walker of the present invention, the invalid can operate as independently as he is capable or, conversely, he can call upon the assistance of the walker to such an extent as he feels is necessary. The structure of the walker is such as to cushion the invalid against harm or injury such as might be caused by the spastic movements of the invalid or by operation of the walker over an uneven surface.

One feature that contributes greatly on the use of the walker by an invalid as aforesaid is the novel seat and operating mechanism therefor. With the seat folded out of the way, the invalid can move into and out of the walker partially or completely unaided (depending upon the capabilities of the invalid). With the seat in position, the invalid is enclosed on four sides by a framework of one sort or another, thus preventing his "falling out of" the walker. Of course, the seat may be used as such whenever the invalid so desires. Again an important feature is that the operations required to raise or lower the seat are within the capabilities of even a severely handicapped person.

Another important feature is the incorporation of brakes so constructed that they may be manipulated by one having little dexterity. Brakes, of course, greatly aid

in the use of the walker. It is particularly important that the walker remain stationary when the invalid is endeavoring to enter it or to move away from it. While brakes are known to the prior art, they tend to be too complicated for a severely handicapped individual to use.

Another feature of the present invention is that it is tailored to size, as it were, by relatively simple adjustment operations. The embodiments need not be specially made for each individual. At the same time, the advantages of a properly fitted walker always can be obtained.

Further objects and advantages will become apparent from the following description taken in conjunction with the drawings, in which:

FIGURE 1 is a plan view of an embodiment of the invention;

FIGURE 2 is a side elevation;

FIGURE 3 is a fragmentary perspective view showing the seat in raised position;

FIGURE 4 is a fragmentary section as viewed at line 4—4 of FIGURE 2;

FIGURE 5 is a fragmentary perspective view showing the seat in the lowered position;

FIGURE 6 corresponds to FIGURE 5 except that the seat is partially folded;

FIGURE 7 is a further step in the seat folding operation;

FIGURE 8 shows the seat almost raised;

FIGURE 9 is a fragmentary plan view showing the seat in lowered position; and

FIGURE 10 is a partial section as viewed at line **10—10** of FIGURES 1 and 2.

Although the following disclosure offered for public dissemination is detailed to ensure adequacy and aid understanding, this is not intended to prejudice that purpose of a patent which is to cover each new inventive concept therein no matter how others may later disguise it by variations in form or additions or further improvements. The claims at the end hereof are intended as the chief aid toward this purpose; as it is these that meet the requirement of pointing out the parts, improvements or combinations in which the inventive concepts are found.

The walker comprises a tubular metal frame having two sides, generally **10** and **11**. Each side has an upper rail **12**, a lower rail **13**, a front post **14**, a rear post **15** and an L-shaped seat support **16**. At the front the frame has two front connecting bars **17** and **18**. As best seen in FIGURE 1, the rear of the frame is open, except for the seat as hereinafter described.

At the rear the frame includes downwardly extending, inverted U-shaped brackets **20** which are fixed in position on the frame. Between the lower ends of the brackets are axles **21** on which are journaled wheels **22**. At the front are two caster-mounted wheels **23**. All of the wheels are relatively large to faciiltate the traversing of uneven surfaces.

Approximately half way between the front and rear of the walker is the invalid support device, generally **27**. It comprises a crossbar **28** secured at each end to a piston member **29**. Piston members **29** are vertically movable in sleeve members **30**. Sleeves **30** are adjustably fastened to posts **31**. Posts **31** form a part of the frame and are secured between upper rails **12** and lower rails **13**. As best seen in FIGURE 4, posts **31** have a box-shape with a slot **32** along the inner side thereof. A plate **33** is secured to the bottom end of each sleeve **30**. A plate

34 is slidably received within post 31. A stud bolt 35 is secured to and forms a part of inner plate 34. Bolt 35 projects through slot 32 and through a suitable opening in outer plate 33. Nut 36 is threaded onto the outer end of bolt 35 to clamp plate 33 to post 31. Adjacent rail 12, sleeve 30 slidably extends through the vertical opening defined by a U-shaped guide 37 forming a part of the frame with its ends welded to post 31. By loosening nut 36, bolt 35 and plates 33 and 34 may be moved vertically with respect to post 31, thus, raising or lowering sleeve 30. Within sleeve 30 is an abutment 38 on which rests a spring 39. Piston 29 rests on the top of spring 39. Thus, piston 29 is resiliently supported by spring 39. Of course, piston 29 and crossbar 28 are raised and lowered by the raising and lowering of stud bolt 35.

Crossbar 28 is formed of the same box section as is post 31. The slot 42 in the side thereof is seen in FIGURE 10. Within crossbar 28 is an inner plate 43 to which is secured a stud bolt 44. A nut 45 (FIGURES 1 and 2) is threaded onto stud bolt 44 and abuts the outer face of crossbar 28 at the rearward side thereof. A support 46 is secured to each of stud bolts 44 and has its rearwardly end 47 turned upwardly. Supports 46 are suitably cushioned as by means of rubber padding. Similarly, a cushioned pad 48 encircles the central part of crossbar 28 and cushion pads 49 encircle the upper portions of sleeves 30.

By loosening nuts 45, the inner plate 43 and support 46 may be moved transversely along crossbar 28. Thus, the spacing and positioning of supports 46 may be adjusted for the size of the individual using the walker. The spacing between supports 46 should be such that the supports are comfortably received under the armpits of the user.

On each of upper rails 12, rearwardly of the support device 27, are a pair of eyes 52. Covered and cushioned springs 53 extend between opposite pairs of eyes 52. In the arrangement illustrated in FIGURE 1, the springs extend from the rearward eye on one side to the forward eye on the opposite side. This proves to be the most suitable arrangement for most individuals. However, other positioning of the springs might be used. They could extend between the two rearward eyes 52 or between the two forward eyes 52 depending on the fitting of the individual to the walker.

Secured to the seat support 16 on the left side 10 is a hinge plate 55 forming a part of hinge 56. The other half of the hinge is secured to seat 57. The opposite end 57*a* of seat 57 is fitted to rest on seat support 16 of side 11, as best seen in FIGURE 9.

A rod 59 is secured to seat 57 by a pair of hinges 60. A seat back 61 is affixed to rod 59. Beyond the pivotal axis of seat 57, as defined by hinge 56, rod 59 has a lever 62 secured thereto. A spring 63 has one end hooked through an opening in lever 62 and the other end hooked to a ring 64 on side 10 of the frame. A cord 65 has a hook 66 in an opening in the other end of lever 62. From lever 62 cord 65 descends about pulley 67 and then rises up along the left side 10 of the frame to be hooked on that side of the frame at 68. A cord 69 is hooked to seat back 61 at 70 and to side 10 of the frame at 71.

Each of rear wheels 22 has a brake formed by lever 74. Lever 74 is secured to a pivoted pin 75 which, in turn, is journaled in a sleeve 76 on the respective side of the frame. At the inward end a cotter key or C-washer on pivot pin 75 prevents it from sliding out of the sleeve. Lever 74 has a wheel engaging end 74*a*. A cord 77 and a spring 78 are connected to lever 74 adjacent the other end thereof. Cord 77 is anchored to the side of the frame at 79. Thimbles 80 are provided on the sides of the frame for latching lever 74 in the brake-on posiiton. When the cord 77 is hooked over thimble 80, as illustrated in dotted lines in FIGURE 2, lever 74 is pivoted so that end 74*a* is in frictional engagement with wheel 22.

An ambulatory invalid can enter the rear of the walker when the seat 57 is raised, as illustrated in FIGURES 1 and 2. At this time both of cords 77 would be hooked over thimbles 80 so that the brake would be applied to prevent the walker from moving around. After entering the walker, the invalid would insert supports 46 under his armpits so that ends 47 thereof were hooked behind his shoulders. The brakes would be released by engaging cords 77 and lifting the cords upwardly and outwardly, free of thimbles 80. When the cords are then released, springs 78 would pivot levers 74 in a direction such as to displace ends 74*a* from wheels 22. By pushing his body forwardly, the invalid can move the walker forwardly either by means of pressure on the cushion 48 of crossbar 28 or by pressure on the covered springs 53. Backward movements of the walker are accomplished either by grasping the frame with the hands or merely relying upon the engagement of ends 47 behind the shoulders of the invalid.

In some instances the invalid would want to lower seat 57 immediately after entering. In other instances it would only be lowered when the invalid desired to be seated. In either event, all that is required to move the seat downwardly is a slight pressure on the top thereof pushing the top towards side 11 of the frame. In the raised position, seat 57 is on the side 10 from the axis of its pivotal mounting, i.e. hinge 56. By merely moving the seat back across center toward side 11, the seat then will descend by its own weight. As end 57*a* of the seat approaches the support 16 on side 11, spring 63 becomes effective as a counterbalance to prevent the seat from banging down. The pull of spring 63 also is effective to pivot lever 62 and rod 59 clockwise as viewed in FIGURE 6. When the seat 57 is fully lowered, as illustrated in FIGURE 5, the seat back has been moved to the raised position by the pivotal movement of rod 59. When the seat is lowered, cord 69 holds the back in position and prevents it from pivoting rearwardly to a greater extent.

To raise the seat, the invalid may merely pull on cord 65. Continued pull on cord 65 rotates the seat back 61 against the seat 57 and continues the raising of the seat 57 as illustrated in FIGURE 8. As the seat moves to the vertical position, it has sufficient momentum so that it continues across center, i.e. the vertical plane within which hinge 56 lies, and comes to rest against side 10 of the frame.

From the foregoing description, it will be apparent that an invalid, as for example a rather substantially crippled cerebral palsy victim, can utilize the walker practically or completely unaided. While the manipulation of cords 65, 77 and 69 are not easy for such an individual, it is within the range of his capabilities. Even though he may not be able to grasp parts in the usual sense, he can hook a finger or two under the respective cord and manipulate the cord to achieve the desired result. When in the walker, he is securely braced with substantially no likelihood of his being injured as a result of his spastic motions.

Having the two rear wheels mounted about fixed axes adds stability to the walker. At the same time, the two front wheels being caster mounted enable the walker to be steered when going either forwardly or rearwardly.

I claim:

1. An invalid walker including: a frame having two sides defining a rear opening therebetween; front and rear wheel means secured to said frame to support it on the ground; a support device including a crossbar interconnecting said sides, said crossbar being positioned at about chest height, said device providing a resilient support for said crossbar with respect to said frame; a pair of body supports extending rearwardly from said crossbar and having free ends spaced from said crossbar, said supports projecting upwardly at said free ends, said supports being adapted to be received under the armpits of the

invalid; and means adjustably positioning said body supports on said crossbar whereby said supports may be adjusted toward or away from each other.

2. A walker as set forth in claim 1, wherein said device includes two generally vertical side supports, one secured to each of said sides, each side support including a sleeve member, a piston member reciprocally received in the sleeve member and a spring resiliently urging the members away from each other, one of said members being affixed to the respective side and the other member being secured to the crossbar.

3. A walker as set forth in claim 2, wherein said device includes means releasably affixing said one member to the respective side and to permit said one member to be vertically adjusted with respect to the side when released.

4. An invalid walker including: a frame having two sides defining a rear opening therebetween, said sides extending upwardly to about waist height; front and rear wheel means secured to said frame to support it on the ground; a support device including a crossbar interconnecting said sides, said crossbar being positioned at about chest height, said device providing a resilient support for said crossbar with respect to said frame; a pair of body supports extending rearwardly from said crossbar and having free ends spaced from said crossbar, said supports projecting upwardly at said free ends, said supports being adapted to be received under the armpits of the invalid; and resilient means rearwardly of said crossbar and extending between said sides at about waist height to provide a portion that the invalid can push against in the use of the walker.

5. A walker as set forth in claim 4, wherein said resilient means can be adjusted so that said portion is further forwardly or rearwardly with respect to said sides.

6. An invalid walker including: a frame having two sides defining a rear opening therebetween; front and rear wheel means secured to said frame to support it on the ground; a support device including a crossbar interconnecting said sides, said crossbar being positioned at about chest height, said device providing a resilient support for said crossbar with respect to said frame; said frame extending sufficiently to the rear of said crossbar to permit an invalid to enter between the sides and stand forwardly of the rear of the frame; a seat at said rear of the frame, said seat being hinged to one side and supported by the opposite side; operating means connected to said seat and extending to about the middle of the frame to raise the seat for ingress and egress; and a pair of body supports extending rearwardly from said crossbar and having free ends spaced from said crossbar, said supports projecting upwardly at said free ends, said supports being adapted to be received under the armpits of the invalid.

7. A walker as set forth in claim 6, wherein said hinge connection is mounted to permit said seat to move across the pivotal center when the seat is raised, said operating means including a cord connected to the seat at the opposite side of the pivotal center from the side at which the seat is mounted, a pulley mounted adjacent the bottom of the frame, said cord extending downwardly from the seat, about the pulley and then back up to the top of the side, and including counterbalance means connected to the seat.

8. A walker as set forth in claim 6, including a brake for one of the wheel means, said brake being pivotally connected to the frame and movable between a position at which it frictionally engages the one wheel means and a position at which it is free of the one wheel means, spring means connecting the brake and the frame to resiliently urge the brake to one of said positions, and cord means connected to the brake to enable the brake to be manually moved to the other position, said cord means extending to about the middle of the frame.

9. An invalid walker including: a frame having two sides defining a rear opening therebetween; front and rear wheel means secured to said frame to support it on the ground; support means between the sides approximately midway between the front and rear of the frame and having portions to fit under the armpits of an invalid to support the invalid and a cross member against which the invalid can push, said support means being sufficiently forwardly of the rear of the frame to enable an invalid to enter between the sides and stand forwardly of said rear, and a seat at said rear, said seat being hinged to one side for pivotal upward movement and supported by the opposite side, and operating means connected to said seat and extending to about the middle of the frame to raise the seat for ingress and egress.

10. A walker as set forth in claim 9, wherein said hinge is mounted to permit said seat to move across the pivotal center when the seat is raised, said operating means including a cord connected to the seat at the opposite side of the pivotal center from the side at which the seat is mounted, a pulley mounted adjacent the bottom of the frame, said cord extending downwardly from the seat, about the pulley and then back up to the top of the side, and including counterbalance means connected to the seat.

11. A walker as set forth in claim 10, including a brake for one of the wheel means, said brake being pivotally connected to the frame and movable between a position at which it frictionally engages the one wheel means and a position at which it is free of the one wheel means, spring means connecting the brake and the frame to resiliently urge the brake to one of said positions, and a cord connected to the brake to enable the brake to be manually moved to the other position.

12. A walker as set forth in claim 9, wherein the front wheel means are caster mounted and the rear wheel means include wheels on each side mounted for rotation about axes that are fixed with respect to the frame.

13. An invalid walker including: a frame having two sides defining a rear opening therebetween; front and rear wheel means secured to said frame to support it on the ground; a support device including a crossbar interconnecting said sides, said crossbar being positioned at about chest height, said device comprising two generally vertical side supports, one secured to each of said sides, each side support including a sleeve member, a piston member reciprocally received in the sleeve member and a spring resiliently urging the piston member out of the sleeve member, one of said members being affixed to the respective side and the other member being secured to the crossbar, said device includes means releasably affixing said one member to the respective side and to permit said one member to be vertically adjusted with respect to the side when released; a pair of body supports extending horizontally from said crossbar and having free ends spaced rearwardly from said crossbar, said supports projecting upwardly at said free ends, said supports being adapted to be received under the armpits of the invalid, means adjustably positioning said body supports on said crossbar whereby said body supports may be adjusted toward or away from each other; resilient means rearwardly of said crossbar and extending between said sides at about waist height to provide a portion that the invalid can push against in the use of the walker; a seat at said rear, said seat being hinged to one side for upward pivotal movement and supported by the opposite side, said hinge connection being mounted to permit said seat to move across the pivotal center when the seat is raised; operating means connected to said seat and extending to about the middle of the frame to raise the seat for ingress and egress, said operating means including a cord connected to the seat at the opposite side of the pivotal center from the side at which the seat is mounted, a pulley mounted adjacent the bottom of the frame, said cord extending downwardly from the seat about the pulley and then back up to the top of the side; counterbalance means connected to the seat; a brake for one of the wheel means, said brake being pivotally connected to the frame and movable be-

tween a position at which it frictionally engages the one wheel means and a position at which it is free of the one wheel means; spring means connecting the brake and the frame to resiliently urge the brake to one of said positions; and cord means connected to the brake to enable the brake to be manually moved to the other position.

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