

[54] **SWING-BACK DETACHABLE
WHEELCHAIR ARMREST**

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[51] Int. Cl. **A47c 7/54**

[58] Field of Search **297/412, 416, 417**

[56] **References Cited**

UNITED STATES PATENTS

585,913	7/1897	Halines	297/417
1,378,704	5/1921	McPartland	297/417
1,749,518	3/1930	Tatum	297/417 X
2,269,918	1/1942	Sill	297/417

2,767,777	10/1956	Kruger et al.	297/417 X
3,249,387	5/1966	Pivacek	297/DIG. 4
3,367,713	2/1968	Krueger	297/417 X
3,550,958	12/1970	Krein	297/417

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[57] **ABSTRACT**

A swing-back detachable armrest for use in conjunction with wheelchairs. The armrest is comprised of a horizontal member supported at one end by a vertical member. The horizontal and vertical members are releasably attached to the wheelchair frame, and the attachment of the horizontal member to the wheelchair frame allows rotation of the horizontal member from the normal position to a position of non-use behind the back of the wheelchair.

5 Claims, 4 Drawing Figures

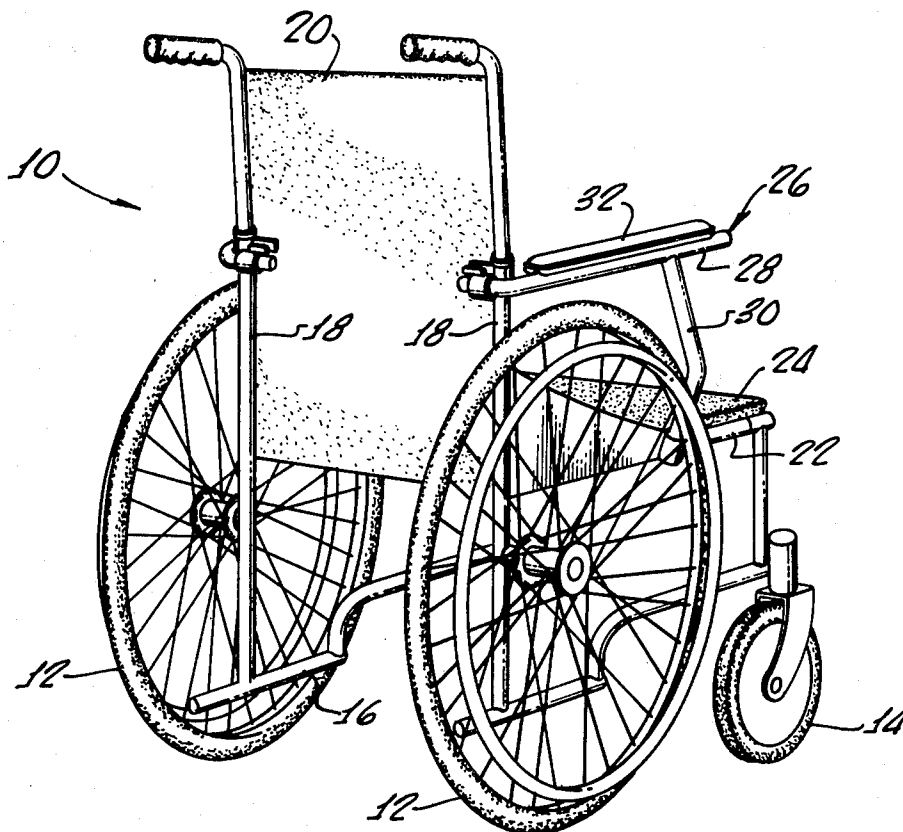


FIG. 1.

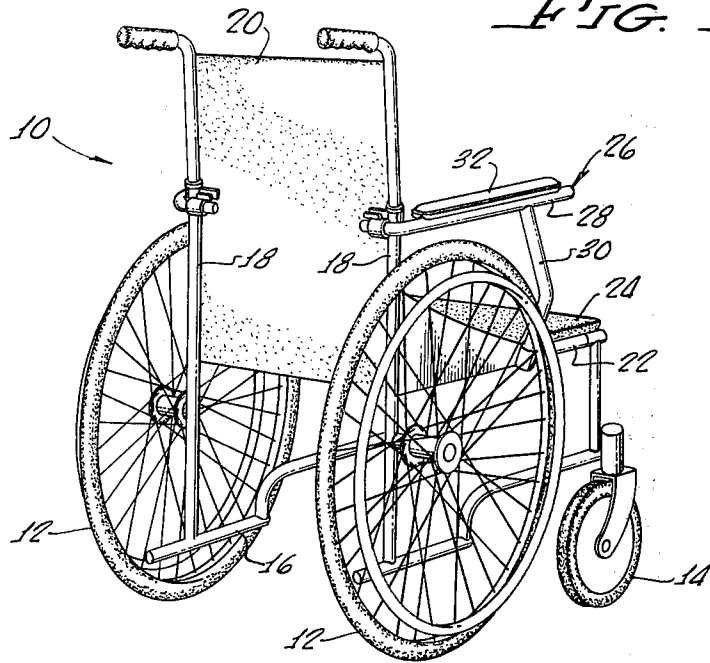


FIG. 2.

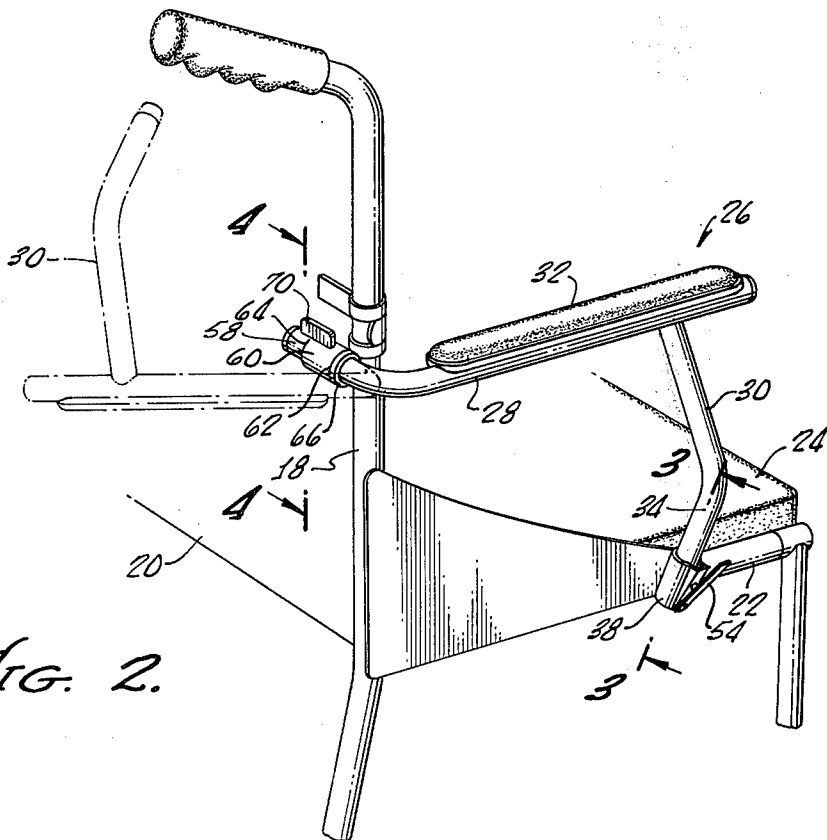


FIG. 3.

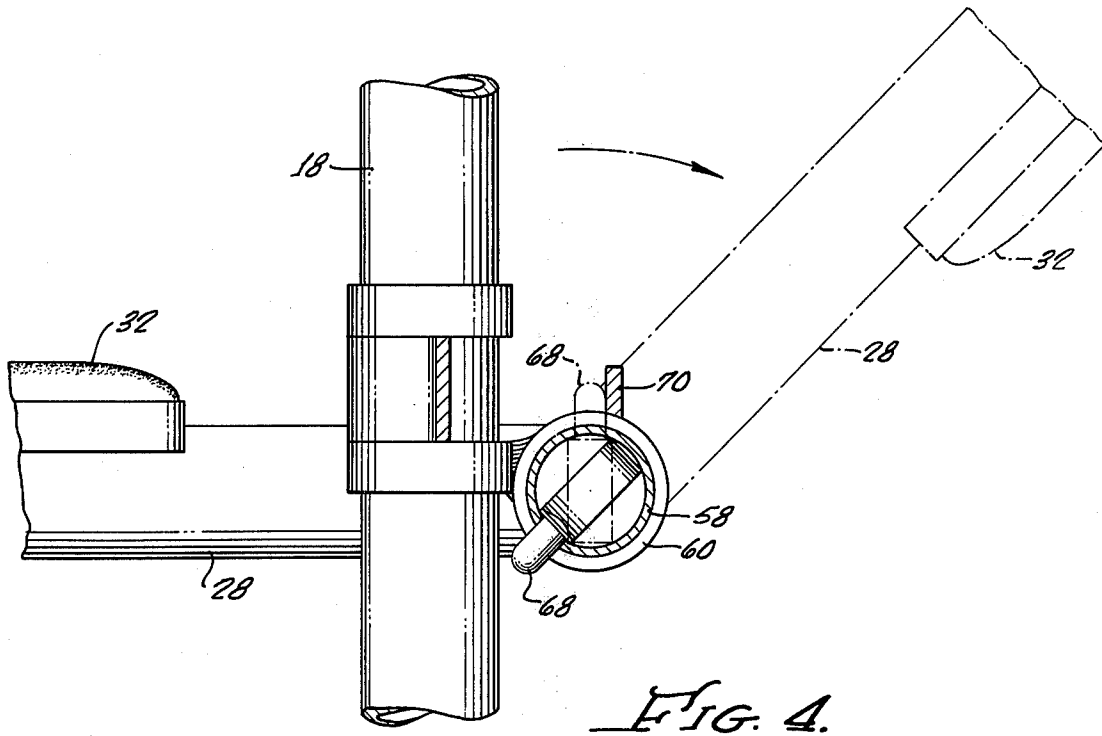
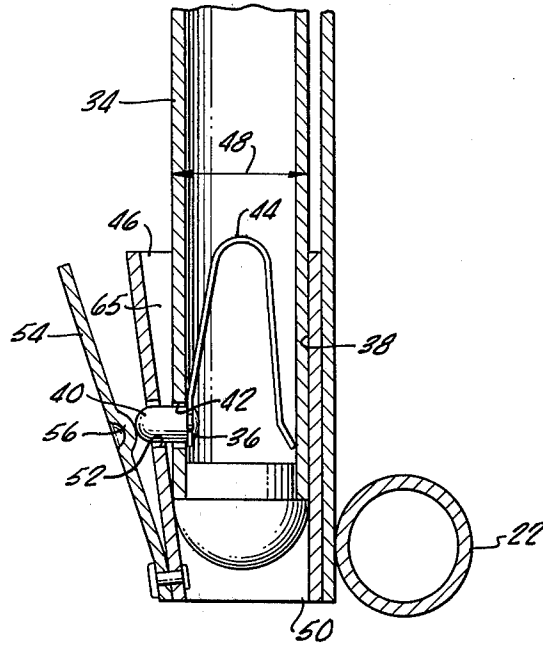


FIG. 4.

SWING-BACK DETACHABLE WHEELCHAIR ARMREST

BACKGROUND OF THE INVENTION

This invention relates to the field of armrests used in conjunction with wheelchairs for the handicapped. More specifically, this invention deals with rotatable armrests that are removable from the side of the wheelchair.

The user of a wheelchair in many instances is faced with a need to remove the wheelchair armrests. The most common circumstance where a wheelchair occupant requires the removal of a wheelchair armrest occurs when he transfers from the wheelchair to a bed or an automobile, etc. The safest and easiest movement for the handicapped person from a wheelchair is by lateral movement from the wheelchair in order to utilize the support provided by the wheelchair. Another typical situation where the occupant of a wheelchair desires the removal of the wheelchair armrests would be when he is positioned adjacent a table having a surface lower than the height of the wheelchair armrests. By removal of the armrests, the wheelchair can be moved closer to the table, allowing the occupant a more readily accessible position for use of the table.

Prior art removable wheelchair armrests utilize a horizontal member supported by two vertical members which slidably engage at their lower ends with tubular couplings attached to the wheelchair frame on each side of the wheelchair seat. In order to remove this type of wheelchair armrest, it must be vertically raised to the point where the vertical support members are lifted out of the tubular couplings. In order to replace the armrest, the reverse procedure is followed by inserting the vertical members down into the tubular couplings on the wheelchair frame. The most serious drawback to the use of these prior art detachable wheelchair arms is the fact that the handicapped occupant is faced with a dilemma of what to do with the armrest once it has been removed. In other words, the occupant, having removed the armrest, has no convenient place to store the armrest, so that it would be convenient for replacement when the occupant desires the armrest to be again attached to the wheelchair. This problem is exemplified by the case of an occupant transferring himself into a car where it is quite difficult to place the armrest conveniently within the car before the occupant begins to transfer himself from the wheelchair into the automobile. Placement of the armrest on the ground would be of inconvenience, since the handicapped person in many instances is unable to extend himself sufficiently far enough in order to retrieve an object that is placed on the ground or floor. When the occupant in the wheelchair desires a place close to a table, having a lower surface than the armrests on his wheelchair, he is greatly inconvenienced by the problem of having to place the armrest on the floor where it may be not only in his way, but also in the way of other people in the area.

Another drawback to the prior art removable wheelchair armrests is the fact that the distance between the large support wheels must be increased in order to provide room for these prior art removable wheelchair armrests, since the coupling mechanism is normally, of necessity, located between the wheel and the edge of the seat. This results in a larger overall width of the

wheelchair, causing problems with maneuvering the wheelchair through narrow areas.

Being not only under a physical handicap, but also a psychological handicap, the occupant of a wheelchair many times is quite sensitive to the fact that he is handicapped and the nuisance or inconvenience of detachable armrests may tend to increase the embarrassment and humiliation that the handicapped person already has to bear.

BRIEF SUMMARY OF THE INVENTION

The present invention envisions the utilization of a detachable armrest for use with a wheelchair which may be easily placed in a storage or non-use position behind the backrest of the wheelchair. The main member of the armrest is rotatably attached to the backrest frame of the wheelchair in order to allow the armrest to rotate from the horizontal or operative position rearwardly behind the backrest to a position of non-use or storage. In this latter position, the armrest is still attached to the wheelchair, thereby eliminating the requirement or necessity to be concerned with storing the wheelchair armrest once it has been removed from the side of the wheelchair. When the rotatable armrest is in the back or non-use position, the lateral sides of the wheelchair are exposed to allow the occupant easy lateral movement without the additional inconvenience of being concerned with the storage or placement of the removed armrest.

The connection between the armrest and the backrest frame of the wheelchair not only allows rotation, but also allows the complete removal of the armrest from the wheelchair if desired. To position the armrest from the non-use position to the operative position the armrest is simply rotated down to the side of the wheelchair seat where the vertical support is releasably locked into a socket connected to the wheelchair frame of the seat.

The detachable rotating armrest disclosed herein is designed to avoid the necessity of providing a larger space between the wheelchair seat and the respective large support wheels for accommodation of the armrests. Therefore, the overall width of the wheelchair remains as small as possible to allow easier maneuverability in narrow areas.

The design of the present invention is much more simplified than that used in previous detachable wheelchair arms, eliminating much unnecessary structural material resulting in a much lighter and more easily operative detachable wheelchair arm.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the wheelchair showing the normal position of the swing-back armrest;

FIG. 2 is a perspective view of the swing-back armrest including the swing-back position shown in phantom;

FIG. 3 is a cross-sectional view taken along the lines 3—3 in FIG. 2; and

FIG. 4 is a cross-sectional view taken along the lines 4—4 in FIG. 2.

DETAILED DESCRIPTION OF THE INVENTION

FIG. 1 shows a wheelchair 10 having large support wheels 12 and smaller caster wheels 14 to support the overall wheelchair frame 16. Included within the frame 16 are backrest support members 18 which are used to

mount the backrest 20 of the wheelchair. Another portion of the wheelchair frame 16 is comprised of the seat support members 22 which are utilized to mount the wheelchair seat 24.

The swing-back armrest 26 is releasably connected to the backrest support member 18 and the seat support member 22 as shown in FIG. 1. The swing-back armrest 26 is comprised of a horizontal arm support member 28 and a vertical support member or anchoring strut 30. Connected to the upper portion of the horizontal arm support member 28 is a padded armrest cover 32 to provide comfortable contact between the patient's arm and the wheelchair armrest. Shown more clearly in FIG. 2 is the operation of the swing-back armrest. Represented by the solid lines is the position of the swing-back armrest in the operative or use position when the occupant of the wheelchair desires to have support to rest his arms. However, the phantom position of the armrest shows how the lower end 34 of the anchoring strut or stabilizer leg 30 is released from the seat support member 22 in order to rotate the complete armrest in an arcuate manner to a position behind the backrest 20 of the wheelchair.

The mechanism to enable the releasable attachment of the lower end 34 of the anchoring strut 30 to the seat support member 22 is a button lock 36 and a socket 38 shown in detail on FIG. 3. The button lock 36 is comprised of a button 40 biased projected through an aperture 42 in the lower end 34 of the anchoring strut 30 by a spring 44. The tapered holding socket 38 is attached to the seat support member 22 in front of the large support wheel 12 and has an upper opening 46 which has a greater internal size than the exterior size 48 of the lower end 34 of the anchoring strut 30. The lower end 50 of the holding socket has a slightly smaller internal size than the external size 48 of the anchoring strut. Therefore, the lower end 34 of the anchoring strut 30 will become wedged within the holding socket 38. Located in the side surface of the holding socket 38 is a locking aperture 52 through which the locking button 40 extends when the lower end 34 of the armrest anchoring strut 30 is positioned down into the holding socket 38. Attached to the lower end 50 of the holding socket 38 is a flexible release latch 54 with an indented area 56 located adjacent the locking aperture 52, so that, when the armrest anchoring strut 30 is in the locked position with the button 40 in the locking aperture 52, the armrest anchoring strut 30 can be released from the holding socket 38 by pushing the release latch 54 toward the holding socket forcing the button 40 out of the locking aperture 52.

As shown in FIG. 2, the back or axis portion 58 is connected to the horizontal arm support member 28 and is positioned approximately 90° to the orientation of the arm support member 28. The axis portion 58 is generally formed by bending the tubular member 28 which is the arm support member 28. Alternatively, a separate piece could be attached at a right angle to the arm support member 28 to form the horizontal axis portion 58. Connected to the backrest support member 18 above the large support wheel 12 is a tubular sleeve or holding bracket 60, having a first opening or end 62 and a second opening or end 64. The axis portion 58 provides a horizontal axis parallel to the rotational axis of the large wheels 12 when positioned within the sleeve 60 for rotation of the armrest 26 from a first or horizontal operative position back to a second or stor-

age position completely behind the wheelchair backrest 20. Because the sleeve 60 is attached behind the backrest support member 18, the armrest 26 is located completely behind the wheelchair backrest 20 when it is rotated to the storage position.

It should be noted that the holding socket 38 is attached to the seat support member 22 at a specified angle in order to be tangential to the rotative arc of the lower end 34 of the anchoring strut 30 when it is rotated about the sleeve 60. In other words, the longitudinal axis of the socket 38 is oriented to be perpendicular to a straight line between the center of the longitudinal axis of the sleeve 60 and the longitudinal axis of the socket 38. The lower end 34 of the anchoring strut 30 is also tangentially oriented with respect to the center of the sleeve 60. This orientation is to provide for a smooth receipt of the lower end 34 within the socket 38. Also, the lower end 34 of the anchoring strut 30 snugly contacts the rear interior surface 65 of the socket 38 to put a slight tensile force on the armrest 26 to make it more secure when it is in the horizontal operative position.

Secured on the axis portion 58 is a collar flange 66 which fits adjacent the first opening 62 of the sleeve or tubular socket 60 in order to properly limit the distance to insert the axis 58 within the sleeve 60. Also located in the axis portion 58 of the horizontal support member 28 is a locking button 68 shown in FIG. 4 of similar design and arrangement as the locking button 40 of the armrest anchoring strut 30. This spring-biased locking button 68 bears against the second end 64 of the sleeve 60 in order to retain the armrest 26 within the sleeve 60. As shown in FIGS. 2 and 4, attached to the outside of sleeve 60 is a stop bar 70 which the locking button 68 contacts when the anchoring strut 30 is released from the holding socket 38 and the horizontal armrest is rotated to a position behind the backrest 20. This stop bar 70 retains the armrest in a storage or non-use position as shown in phantom on FIG. 2.

With respect to the operation of the swing-back wheelchair armrest, when the occupant is in a situation where he desires to remove the armrest in order that he will be able to move laterally from the wheelchair to another position, or in order to move the wheelchair closer to a table, the release latch 54 is pressed toward the holding socket 38 and the anchoring strut is lifted out of the holding socket 38. This allows the occupant to rotate the armrest within the sleeve 60 to a position shown in phantom on FIG. 2 for convenient storage of the armrest when not in use. When it is desired to completely remove the armrest from the wheelchair frame, the locking button 68 is depressed and the back portion 58 of a horizontal support member 28 is removed from the sleeve 60.

What is claimed is:

1. A removable rotatable wheelchair armrest assembly comprising:
 - a wheelchair frame;
 - an arm support member having one end connected to said wheelchair frame;
 - a stabilizer leg having one end connected to said arm support member;
 - means on said one end of said arm support member for releasably locking said arm support member to said wheelchair frame to allow removal of said arm support member and stabilizer leg from said wheelchair frame; and

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a holding bracket attached to said wheelchair frame and having an opening for receipt of said one end of said arm support member, said bracket has a tubular sleeve into which said one of said arm support member having a tubular shape is placed, resulting in a rotatable connection between said arm support member and said bracket, said arm support member being retained in said bracket by a spring-biased button connected to said one end of said arm support member.

2. A swing-away armrest assembly for attachment to the backrest and seat framing members of a wheelchair, said assembly comprising:

- an arm support member;
- an anchoring member, having one end connected to said arm support member;

means located on said backrest frame member for rotatably receiving said one end of said arm support member;

means acting in cooperative relation between said seat frame member and said lower end of said anchoring member for releasably attaching said anchoring member to said seat frame member; and

a holding bracket mounted adjacent said backrest frame member and having a first and second opening, said holding bracket comprising a collar flange on said one end of said arm support member to rotatably engage said first opening; and a spring-biased button extending from within and above the surface of said one end of said arm support member to retain said arm support member within said bracket.

3. A swing-back armrest assembly for attachment to

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the backrest and seat framing members of a wheelchair, said assembly comprising:

- an arm support member;
- an anchoring member, having one end connected to said arm support member;

means located on said backrest frame member for rotatably receiving one end of said arm support member;

means located on said one end of said arm support member for rotatably securing said arm support member within said receiving means;

a holding socket having an upwardly extending open end and a locking aperture in its side surface; and a spring-biased button extending from within said anchoring member, said button designed for receipt in said locking aperture of said holding socket when said armrest is in the position for use as an armrest.

4. A swing-back armrest assembly as defined in claim 3, wherein said holding socket is connected to said seat frame member in such a manner that its longitudinal axis is aligned in tangential relation with respect to the rotation of said arm support member about said means on said backrest frame member for rotatably receiving said arm support member.

5. A swing-back armrest assembly as defined in claim 3, additionally comprising a release latch attached at one end to the outer surface of said holding socket adjacent said locking aperture to release said button from said locking aperture when said latch is pushed toward said holding socket.

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