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2,866,495

INVALID FOLDING WALKER AND CHAIR

Filed June 5, 1956

2 Sheets-Sheet 1

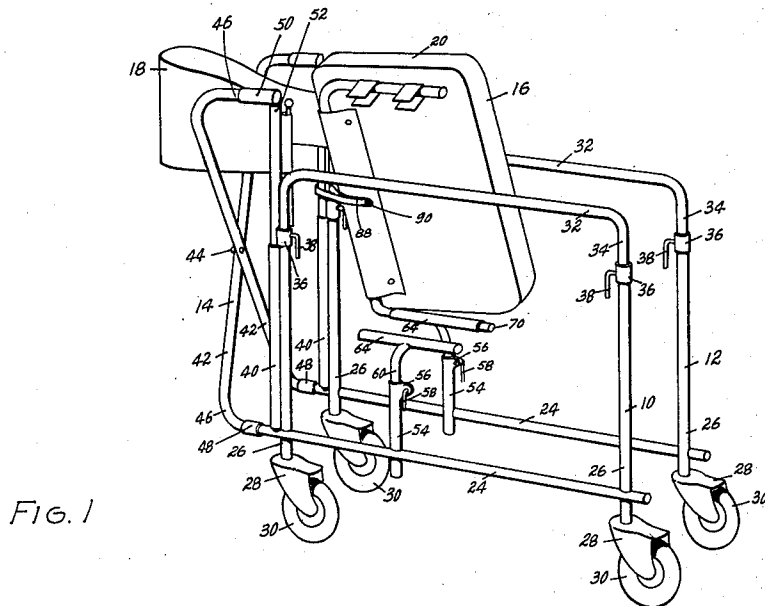


FIG. 1

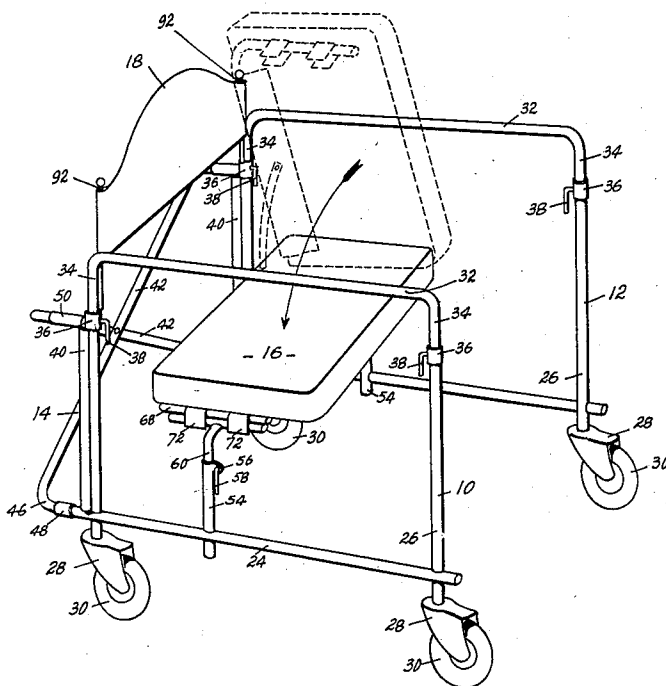


FIG. 2

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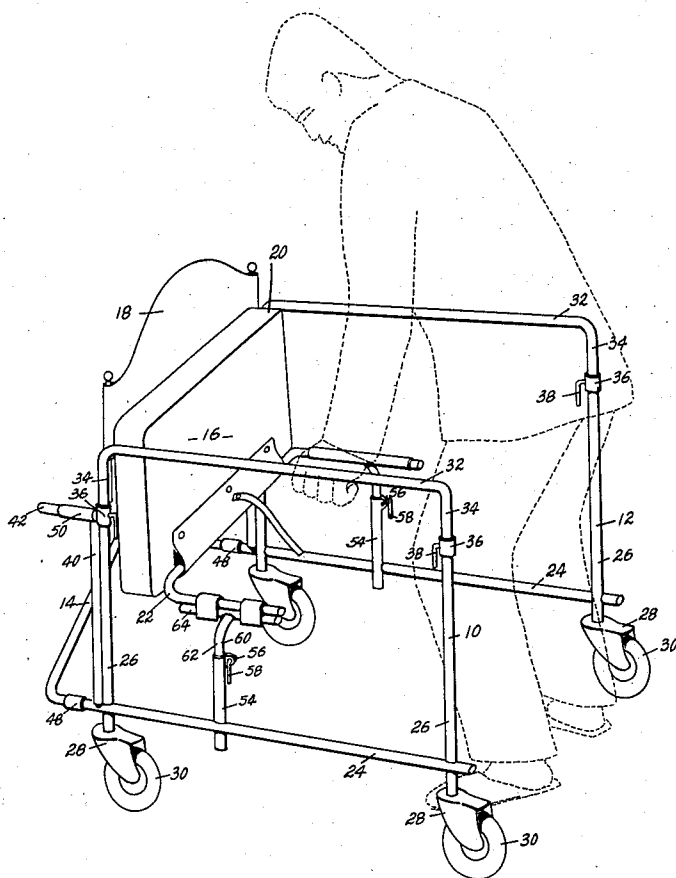


FIG. 3

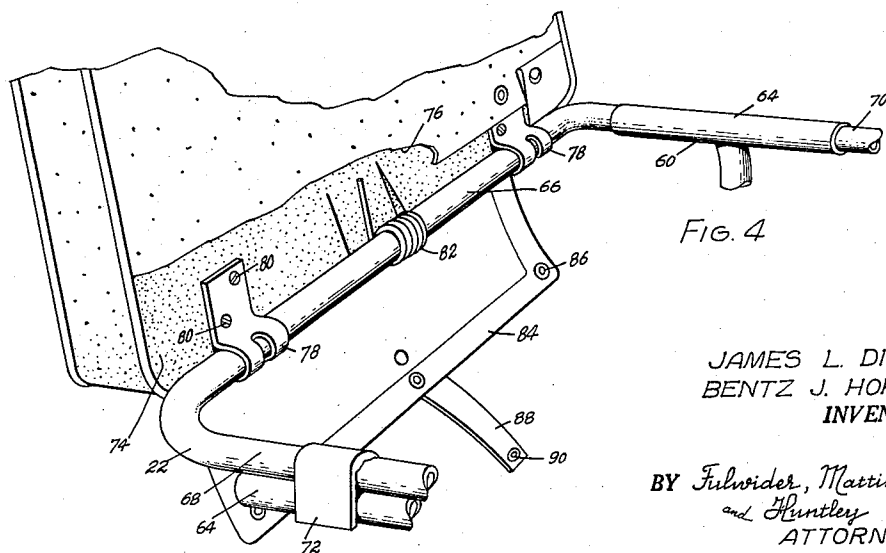


FIG. 4

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INVALID FOLDING WALKER AND CHAIR

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5 Claims. (Cl. 155—22)

The present invention relates to the field of ambulatory invalid devices and more specifically to a foldable combined walker and chair.

Although a number of foldable combined invalid walkers and chairs have heretofore been marketed, such devices have certain disadvantages which detract from their utility and make them difficult to use by handicapped persons. Since a device of this type must be perfectly rigid in order to provide stable and solid support for the invalid user, previously available devices have incorporated cross bracing both in front and the rear. However the user of such a device cannot enter it without first opening the bracing at one end. This is not only uncomfortable for the invalid, but more important, it may also be hazardous because a temporary loss of balance may cause a fall.

Another disadvantage of the previously available devices is their greater weight and size. This disadvantage is due to the fact that such devices must be long enough to provide not only seating space but walking space as well. As a walker may be the only means of locomotion for the invalid, undue size becomes a distinct disadvantage in cramped quarters and may prohibit access to a bathroom, for example. As will appear, these and other disadvantages of the prior devices are eliminated by the present invention.

An important objective of the present invention is to provide an invalid supporting device that is adapted for use as both a walker and chair with equal utility and yet is of compact structure so that it may be used in cramped quarters.

Another important object of the invention is to make available a device of this type that has a novel seat and bracing means that permits the seating space to also be utilized as walking space whereby the size of devices of this class is substantially reduced without any sacrifice of essential rigidity.

It is also an object of the invention to furnish an improved walker and chair of compact rigid structure which is easily foldable or collapsible to very narrow width so that it can be carried by the user in autos, planes, trains, and the like.

The invention also has for an object the provision of a lightweight, sturdy, adjustable device of this type that is economically fabricated from commonly available materials so that it can be distributed at moderate cost.

These and other objects and advantages of the invention will become readily apparent from the following description of a presently preferred form thereof and from the drawings illustrating that form in which:

Figure 1 is a perspective view of the invention in its folded condition;

Figure 2 is a perspective view of the device in open, rigid position with its seat down and in condition to support a person thereon;

Figure 3 is a perspective view of the device in open, rigid position with its seat raised whereby the device is in

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condition to serve as a walking support for an invalid; and

Figure 4 is a partial perspective view of the novel combined seat-supporting and walker-bracing means of my invention with portions thereof cut away.

Referring now to the drawings for the general arrangement of the invention and in particular to Figure 2 thereof, it will be seen that a left side assembly and a right side assembly, designated generally by the numerals 10 and 12, respectively, are connected at their forward ends to a scissors-like assembly 14. Scissors assembly 14 maintains sides 10 and 12 in vertically disposed, parallel relationship whether the device is open, as shown in Figure 2, or folded, as shown in Figure 1. Pivotal support from right side of 12 near the forward end of the device is a seat and brace assembly 16 that is disposed substantially vertically when the device is folded. When the device is opened for use assembly 16 is supported between sides 10 and 12 in horizontal position to provide seating support for the user whose back will rest against a pliable back rest 18 that is also supported between sides 10 and 12. The seating condition of the invention is depicted in Figure 2.

As can be seen in Figure 3, the seat portion 20 of assembly 16 is itself pivotally connected to said assembly so that it can be moved upwardly into vertical position at the front end of the device. The space formerly occupied by seat portion 20 can then be occupied by the invalid person to stand between sides 10 and 12 which provide hand rail support for such person. Seat and brace assembly 16 includes a U-shaped brace 22 which remains horizontal when seat 20 is moved to vertical position. Brace 22 gives more than sufficient rigidity to the device so that the user can at all times securely support himself thereon as will fully appear from the following detailed description.

Left and right side assemblies 10 and 12 are substantially alike and therefore the same numerals will be used to indicate like parts thereof. The side assemblies are preferably made of tubular metal material into a substantially rectangular rigid framework, but as will be apparent, other materials could be used. Each of sides 10 and 12 includes an elongate horizontally disposed bottom rail or member 24 having a vertically disposed member 26 rigidly affixed thereto at each of its ends. Each of the two vertical members 26 is preferably fastened to horizontal member 24 by welding in such a way that the greater portion of its length extends upwardly above member 24 and a short section thereof extends downwardly beneath member 24.

Connected to the lower end of each vertical member 26 is a wheel bracket 28 in which a wheel 30 is rotatably mounted. A stub shaft (not shown) is rigidly fastened to the upwardly facing side of bracket 28 and is rotatably received in the lower end of vertical member 26 so that each of the four wheels is pivotable whereby the device can be moved in any direction without turning it.

The upper portion of each side assembly is defined by an elongate upper rail 32 having downwardly turned end portions 34 that are spaced apart the same amount as the distance between vertical members 26. The end portions 34 of upper rail 32 are slidably mounted in the upper ends of vertical members 26 so that the central portion of said rail is horizontally supported therebetween and vertically movable. The junction of the upper end of each vertical member 26 and of each end portion 34 of the upper rails is concealed by a sleeve or collar 36. The body of collar 36 has an internal diameter substantially equal to the external diameter of vertical member 26 but the upper end thereof is flared inwardly to define

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an opening of the same diameter as the outer diameter of rails 32. Each collar 36 has a threaded bore formed in the wall thereof that receives the threaded end of L-shaped key 38. A pair of oppositely disposed vertical slots (not shown) are formed in the upper end of each vertical member 26 so that when a key 38 is turned to move inwardly, end portion 34 of rail 32 is forcefully frictionally grasped by the resulting restriction of the upper end of said vertical member. As is apparent, this arrangement permits the vertical adjustment of upper rail 32 so that the device can be adapted for use by short or tall persons.

Scissors-like assembly 14, to which side assemblies 10 and 12 are connected to define a substantially U-shaped framework, can best be seen in Figures 1 and 2. Assembly 14 defines the front end of the device, i. e. that end which the user thereof faces when the device is used as a walker, in the manner shown in Figure 3.

It will be noted that bottom rail 24 of each side assembly protrudes forwardly a short distance to provide means for the connection of assembly 14 thereto. Assembly 14 includes a pair of tubes 40 each of which is slightly shorter than the portions of vertical members 26 extending above bottom rails 24 and each of which is tack welded in vertical position to a member 26 at the front end of each of said side assemblies. The lower ends of tubes 40 abut the upper surfaces of bottom rails 24 to be closed thereby and the upper ends of said tubes remain open for reasons which will presently become apparent.

The opening and closing of the device is effected by a pair of elongate crossed members 42 that are pivotally connected together at their centers, with their upper ends having a telescopic connection to tubes 40 and the lower ends thereof having a pivotal connection to said forwardly protruding ends of lower rails 24. Crossed members 42 are pivotally connected together as aforesaid by a pin 44 and each of said members is bent at its ends to form a pair of rearwardly and horizontally extending stubs 46. Each of lower end stubs 46 of crossed members 42 has a sleeve 48 connected thereto which sleeve is in turn rotatably mounted on the forward end of one of bottom rails 24. Each of the upper end stubs 46 of crossed members 42 is rotatably mounted in a second sleeve 50 which in turn is rigidly mounted to the upper end of a second tube 52 that extends vertically downward therefrom to be telescopically received in one of the aforementioned tubes 40 at the upper end thereof.

Assembly 14 is particularly well adapted for quickly and easily folding or opening the device and for making the front end rigid when open. It will be noted that assembly 14 at all times maintains side assemblies 10 and 12 in parallel relationship so that the device can be folded into a narrow space, as shown in Figure 1. Assembly 14 also limits the extent to which the device can be opened in such a way that movement of the sides away from one another any distance in excess of the width of the combined seat and brace assembly, later to be described, is prevented. This feature can be seen in Figure 2 wherein it will be noted that second tubes 52 are fully telescoped into first tubes 40 whereby further separation of side assemblies 10 and 12 is prevented.

Seat and brace assembly 16 is of particular importance to the operation of the invention since it eliminates the rear end cross bracing found in the previously available devices and allows the seating area of the device, also to be used for walking area. A substantial reduction in size and weight is thereby achieved without any loss in rigidity and the open rear end of the device provides unimpeded ingress and egress. Moreover, folding and opening of the present invention is greatly simplified as compared to prior devices since it is no longer necessary to first loosen, remove or fold any rear end bracing.

The manner in which seat and brace assembly 16 is mounted on the device is best seen in Figures 1 and 3.

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Rigidly fastened to bottom rail 24 of each side assembly, as by welding, is a short vertical tubular member 54 extending upwardly. Members 54 are directly opposite one another intermediate the ends of the side assemblies but closer to the front end of the device than to the rear end. The upper end of each member 54 is formed with a vertical slit (not shown) and has a pair of outwardly extending rigid ears 56 adjacent one another on opposite sides of said slit. Ears 56 have threaded concentric bores formed therein adapted to receive the threaded end of an L-shaped key 58.

A vertically adjustable T-shaped seat supporting member 60 is mounted in each member 54. Each member 60 includes a vertical stem 62 which is slidably mounted in one of members 54 and which curves slightly inwardly towards the center of the device at its upper end. Rigidly fastened to the upper end of stem 62 is a horizontally disposed tubular member 64 that extends longitudinally of the device in its forward or seat area. As is obvious, the vertical elevation above a ground surface of either horizontal member 64 can be adjusted by means of one of keys 58.

Seat and brace assembly 16 is pivotally connected to either one of T-shaped members 60, but in the drawings, said assembly is shown as being connected to right side assembly 12, as in Figure 1. As has previously been pointed out, assembly 16 includes a U-shaped brace 22 and seat portion 20 which are best seen in Figure 4.

U-shaped brace 22 is also made of a piece of metal tubing and has a center section 66 and a pair of oppositely disposed left and right arms 68 and 70, respectively. Right arm 70 of brace 22 is rotatably mounted within horizontally disposed member 64 of right side T member 60 in such a way that center section 66 is adjacent the forward end of the device. The spacing between the arms of brace 22 is the same as the spacing between the pair of horizontal members 64 so that when the device is opened and the brace is pivoted from its upwardly extending position, as shown in Figure 1, to its horizontal position, as shown in Figures 2, 3 and 4, left arm 68 thereof comes to rest on top of left side T member 60. It will be noted that the left side T must be lower than the right side T in order for brace 22 to be level. Left arm 68 of the brace 22 has a pair of longitudinally spaced U-shaped clamps 72 rigidly fastened thereto that receive horizontal member 64 of the left side T between their arms in a close sliding fit.

Seat section 20 is in turn pivotally connected to center section 66 of brace 22. Seat 20 may be of any desired construction and in the present instance is made with a rigid bottom panel 74 on which a synthetic foam cushion (not shown) is mounted, with the whole being covered by leather sheets 76. A pair of hinges 78 are pivotally mounted on center section 66 of brace 22 and fastened to the rear edge of bottom panel 74 by screws 80 or the like. Between hinges 78 and wrapped around brace center section 66 is a torsion spring 82 having an end fastened to the brace and a protruding end abutting bottom panel 74. As is obvious, spring 82 at all times urges seat 20 into its upwardly extending position except when the weight of a person is placed thereon. Hinges 78 and spring 82 are normally covered by a flap 84 that can be closed by means of snap fasteners 86. A loop strap 88 is also provided which depends from flap 84 and can be used to hold the device in closed position in a manner presently to be described.

The importance of the combined seat and brace just described can best be appreciated by reference to Figure 3. In this figure, an invalid person is depicted in phantom line as using the device to support himself in an erect position for standing or walking. In this position, it is of the utmost importance that the device is perfectly rigid, without any possibility of lateral separation of sides 10 and 12 and without any undue vibration resulting therein as the device is moved over a ground surface. Even though

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the rear end of the device is entirely open and has no cross bracing, U-shaped brace 22 in conjunction with scissors assembly 14 at the front end, provides an entirely rigid structure that will not yield under the weight of the user even at the rear end of the device. Since the seat area can be used for walking by virtue of the U-shaped brace 22, the device is very short and its maneuverability in cramped quarters is greatly increased. Furthermore, the elimination of rear end bracings is, per se, a great advantage as it eliminates the discomfort and danger of the user hitting it with his heels or posterior portions while walking. Consequently, the mincing gait commonly employed by users of prior devices is no longer necessary.

When seat 20 is placed in horizontal position, the user faces the rear of the device to sit down. The previously mentioned back rest 18 permits the user to lean back. Back rest 18 is an elongate sheet of pliable material that is suspended between a pair of vertical posts 92, each of which is fastened to the front end of one of the side assemblies of the device.

The manner of use of the invention is very simple and is believed to be apparent from the foregoing description. When the user wishes to store the device temporarily, as for carrying it along in an auto, plane, or train, it will be folded as shown in Figure 1. Loop strap 88, is wrapped around hand-rail 32 of left side assembly 10 and held in looped position by means of snap fastener 90 connected to its ends. Strap 88 then holds the device in folded position. On account of its tubular construction the invention is light in weight and can be easily handled, as for example, in lifting it into an automobile.

When it is desired to open the device for use as a walker or chair, strap 88 is unfastened to permit separation of sides 10 and 12. Opening is best accomplished by grasping crossed members 42 of scissors-like assembly 14 at their upper ends and pushing the sides apart. Referring to Figure 2 it can be seen that when second tubes 50 are fully received in first tubes 40 further separation of the sides is prevented and seat and brace assembly 16 then falls, or can be guided into horizontal position with clamps 72 engaging left side T member 60. The device is now perfectly rigid and in condition to be used as a chair.

When it is desired to use the device as a walker, seat portion 20 will be urged into upwardly extending vertical position by torsion spring 82 after the seat is relieved of the user's weight. The space formerly occupied by the seat can then be occupied by the user in erect position who grasps hand-rails 32 in the manner shown in Figure 3, for standing or walking. Since the height of hand-rails 32 and seat and brace assembly 16 is adjustable, the device can be used by either tall or short persons.

Although the device herein shown and described is fully capable of achieving the objects and providing the advantages hereinbefore innumeraled, it will be seen that various changes and modifications may be made without departing from the scope of the invention. Thus, although the user is shown and described as facing the front of the device while standing or walking, some invalids may prefer to face the rear thereof. Additionally, it should be noted that a commode seat or a pan may be used in lieu of the seat described, however, I do not mean to be limited to the device shown and described other than as defined in the following claims.

We claim:

1. An ambulatory invalid supporting device, comprising: a pair of side members; foldable means interconnecting the front ends of said side members to support said members in vertically disposed parallel alignment for movement toward and away from one another between a collapsed position and to an open position of said device; brace means pivotally connected to one of said side members and including a center section that is disposed adjacent the front end of said device, said brace being movable to a vertical position to permit collapsing of said device

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and movable to a horizontal position to rigidly interconnect said side members when in open position; a seat pivotally connected to the center section of said brace adapted to be disposed in a horizontal invalid supporting position on said brace or in a vertically extending position adjacent the front end of said device to allow an invalid to enter the area formerly occupied by said seat; and wheel means to movably support said device.

2. An ambulatory invalid supporting device, comprising: a pair of rigid substantially rectangular side frames; foldable means interconnecting the front ends of said side frames to support said frames in vertically disposed parallel alignment for movement toward and away from one another between a collapsed position and an open position of said device said foldable means and side frames defining a framework that is open at the rear end thereof to provide free access for an invalid into said device in said open position; a substantially U-shaped brace pivotally connected at one end thereof to one of said side frames and including a center section that is disposed adjacent the front end of said device, said brace being movable to a vertical position to permit collapsing of said device and movable to a horizontal position to rigidly engage the other of said frames when they are in open position; a seat pivotally connected along the front edge thereof to said center section of said brace that can be disposed in a horizontal invalid supporting position on said brace or in a vertically extending position that allows an invalid to enter the area formerly occupied by said seat; spring means yieldably urging said seat to a vertical position; and wheel means to movably support said device.

3. An ambulatory invalid supporting device that comprises: a left side member and a right side member each of which is a vertically disposed substantially rectangular, rigid framework made of tubular material whose horizontal top rail is vertically adjustable; first and second elongate tubular cross members pivotally connected at their centers; means on each of said cross members pivotally connecting the lower end thereof to the lower forward end of one of said side members; means on the forward end of each of said side members to which the upper end of one of said cross members is pivotally connected to be vertically movably supported thereby in such a way that said side members are supported by said cross members in vertically extending, parallel relationship and are movable towards and away from one another; a tubular vertical member rigidly fastened to the bottom of each of said side members at a point intermediate the forward and rear ends of said device; a pair of tubular T-shaped members each of which is vertically slidably mounted in one of said vertical members by the stem thereof and including a horizontally disposed portion at the upper end thereof that extends longitudinally of said device; means to releasably maintain each of said T-shaped members at a predetermined elevation; a tubular U-shaped member that includes a pair of oppositely disposed arms one of which is rotatably mounted in said horizontally disposed portion of one of said T-shaped members in such a way that the center section of said U-shaped member is positioned adjacent the forward end of said device; means on the other arm of said U-shaped member to frictionally engage said horizontally disposed portion of the other of said T-shaped members when said U-shaped member is moved so that said U-shaped member is supported on both of said T-shaped members; a substantially rectangular seat pivotally connected to said center section of said U-shaped member that in horizontally disposed position is gravitationally supported thereon; a torsion spring on said center section of said U-shaped member that yieldably urges said seat into vertically upward position; and wheel means movably supporting said device on a ground surface.

4. In an ambulatory invalid supporting device that includes a substantially U-shaped rigid framework from

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whose forward end a pair of oppositely disposed sides extend rearwardly to an open rear end through which an invalid can enter said device to support himself thereon, combined seat and bracing means that include; a horizontally disposed U-shaped member that includes a pair of rearwardly extending arms each of which is connected to one of said sides of said device intermediate said forward and rear ends thereof and at seat height above a ground surface with the center section of said U-shaped member disposed adjacent the said forward end of said device; and a seat pivotally connected to said center section of said U-shaped member for movement between horizontal and vertical positions thereof, said seat when in horizontal position resting on said U-shaped member for seating support of said invalid and when in vertical position permitting said invalid to enter between the arms of said member, said U-shaped member at all times preventing relative lateral movement of said sides of said device under the weight of said invalid.

5. An ambulatory invalid supporting device, comprising: a pair of side frames; brace means interconnecting the front ends of said side frames to rigidly maintain said side frames in parallel alignment, said side frames and brace means together defining a framework that is open at the rear end; a pair of oppositely disposed seat frame support members on said side frames each of which is rigidly fastened to one of said side frames at a

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position intermediate the front and rear ends of said side frames; a substantially U-shaped seat frame extending between said pair of support members to rigidly interconnect said support members for reinforcing said framework against lateral relative movement of said side frames, said seat frame having opposite sides extending rearwardly from a center section that interconnects said sides, with said center section disposed adjacent the front end of said framework; and a seat having its front end pivotally secured to said center section of said seat frame for selective movement between a horizontal rearwardly extending position in which said seat is supported by said rearwardly extending sides of said seat frame and another generally vertically extending position removed from between said sides of said seat frame.

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