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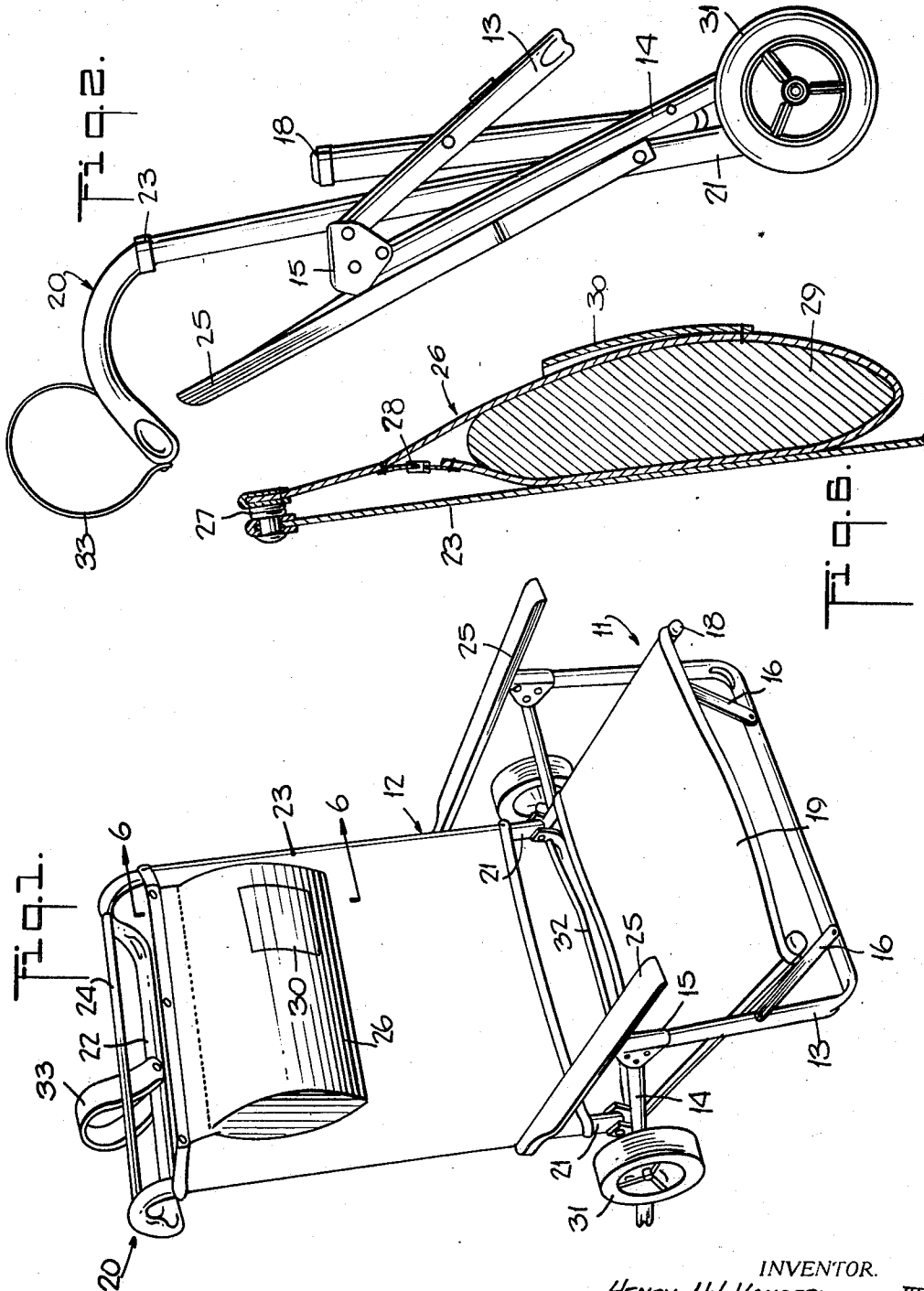
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3,495,868

FOLDABLE CHAIR

Filed Jan. 29, 1968

2 Sheets-Sheet 1



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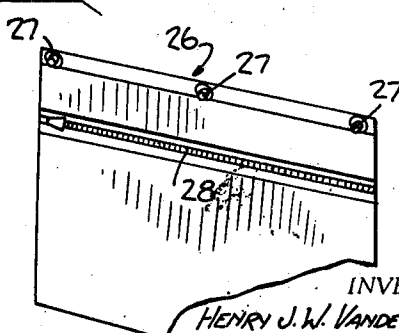
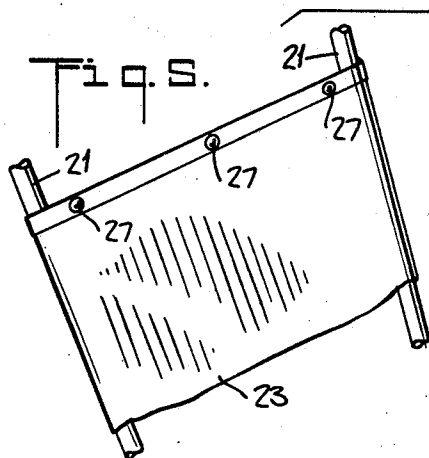
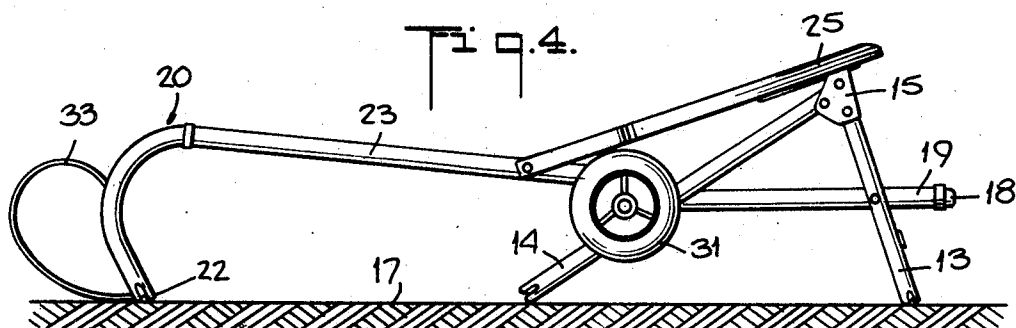
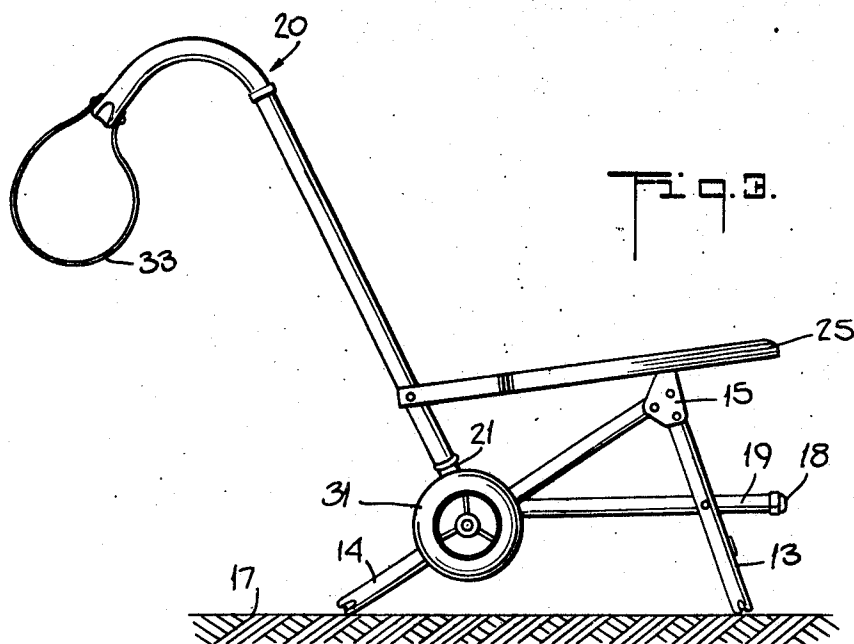
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2 Sheets-Sheet 2



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FOLDABLE CHAIR

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10 Claims

ABSTRACT OF THE DISCLOSURE

The back portion of the backrest chair is pivoted into a number of rest positions, one of which is a lay-flat position. The curved end of the back portion is in the form of a ram's horn so as to support the back portion when pivoted into the lay-flat position. The chair is foldable into a flattened configuration to be transported by means of the wheels or hung on a fence by means of the curved end of the back portion.

This invention relates to a foldable chair. More particularly, this invention relates to a foldable multi-purpose chair of the back-rest type.

Heretofore, lounge chairs of the back-rest type such as used at poolside, on lawns or decks, have generally been constructed with a seat portion and a foldable back portion. The seat portion is usually situated at a limited height above the ground so as to permit an occupant's legs to be extended substantially horizontally in a rest position. In addition, the back portion has usually been formed by a substantially inverted U-shaped metal or wood frame to which a suitable back support such as canvas or plastic stripping has been secured, so as to define a flat profile. However, because of the flat profile, the upper cross bar of the frame has frequently come in contact with some part of the occupant's back or head, usually to the discomfort of the occupant.

In order to overcome the disadvantage of the encumbrance of the upper cross bar of the U-shaped frame, in some instances, the U-shaped frame has been made over-size to avoid discomfort to the occupant; however, such has required an increase in material and frequently has added to the cost of the chair.

Further, these back-rest type chairs while being capable of achieving multi-rest positions have frequently been constructed such that the back portions have not been capable of being pivoted away from the seat portions into substantially horizontal alignment with the seat portion. This has prevented an occupant from assuming a fully reclined position.

Also, several of these lounge chairs have been constructed with wheels to facilitate movement of the chairs from place to place in either of a folded or unfolded condition. However, these lounge chairs have been constructed such that the wheels are always in contact with the ground whether the chairs are folded or unfolded. That is, when the chairs are in an unfolded condition, the wheels act as supports for supporting the chair and any occupant in the chair. Consequently, should an occupant tip such a chair so that the chair is supported on the ground solely by the wheels, the chair will roll along the ground. Further, since the wheels facilitate movement on the ground, should such a chair be bumped while one is in the process of being seated in the chair, it is possible for the chair to move away a sufficient distance to cause the person to fall directly to the ground with consequent injury.

Additionally, these heretofore used chairs when folded have usually presented a bulky configuration which in some instances, have been difficult to transport and store.

Accordingly, it is an object of the invention to provide

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a lounge chair of the back-rest type which is capable of being set in a substantially horizontal position.

It is another object of the invention to support a back-rest type lounge chair at the ends when opened into a lay-flat position.

It is another object of the invention to space the top of the frame of a back-rest back portion from the plane of the occupant engaging surface of the back portion.

It is another object of the invention to provide a lounge chair of the back-rest type with a back portion having a ram's horn profile.

It is another object of the invention to provide a lounge chair with wheels which retract upon unfolding to permit a secure support for the chair.

It is another object of the invention to provide a lounge chair which can be conveniently stored on a wall.

It is another object of the invention to provide a lounge chair which can be easily transported.

Briefly, the invention provides a lounge chair of the back-rest type having a seat portion and a back portion wherein the back portion is capable of being pivoted into substantial horizontal alignment with the seat portion so as to assume a lay-flat position. The back portion includes a frame having a back supporting surface and a curved end portion spaced from the seat portion of the chair which terminates in a plane spaced from the plane of the back support surface. The frame is constructed in a generally inverted U-shape with a profile of a ram's horn. That is, the frame has a pair of spaced parallel members which form the legs of the U-shaped frame and which are curved in a reverse bend at one end and a cross bar which connects the curved ends of the parallel members together into a rigid structure. The legs have straight portions to which the opposite ends of the back support surface are secured. Due to the shape of the ends of the parallel members, the cross bar is disposed out of the plane of the parallel members and, consequently, out of the plane of the back support surface secured between the straight portions of the parallel members.

In addition, the frame of the back portion has a stiffening rod disposed between opposite points on the bent portions of the parallel members to further stiffen the frame against bending or buckling.

The back portion of the chair is secured to the seat portion in a manner so as to be oriented in a plurality of reclining positions, one of which is a lay-flat position. When in this lay-flat position, the back portion is in substantial alignment with the seat portion which is supported in the usual fashion at two spaced points on a ground surface while the cross bar of the frame of the back portion rests on the ground surface beneath the chair at a third point. The chair thus is supported at the ends as well as the middle so as to more easily support and distribute an occupant's weight. When the back portion is raised into the upper rest positions, the cross bar of the back portion frame serves as a convenient support rail for such paraphernalia as towels, articles of clothing, etc. The cross bar can also be used to facilitate the hanging of the folded chair from a fence, such as found around a poolside, and from a hook or spike for storage purposes.

The back-rest type chair is also provided with a pouch which is secured to the upper end of the back support in a hinged manner. The pouch is secured so as to be positioned in one of the two positions. In one position, the pouch serves as a pillow on the back support, for example, when a towel is placed inside. In the other position, the pouch is slung over the cross bar of the back portion frame.

The chair is provided with a pair of wheels such that, when folded, the chair can be transported via the wheels by grasping the cross bar of the back portion frame and either pulling or pushing the folded chair in the sense of a

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cart. In order to facilitate pulling of the folded frame, a handle strap is fixed to the cross bar. The wheels are mounted on the chair such that when the chair is unfolded and set on the ground, the wheels are retracted to be disposed away from the ground. The chair is thus free of any danger of the chair rolling on the ground by way of the rollers during tipping of the chair by an occupant or during the seating of a person in the chair.

These and other objects and advantages of the invention will become more apparent from the following detailed description and appended claims taken in conjunction with the accompanying drawings in which:

FIG. 1 illustrates a perspective view of a back-rest type chair of the invention;

FIG. 2 illustrates a profile of the chair of FIG. 1 when folded;

FIG. 3 illustrates a profile of the chair of FIG. 1 when in a position of use;

FIG. 4 illustrates a profile of the chair of FIG. 1 when in the lay-flat position;

FIG. 5 illustrates a fragmentary exploded view of the pouch and the back support according to the invention; and

FIG. 6 illustrates a view taken on line 6—6 of FIG. 1.

Referring to FIGS. 1 to 3, the foldable back rest type chair 10 has a seat portion 11 and a back portion 12 which are articulated together so as to be foldable towards each other into a generally flattened configuration when not in use (FIG. 2). The seat portion 11 has a pair of leg assemblies 13, 14, each of which is constructed of a pair of U-shaped frames which are pivotally connected independently of each other in a suitable mount 15 of known construction. The forward leg assembly 13 is also provided with a pair of stiffening members 16 across the members forming the corners of the assembly. The leg assemblies 13, 14 are sized with respect to each other so that when the chair 10 is in an opened rest position, the cross bar of each leg assembly supports the chair 10 at two spaced points on a ground surface 17 (FIG. 3). In addition to the leg assemblies 13, 14, the seat portion 11 has a seat frame 18 which is pivotally mounted between the legs of the forward leg assembly 13 and articulated to the rear leg assembly 14 in a known manner. The seat portion 11 also has a strip of seat material 19 secured in a known manner across the seat frame 18 to receive an occupant.

The back portion 12 has a back frame 20 which is generally of a U-shape in front view and of an inverted J-shape in profile. That is, the frame 20 has a pair of spaced parallel members 21 pivotally connected to the seat frame 18 and a cross bar 22 connecting the ends of the members 21. Further, the members 21 have straight portions extending away from the points of connection to the seat frame 18 and curved portions at the outermost ends, the curved portions being in the shape of a ram's horn. In addition, the back portion 12 has a strip of back supporting material 23 secured in known manner between the straight portions of the members 21. Due to the curvature of the ends of the members 21, the cross bar 22 of the frame 20 is spaced out of the plane of the straight portions of the members 21 and the strip of back supporting material 23. A stiffening rod 24 is also secured between the members 21 within the curved end portions out of the plane of the straight portions in order to resist bending or buckling of the members 21.

The chair 10 also has a pair of arm rests 25 which are secured between the seat portion 11 and back portion 12. Each arm rest 25 is pivotally secured to the outside of the back frame 20 and slidably secured in the mount 15. In addition, the underside of each arm rest 25 is provided in a known manner with a series of aligned holes or notches (not shown) for receiving the upper portion of the mount 15 so as to lock the arm rest 25 with respect to the seat portion 11. A suitable guide (not shown) is also provided to retain the mount in alignment with the

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holes in the rest arm underside. The holes of the arm rests 25 are spaced so that the rest arms can be slid relative to the mounts 15 of the seat portion 11 in order to allow pivoting of the back portion 12 relative to the seat portion 11. The back portion 12 can thus take up a number of rest positions corresponding to the number of pairs of opposite holes in the arm rests.

Referring to FIG. 4, when the back portion is pivoted into the outermost rest position via the arm rests 25 and locked in place via the mating of the mounts 15 in the arm rests, the back portion 12 is in a lay-flat position. That is, the back portion 12 is in substantial alignment with the seat portion 11 such that both portions define a substantially horizontal back rest surface. In this lay-flat position, the cross bar 22 of the back frame 20 rests on the ground surface 17 along with the cross bars of the leg assemblies 13, 14 of the seat portion. Thus, the weight of the chair 10 as well as the weight of any occupant resting on the chair are supported at the ends of the chair and at a central point. Due to the reverse curvature of the members 21 of the back frame 20 and the positioning of the cross bar within the plane of the chair (as viewed in FIG. 4), the loads imposed on the cross bar 22 are transmitted in a manner whereby the cross bar 22 is restrained from buckling or splaying outwardly of the chair.

Referring to FIGS. 1, 5 and 6, the strip of back supporting material 23 has a pouch 26 fastened to the upper edge as by snap fasteners 27. The pouch 26 is formed on one side with a zippered entrance 28 which faces the strip of back supporting material 23 when the pouch 26 rests on the strip 23. The entrance 28 permits a head-rest 29 such as a pillow, a folded towel, etc. to be inserted into the pouch interior so as to provide a comfortable surface for the resting of an occupant's head thereon. Additionally, the pouch 26 can be provided with a pocket 30 on the opposite side from the entrance 28 for receiving miscellaneous articles such as cigarettes, comb, etc. As the pouch 26 is secured only along one edge to the strip 23, when not in use, the pouch 26 can be draped over the stiffening rod 24 of the back frame 20. Further, in view of the type of fastening of the pouch 26 to the strip 23, the pouch 26 can be readily removed and subsequently readily replaced. The pouch 26 is preferably made of the same material as the strip 23, such as canvas or other suitable material, and of the same or other coloring and esthetic details.

Referring to FIGS. 1, 2 and 3, the chair 10 is provided with a pair of wheels 31 for permitting the chair, when folded, to be transported in a cart-like manner. Each wheel 31 is of a size and rotatably mounted on the end of an axle 32 secured across the seat frame 18 in a position such that when the chair is unfolded (FIGS. 1 and 2) the wheels 31 are raised above the ground surface 17. However, when the chair 10 is folded (FIG. 3), the wheels 31 contact the ground surface 17 so as to permit the cross bar 22 of the back frame 20 to act as a handle for pushing or pulling the chair from one place to another. In order to further facilitate transportation of the folded chair, a strap 33 is fixed to the cross bar 22 of the back portion 12.

The invention thus provides a chair of the back-rest type which can be set into a plurality of rest positions including a substantially horizontal lay-flat position to accommodate an occupant. Further, when the chair is in the lay-flat condition, the chair is supported not only centrally but also at each end so that the weight of an occupant does not place any undue stress on the chair.

The chair of the invention is further capable of being transported in an easy manner when folded since the chair can be rolled along the ground on wheels while being grasped at an upper end.

Also, the chair, when folded, can be stored temporarily or permanently by simply hanging the chair over a fence, a boat rail, or a suitable hook arrangement.

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Further, in view of the curved profile of the back frame which positions the cross bar and stiffening rod out of the plane of the back support strip, there is no encumbrance which can come into contact with an occupant's head or body when the occupant is in one of the rest positions afforded by the chair. The chair thus provides a comfortable back rest.

It is noted that the various members of the chair can be made of suitable conventional materials, such as aluminum for the frame members, wood for the arm rests and canvas for the seat and back strips.

The invention also provides a chair which when unfolded into an occupant receiving position causes a retraction of the transporting wheels so that the chair securely rests on the ground without the transporting wheels touching the ground. The chair thereby avoids the danger of the chair moving on the wheels should an occupant tip the chair backwards or accidentally bump the chair when in the process of becoming seated in the chair.

What is claimed is:

1. A foldable chair of a back-rest type comprising:
 - a seat portion;
 - a back portion pivotally secured to said seat portion, said back portion including a frame having a back support surface and a curved end portion spaced from said seat portion, said end portion terminating in a plane spaced from the plane of said back supporting surface; and
 - means for pivoting said back portion away from said seat portion into a rest position having said back portion in substantially horizontal alignment with said seat portion with said end portion supporting one end of said back portion on a ground surface when in said rest position.
2. A foldable chair as set forth in claim 1 wherein said means includes a pair of arm rests, each said arm rest being pivotally secured to said back portion and slidably secured to said seat portion.
3. A foldable chair as set forth in claim 1 wherein said seat portion includes a pair of leg assemblies for supporting said seat portion on a ground surface whereby one of said leg assemblies and said end portion of said back portion supports the chair at the ends thereof when in said rest position.
4. A foldable chair as set forth in claim 1 wherein said curved end portion is in the shape of a ram's horn.
5. A foldable backrest type chair comprising
 - a seat portion;
 - a back portion pivotally secured at one end to said seat portion, said back portion including an inverted generally U-shaped frame of J-shaped profile, said frame having a pair of spaced parallel members having straight portions and curved end portions spaced from said seat portion and a cross bar connecting said end portions together, said cross bar being spaced from the plane of said parallel members; and
 - means for pivoting said back portion relative to said seat portion whereby when said back portion and said seat portion are in substantially horizontal align-

ment in a rest portion said curved end portions and said cross bar support one end of said back portion on a ground surface.

6. A foldable chair as set forth in claim 5 which further comprises a pouch secured to the upper edge of said strip, said pouch having an entrance on one side thereof for passage of a headrest means into said pouch, and a pocket on an opposite side thereof.

7. A foldable backrest type chair as set forth in claim 5 wherein said back portion further includes a strip of back supporting material secured to said spaced parallel members and extending across said back portion.

8. A foldable backrest type chair as set forth in claim 7 wherein said seat portion includes a pair of articulated leg assemblies for supporting said seat portion on a ground surface and a seat frame connected between said leg assemblies and wherein said back portion is pivoted away from said seat portion to substantially align said strip of back supporting material with said seat frame and to bring said cross bar into contact with the ground surface.

9. A foldable backrest type chair as set forth in claim 5 wherein said means includes a pair of arm rests, each said arm rest being pivotally secured to one of said parallel members and slidably mounted in said seat portion for moving said back portion into a plurality of rest positions.

10. A foldable backrest type chair comprising:

- a seat portion;
- a back portion pivotally secured at one end to said seat portion, said back portion including an inverted generally U-shaped frame of J-shaped profile, said frame having a pair of spaced parallel members having straight portions and curved end portions spaced from said seat portion and a cross bar connecting said end portions together, said cross bar being spaced from the plane of said parallel members;
- means for pivoting said back portion relative to said seat portion; and
- a pair of wheels rotatably mounted on said seat portion, said wheels being selectively disposed in at least two positions, in one of said positions said wheels project out of the plane of said seat portion for contacting a ground surface and in another of said positions said wheels are contained in the plane of said seat portions out of contact with the ground surface.

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