United States Patent [19]

Hartman

[11] **3,860,285**

[45] **Jan. 14, 1975**

[54] **COMBINED WHEELCHAIR, TRAY AND FOOT REST**

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[22] Filed: **Jan. 29, 1973**

[21] Appl. No.: **327,853**

[52] **U.S. Cl.**..... **297/150,** 297/DIG. 4, 403/112

[51] **Int. Cl.**..... **A47c 7/62**

[58] **Field of Search** 297/150, 151, 154, 155, 297/149, 161, 162; 248/298, 285, 287, 188.5, 333, 334, 335, 338; 403/112

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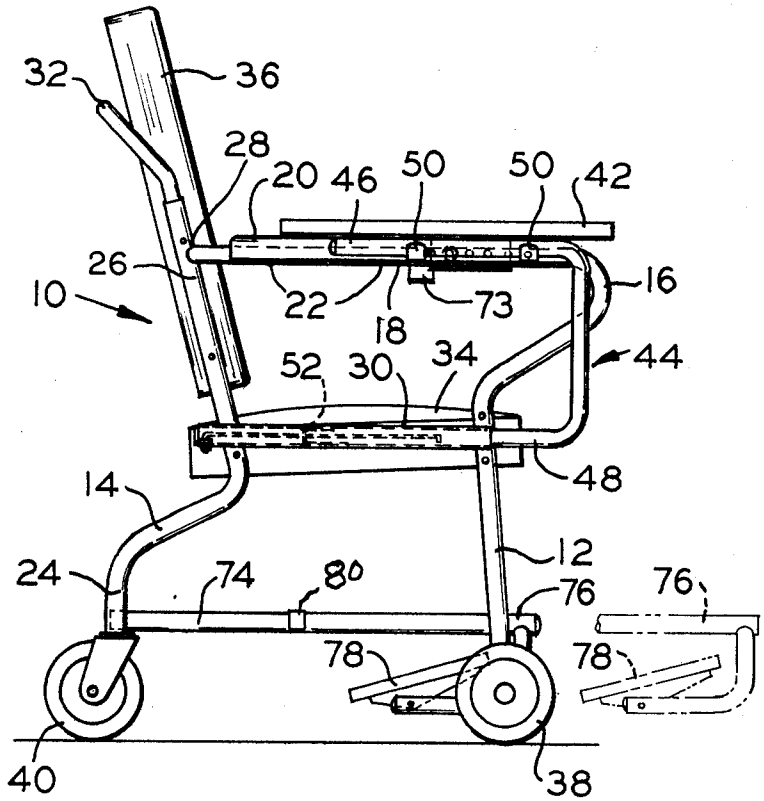
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[57] **ABSTRACT**

A combined wheelchair, tray and foot rest assembly having a mechanism for permitting the tray and foot rest to be moved horizontally and preventing the accidental removal from the wheelchair. Further, the mechanism permitting the tray to be swung from a position of use to a stored position adjacent the side of the wheelchair.

2 Claims, 4 Drawing Figures



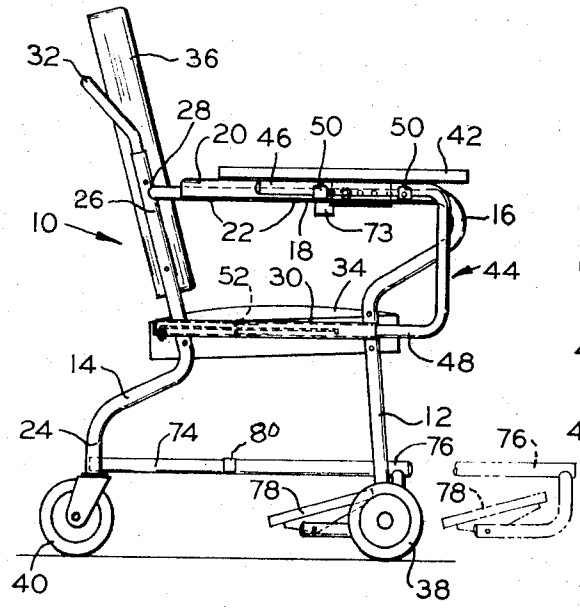


FIG. 1

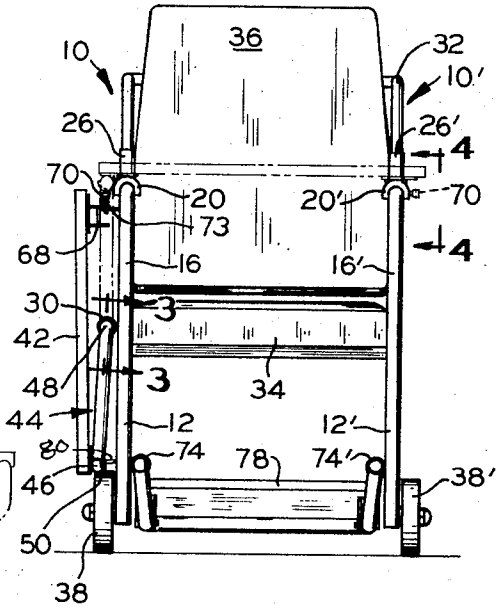


FIG. 2

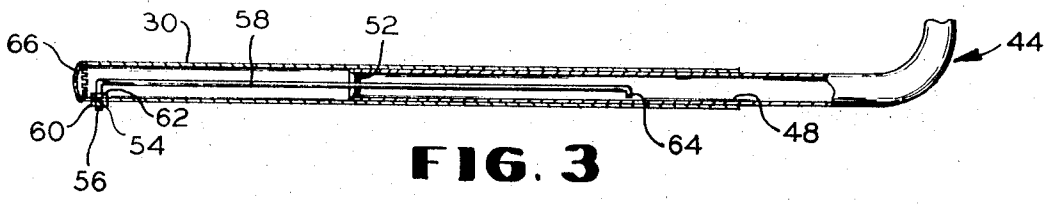


FIG. 3

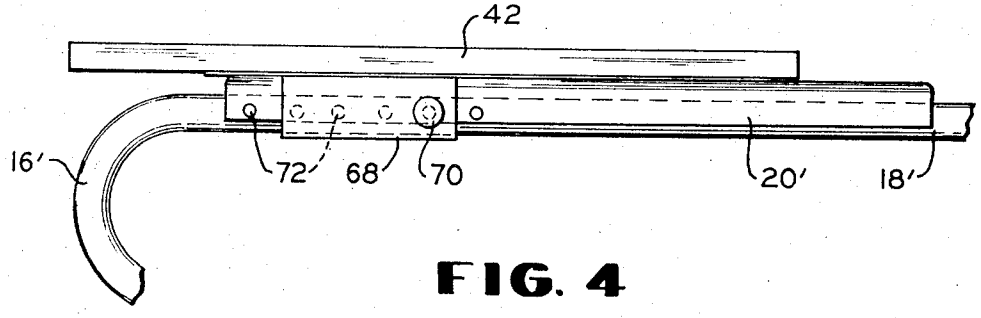


FIG. 4

COMBINED WHEELCHAIR, TRAY AND FOOT REST

BACKGROUND OF THE INVENTION

Attempts have been made in the prior art to produce a wheelchair for use by invalids or convalescents wherein tray and foot rest components were provided which could be moved for horizontal adjustment to accommodate various sized individuals. Further, efforts have been expended to achieve a tray structure for such wheelchairs which could be readily swung from a position of use to a position of non-use adjacent one side of the chair. However, all previous attempts have resulted in a wheelchair wherein the movable and storable elements could be removed from the chair and thereby create the possibility of the elements being destroyed or misplaced.

SUMMARY OF THE INVENTION

It is an object of the invention to produce a wheelchair structure having integral tray and foot rest elements which are, in part, coupled to the chair mechanism allowing the tray and foot rest to be moved horizontally relative to the main body of the chair, and also providing for swinging action of the tray from a position of use to a position of non-use while militating against the complete disassociation of the tray and foot rest elements from the chair.

BRIEF DESCRIPTION OF THE DRAWINGS

Other objects and advantages of the invention will be more fully understood by one skilled in the art by reading the following detailed description of an embodiment of the invention when considered in the light of the accompanying drawings, in which:

FIG. **1** is a side elevational view of a wheelchair incorporating the features of the invention;

FIG. **2** is a front elevational view of the wheelchair illustrated in FIG. **1** showing the tray in a stored position along a side of the wheelchair;

FIG. **3** is an enlarged sectional view of the mechanism for providing relative movement between the chair frame and associated tray taken along line **3—3** of FIG. **2**; and

FIG. **4** is a fragmentary elevational view of the apparatus employed for selectively horizontally positioning the tray relative to the wheelchair.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings, there is illustrated a wheelchair structure basically comprised of two substantially similar side frames **10** and **10'**. Since the side frames are substantially the same, the description of only a single side frame **10** is deemed necessary. Slight differences between the side frames **10** and **10'** will be explained hereinafter.

FIG. **1** adequately illustrates side frame **10** which consists of generally vertically extending leg portions **12** and **14**. The leg portion **12** is formed to have an offset forwarding extending handgrip portion **16** from which an armrest portion **18** is formed to extend generally horizontally rearwardly therefrom. The armrest portion **18** is provided with a suitable armrest member **20** which is formed of a molded plastic, for example, and secured thereto by suitable fasteners such as screws **22**.

The leg portion **14** is formed to have a relatively short foot rest portion **24** at the lower end thereof from which extends an inwardly and upwardly extending and thence rearwardly inclined seat and backrest supporting portion **26**.

The rearmost ends of the armrest portions **18** and **18'** are suitably secured, as by welding, to seat and backrest portions **26** and **26'** as at **28**.

A frame tube **30** extends between the upper portion of the leg portion **12** and the seat and backrest supporting portion **26** and is typically welded to these elements.

The above described elements form the side frames and are of steel tubing and in practice are provided with a suitable nickel chrome plating on the exposed surfaces thereof. It has been found in practice that one inch diameter tubing is satisfactory to lend sufficient structural strength to the assembly.

The two side frames **10** and **10'** are coupled together by a generally U-shaped pusher tube **32** having lower free ends formed to extend inwardly and thence downwardly to be received within the upper open ends of the seat and backrest supporting portions **26** and **26'**.

A cushioned and upholstered seat **34** extends between the two side frames **10** and **10'**, the front end of which is secured to the leg portions **12** and **12'**, and the rear end of which is secured to the lower portion of the seat and backrest portions **26** and **26'**. Typically the seat **34** is secured to the side frames **10** and **10'** by threaded fasteners such as screws, for example, as illustrated in FIG. **1**.

A cushioned and upholstered backrest **36** extends between the side frames **10** and **10'** and is secured to the upper portion of the seat and backrest supporting portions **26** and **26'** to suitable threaded fasteners, such as screws, as illustrated in FIG. **1**.

At the bottom of the leg portions **12, 12'** and **14, 14'** (not shown) of the side frames **10** and **10'** respectively, there are disposed floor engaging wheel means. The front or forward leg portions **12** and **12'** are preferrably provided with non-swiveling wheel units **38** and **38'**, while the rear leg portions **14** and **14'** are provided with swivel casters **40** and **40'** (not shown). Typically the rear swivel casters **40** and **40'** are equipped with suitable braking means to adequately militate against movement of the wheel chair assembly when desired.

A generally rectangularly shaped tray **42** of suitable width to adequately span the side frames **10** and **10'** is provided to be attached to the chair assembly. The tray **42** is adapted to rest on the armrest members **20** and **20'** which are affixed to the armrest portions **18** and **18'** of the side frames **10** and **10'**. It will be noted that the tray **42** is illustrated in a position of use in FIG. **1** and in a stored position in FIG. **2**, with phantom lines in each of the figures illustrating the alternate position. Pivotally affixed to the underside of the tray **42** is generally U-shaped tray supporting member **44** having two spaced apart parallelly arranged legs **46** and **48**. The leg **46** of tray supporting member **44** is pivotally coupled to the underside of the tray **42** by a pair of spaced apart brackets **50**.

The spaced apart leg **48** of the tray supporting member **44**, is adapted to be received within the hollow interior of the frame tube **30**. It will be noted that the leg **48** is longer than the leg **46** and the free end thereof, as is clearly apparent in FIG. **3**, is provided with a stan-

dard washer **52** brazed or otherwise suitably secured to the inner surface thereof.

The rear end of the frame tube **30** is provided with an aperture **54** which is adapted to receive an end portion **56** of a rod **58.** The end portion **56** is typically provided with exterior threads and is formed at a substantially right angle to the main body of the rod **58.** The threaded end portion **56** of the rod **58** is securely fastened within the aperture **54** of the frame tube **30** by a pair of cooperating nuts **60** and **62.** The opposite end **64** of the rod **58** is bent to form a substantially right angle extension to the main body of rod **58** so that in the assembled form the leg **48** of the tray supporting member **44** cannot become disassembled from the frame tube **30.** The otherwise open end of the frame tube **30** is covered by a tube closure member **66.**

A bracket **68** is secured to the undersurface of the tray **42** adjacent the side opposite the side which the brackets **50** are secured. The bracket **68** is provided with a spring biased plunger **70** which is adapted to be selectively received in a series of holes **72** formed in the armrest member **20'**, as is clearly illustrated in FIG. **4.** The relative horizontal position of the tray **42** with respect to the chair may be determined by the particular one of the holes **72** selected to allow the plunger **70** to engage. Accordingly, the tray **42** may be readily moved to any desired position with respect to the particular occupant of the chair for comfortable use of the tray, and further, to provide a suitable restraint for the occupant against accidental movement during use.

The tray **42** may be moved from the position of use illustrated clearly in FIG. **1** to a stored position illustrated in FIG. **2** by disengaging the plunger **70** from the aligned hole **72** of armrest member **20'** and then swinging the tray **42** to the stored position and suitably locking the tray in the stored position by aligning the plunger **70** with a hole in a bracket **73** secured to the armrest portion **18** of the side frame **10.** During the swinging movement of the tray **42,** the leg **48** of the supporting member **44** rotates within the interior of the frame tube **30.** It will also be appreciated that relative longitudinal movement between the leg **48** and the associated frame tube **30** may be effected to permit alignment between the plunger **70** and the locking bracket **73** to assure that the tray **42,** is retained in a locked stored position. The above described operation can be readily performed by the occupant of the chair or an attendant.

Secured to the lower portions of the side frames **10** and **10'** extending between the front leg portions **12** and **12'** and the foot portions **24** are lower frame tubes **74** and **74'** respectively. The lower frame tubes **74** and **74'** are adapted to telescopically supportingly receive the free ends of tubular members **76** of a foot rest assembly. The foot rest assembly includes a foot rest **78** which is typically pivotally supported between the spaced apart tubular members **76.** It will be understood that the foot rest **78** may be horizontally adjusted by sliding the assembly forwardly or rearwardly to accommodate the occupant of the chair. Mechanism similar to that illustrated in FIG. **3** may be utilized to prevent accidental removal of the foot rest assembly from the chair.

A clip **80** is secured to the frame tube **74** and is employed to retain the leg **46** of tray supporting member **44** during periods of nonuse of the tray **42** and transit of the chair **10.** It will be appreciated, that when the tray **42** is held by the clip **80,** the tray **42** will not pivot or move in anyway that might cause accidental harm to the fingers of the occupant should the chair be abruptly jolted.

In accordance with the provisions of the patent statutes, I have explained the principle and mode of operation of my invention and have illustrated and described what I now consider to represent its best embodiment. However, it must be understood that within the spirit and scope of the appended claims, the invention may be practiced otherwise than as specifically illustrated and described.

What I claim is:

1. In combination with a chair structure comprising a pair of similar tubular side frames joined by seat and backrest members each of said frames including front and rear leg portions and an armrest; a tubular frame member affixed to the outside of one of said frames; a tray; a generally U-shaped supporting member for said tray, said supporting member having two spaced apart substantially parallel legs, one of said legs being pivotally secured to the undersurface of said tray, the other of said legs being hollow and telescopingly received by said tubular frame member, said legs being spaced apart a distance substantially the same as the distance between said tubular frame member and the upper surface of the armrest on the one of said frames to which said tubular member is attached; and bracket means for selectively fastening the undersurface of the opposite edge of said tray in the position of use to the armrest of the other of said frames and in the stored position to the armrest portion of the one of said frames to which said tubular member is attached, the improvement which comprises:

means interconnecting said tubular member and the other of said legs to permit relative rotational movement therebetween and limited relative longitudinal movement and prevent disassociation therebetween to militate against the removal of said tray from the chair including a rod having one end affixed to said tubular frame member, said other leg having a reduced opening in the end thereof, the other end of said rod fitted through the opening in said leg, and stop means on said other end of said rod providing a limit to the relative longitudinal movement between said tubular frame member and said other leg.

2. The invention defined in claim **1** wherein said other end of said rod is bent to form a substantially right angle extension to the main body portion of said rod for said stop means.

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