July 18, 1967 J. L. McCLINTOCK 3,331,614

ATTACHMENT FOR WHEELCHAIRS

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Fig. 1

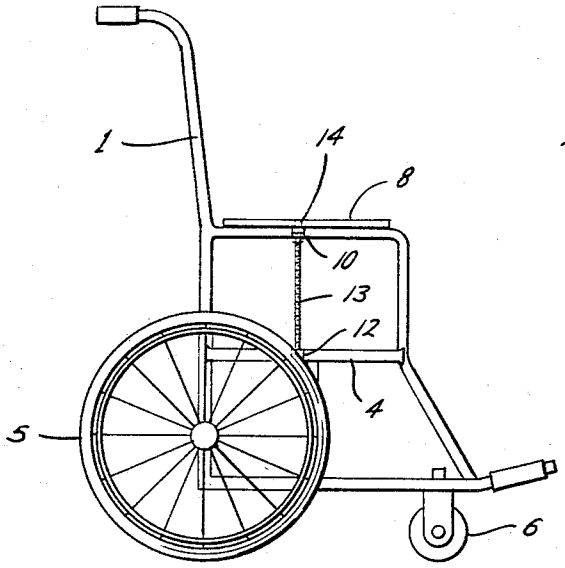


Fig. 2

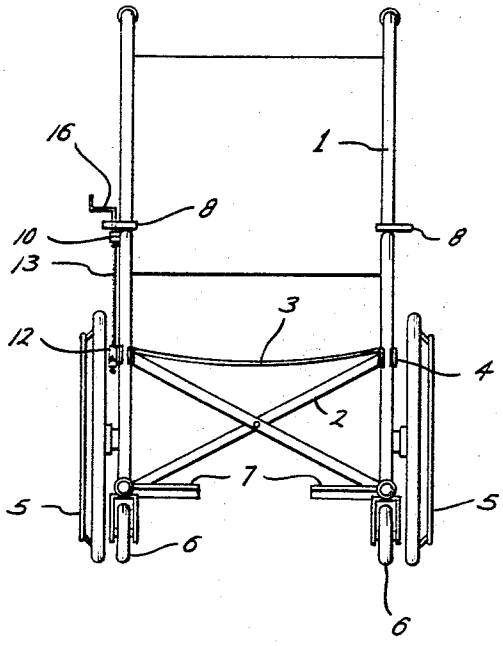
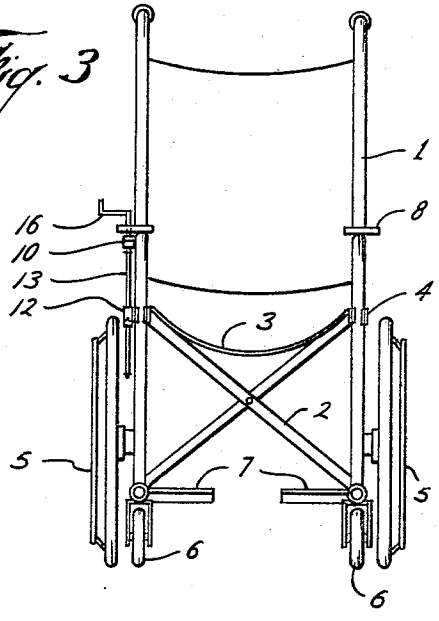


Fig. 3



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Fig. 4

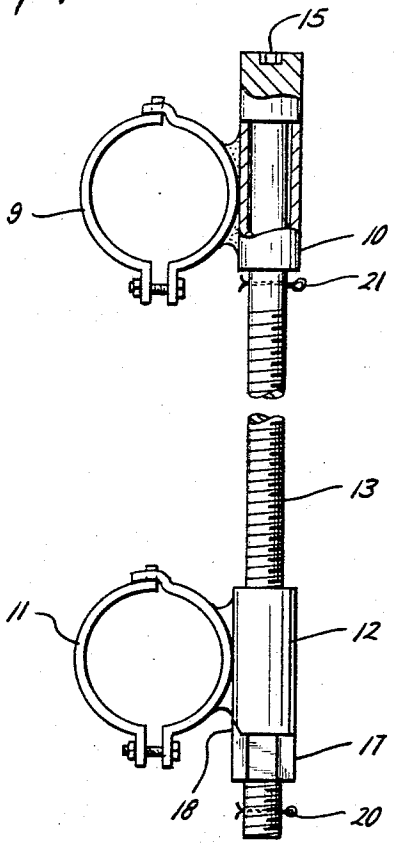
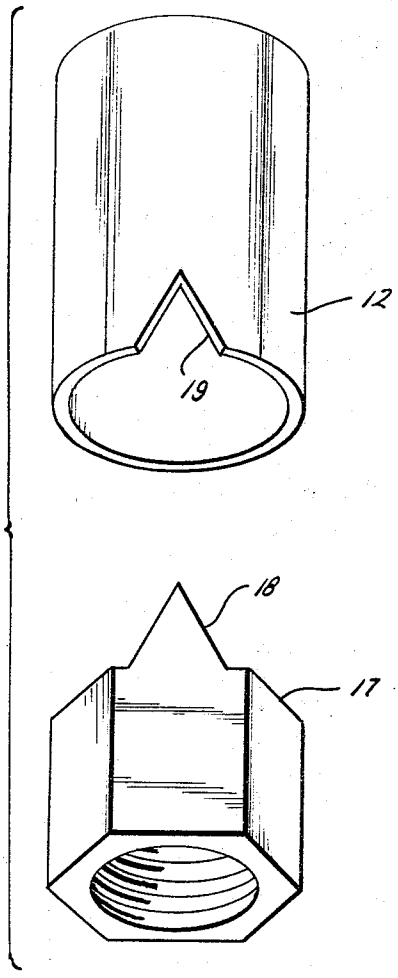


Fig. 5



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ATTACHMENT FOR WHEELCHAIRS

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ABSTRACT OF THE DISCLOSURE

An attachment for wheelchairs having a framework and a vertically movable seat frame mounted on the framework and a threaded shaft anchored to said framework and said seat frame and a guide slidably mounted on said shaft and engageable with an internally threaded nut to anchor said nut against rotation and to provide means for said shaft to rotate in said nut, raising and lowering said seat frame, or to be selectively disengaged from said nut anchoring means and raised and lowered on said framework.

This invention relates to new and useful improvements in an attachment for wheelchairs.

It is an object of this invention to provide an attachment for wheelchairs that will permit the user to manually decrease the width of the chair for passing through narrow doorways and the like.

In using the common metal collapsible wheelchair difficulty is encountered in moving the chair through narrow doorways, the occupant requiring assistance to be removed from the chair, the chair collapsed and moved through the doorway, and again seating the user. It is an object of this invention to provide an attachment for wheelchairs that will permit the user to decrease the width of the chair, without assistance.

It is another object of the invention to provide a manually operated wheelchair adjusting mechanism having novel means for adjusting the position of the seat framework of the chair with relation to the arm rest.

With the above and other objects in view, the invention has relation to certain novel features of construction, operation and arrangement of parts more particularly defined in the following specifications, and illustrated in the accompanying drawings, wherein:

FIGURE 1 is a side elevation view of a wheelchair, showing the attachment installed thereon.

FIGURE 2 is a front elevational view of a chair with the attachment mounted thereon, and the chair in fully expanded position.

FIGURE 3 is a front elevational view of a wheelchair with the attachment mounted thereon and the chair in a partially collapsed position.

FIGURE 4 is an enlarged side elevational view of the elevating mechanism employed, and

FIGURE 5 is an exploded view of the lock mechanism employed.

Referring now more particularly to the drawings, the numeral 1 designates a wheelchair having the usual single cross bar supporting mechanism 2 and flexible seat 3, the seat being mounted on the vertically movable seat frame 4 which, when the chair is collapsed, moves vertically on the frame 1. The chair has the usual propelling wheels 5, 5 and castor wheels 6, 6, and foot rests 7, 7. The usual arm rests 8, 8 are mounted on the frame 1. When the wheelchair is moved into collapsed position, the side members of the frame 1 are moved together and the seat frame 4 moves upwardly on the side members of the frame 1, the cross bar support 2 pivoting at its lower ends to permit collapse.

Mounted on the arm member of the framework 1, beneath one of the arm rests 8, is the upper clamp 9, which

is provided with the drive shaft guide 10 and mounted on the seat frame 4 is the lower clamp 11, which is also provided with a drive shaft guide 12, in vertical alignment with the guide 10, and adjacent the connection of the cross bar support. The drive shaft 13, which is externally threaded, extends through the guides 10, 12 and terminates at its uper end in the enlarged head 21 immediately beneath and in vertical alignment with a suitable port 14 in the arm rest 8. The upper end face of the shaft 13 is provided with a wrench receiving socket 15, to receive a suitable crank, such as an Allen wrench 16.

Mounted on the lower end of the drive shaft 13, and in threaded engagement therewith, is the lock nut 17, being internally threaded and having the upwardly extending tapered stud 18. Formed in the lower end of the guide 12 is the stud receiving chamber 19. Stop means, such as the cotter keys 20, 21 are mounted beneath the guide members 12, 10, respectively, to limit the movement of the drive shaft 13 in one direction.

When the wheelchair is occupied, the user will be seated on the seat 3 and the chair will be in the position shown in FIGURE 2. When it is desired to pass through a narrow doorway, the user inserts the wrench 16 through the port 14 into the socket 15 and rotates the shaft 13. If the stud 18 of the lock nut 17 is not seated in the chamber 19, the nut will turn with the rotation of the shaft until the stud 18 reaches the chamber 19, where it will become engaged in the chamber 19 and the nut 17 locked against further rotation, and as the drive shaft rotates, the seat frame 4 will be elevated on the frame 1, causing the side members of the frame 1 to move towards each other, decreasing the width of the chair. To return the chair to maximum width, the drive shaft 13 is rotated in the opposite direction. When the chair is no longer occupied, it may be collapsed for storage in the usual manner, the shaft 13 passing freely through the guide 12 as the seat frame 4 is moved upwardly. When the chair is again extended into open position for use, the shaft travels freely through the guide 12 and the stud 18 will seat in the chamber 19 upon first rotation of the shaft 13.

While the foregoing is considered a preferred form of the invention, it is by way of illustration only, the broad principle of the invention being defined by the appended claims.

What I claim is:

1. In an attachment for collapsible wheelchairs having a chair frame and a seat frame slidably mounted on said chair frame, an externally threaded drive shaft, guides on the chair frame and on the seat frame through which said drive shaft is extended, means for securing said guides to said frames, an internally threaded nut on the lower end of said drive shaft having means for engagement with the guide mounted on said seat frame to lock said nut against rotation as the drive shaft is rotated.

2. The device defined in claim 1 wherein the guide member on the chair is formed to permit free rotation of the drive shaft therein and the guide member on the seat frame is formed to slide freely vertically on said drive shaft.

3. The device defined in claim 1 wherein said guide member on said seat frame is provided with an inwardly tapered chamber formed in the lower end face thereof and said nut is provided with an upwardly projecting inwardly tapering stud to be received by said chamber.

4. In an attachment for collapsible wheelchairs having a chair frame and a slidable seat frame mounted on said chair frame, drive shaft guide members detachably mounted on said chair frame and seat frame in vertical alignment, an externally threaded rotatable drive shaft mounted in said guides, the upper end of said drive shaft having an enlarged head and having a wrench receiving

socket in the upper end face thereof, and an internally threaded nut mounted on the lower portion of said drive shaft, means for selectively maintaining said nut in non-rotating engagement with said guide mounted on said seat frame.

5. In an attachment for collapsible wheelchairs having a chair frame and a slidable seat frame mounted on said chair frame, drive shaft guide members detachably mounted on said chair frame and seat frame in vertical alignment, an externally threaded rotatable drive shaft extending through said guides, the upper end of said drive shaft having an enlarged head and having a wrench receiving socket in the upper end face thereof, an internally threaded nut mounted on the lower portion of said drive shaft movable into non-rotating engagement with said guide mounted on said seat frame and means on said drive shaft cooperating with said guides for restricting the movement of said drive shaft in one direction.

6. In an attachment for collapsible wheelchairs having a chair frame consisting of two side members supported by pivotally mounted cross bars and a seat frame slidably mounted on said side members and arm rests mounted on said chair frame, comprising: guide members mounted on one of said arm rests and on said seat frame in vertical alignment, an externally threaded drive shaft extending through said guide members, an internally threaded nut on the lower end of said drive shaft and in threaded engagement therewith movable into locking engagement with the guide mounted on the seat frame to maintain said nut against rotation, and said guide member mounted on said seat frame sliding freely over said threaded shaft as the seat member is raised or lowered.

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