

May 24, 1960

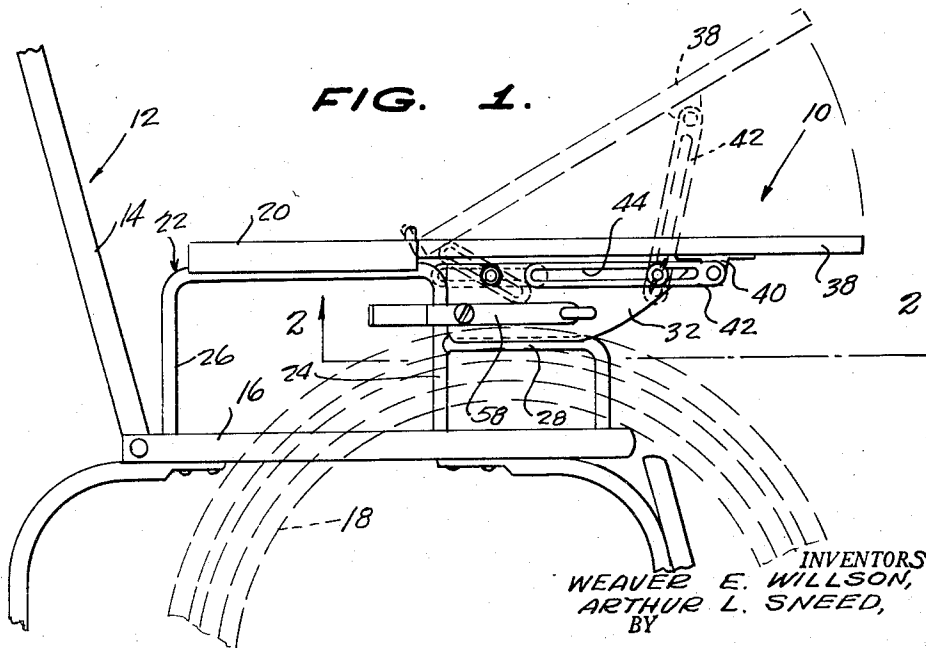
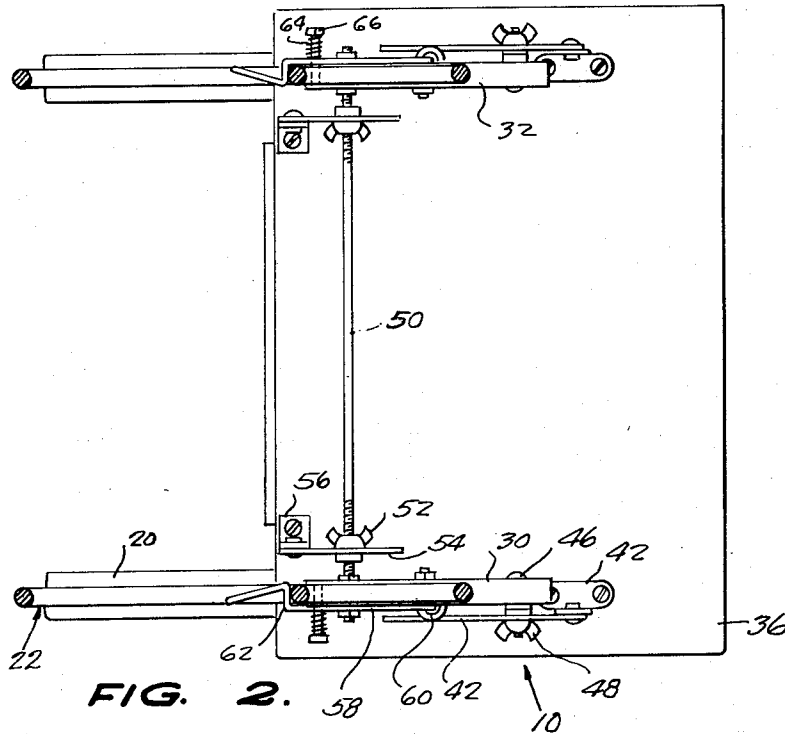
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2,937,694

TRAY ASSEMBLY FOR ATTACHMENT TO A WHEELCHAIR

Filed Sept. 19, 1958

2 Sheets-Sheet 1



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FIG. 3.

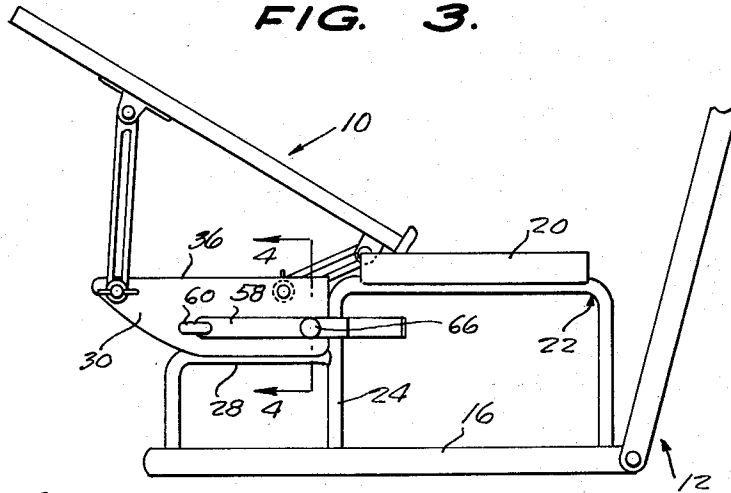


FIG. 4.

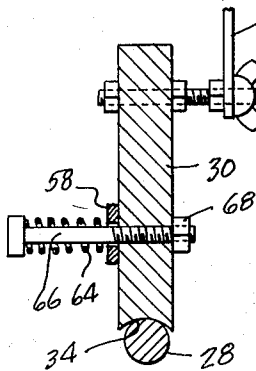


FIG. 6.

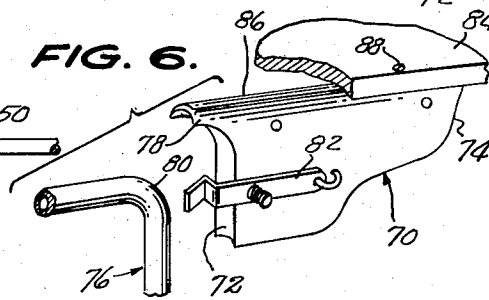
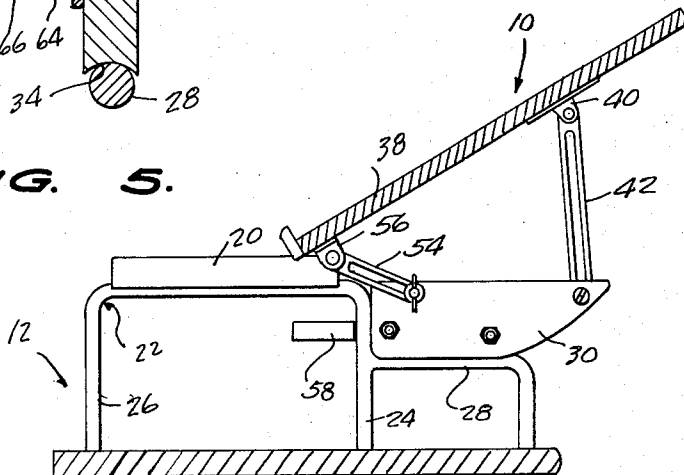


FIG. 5.



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TRAY ASSEMBLY FOR ATTACHMENT TO A WHEELCHAIR

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7 Claims. (Cl. 155—127)

The present invention relates to a tray assembly for attachment to a wheelchair.

An object of the present invention is to provide a tray attachment for a wheelchair which is readily attached to and detached from the arm rest frame of a wheelchair.

Another object of the present invention is to provide a tray attachment for a wheelchair which affords the occupant of the wheelchair a convenient rest for books, newspapers, art materials, and the like, and one which is readily and easily adjusted to and from a horizontal position.

A further object of the present invention is to provide a tray assembly for attachment to a wheelchair which is sturdy in construction, simple in structure, one which is economical to manufacture and assemble, and one which is highly effective in action.

These and other objects and advantages of the present invention will be fully apparent from the following description when taken in conjunction with the annexed drawings, in which:

Figure 1 is a side elevational view of the seat portion of a wheelchair, with the tray assembly of the present invention installed thereon, the dotted line shown indicating the tilted raised position of the tray board,

Figure 2 is a view taken on the line 2—2 of Figure 1,

Figure 3 is an elevational view showing the tray board in a raised position,

Figure 4 is a view on an enlarged scale taken on the line 4—4 of Figure 3,

Figure 5 is a sectional view of the tray assembly and the seat portion of a wheelchair, and

Figure 6 is an isometric exploded view of a portion of a chair arm rest frame with one of the support elements employed in a modified form of the tray assembly of the present invention, a portion of the tray of the tray assembly being broken away.

Referring in greater detail to the drawings in which like numerals indicate like parts throughout the several views, the tray assembly of the present invention is designated generally by the reference numeral 10 and is for attachment to a wheelchair, designated generally by the reference numeral 12, the wheelchair 12 having a back 14, a seat 16, and wheels 18, the latter being shown in dotted lines in Figure 1.

The wheelchair 12 includes arm rests 20 supported upon the upper ends of arm rest frames 22 which are arranged in opposed relation on each side of the seat 16. The frames 22 include forward legs 24 and rearward legs 26. Projecting forwardly from each of the legs 24, intermediate the ends thereof, is a hand grip bar 28 having the portion adjacent its forward end bent downwardly and secured in the seat 16. The tray assembly of the present invention attaches to the wheel chair 12 by means of the hand grip bar 28 and the legs 24 of the arm rest frames 22.

The tray assembly 10 comprises a pair of vertically disposed support elements 30 and 32 arranged in lateral spaced relation. Each support element 30 and 32 has

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its lower end concavely curved, as shown in Figure 4, with respect to the support element 30. The concavely curved lower end portion of each support element 30 and 32, as at 34 in Figure 4, is conformably shaped so that it rests upon the adjacent hand grip bar 28. The upper end of each support elements 30 and 32 is shaped to a horizontal flat surface, as at 36 in Figure 3.

A flat board 38 is arranged in superimposed relation and, when in the horizontal position shown in Figure 1, rests upon the flat surface 36 of the support elements 30 and 32. On the other side of the board 38, inwardly of the forward end thereof, and adjacent each side edge, is a depending bracket 40 providing a pivotal connection for a link 42 having a closed slot 44 extending for most of its length therealong. A bolt 46 extends through each support element 30 and 32 inwardly of the forward end of the latter and is provided with a wing nut threadedly received on its free end portion for securement of the bolt 46 in any position of adjusted movement along the slot 44, the wing nut being designated by the reference numeral 48 in Figure 2.

In Figure 2 a threaded long bolt 50 is seen extending through both of the support elements 30 and 32 and carrying lock nuts 52 which secure the bolt 50 in any position of adjustment in the slot provided in a second link 54 which is pivotally connected by means of a depending bracket 56 spaced inwardly from the adjacent side edge of the board 38 and substantially contiguous with the rearward edge of such board 38. As shown in Figure 2, each of the support elements 30 and 32 is provided with means for connecting such support elements 30 and 32 to the board 38 for tilting movement of the board 38 from the horizontal position to any position at an angle to the horizontal, one such position being shown in dotted lines in Figure 1. This means includes the aforesaid links 42 and 54, bolts 46 and 50, and the associated wing nuts 48, 52, and the attaching brackets 42 and 56.

A resilient holding member in the form of a strap 58 has one end pivotally secured in a clevis-type bolt 60 on the exterior face of each of the support elements 30 and 32. Each strap 58 has an offset portion 62 forming a shoulder which embracingly receives the adjacent part of the adjacent leg 24 of the arm rest frame 22 when the tray assembly 10 is in position with the support elements 30 and 32 supported upon the hand grip bars 28. Spring means is provided biasing each of the straps 58 toward the adjacent support element 30 or 32. This means consists in a coil spring 64 circumposed about the portion of a bolt 66 which is exteriorly of the associated support element 30 or 32. One end of the spring 64 bears against the head of the bolt 66 and the other end bears against the adjacent portion of the associated strap 58. A nut 68 secures the bolt 66 in the associated support element 30 or 32.

The provision of the two links 52 and 54 inwardly of each side edge of the board 38 enables the user of the board 38 to adjust it to many useful positions with the rear edge of the board 38 either resting upon the arm rest 20, as shown in Figures 3 and 5, or with the rear edge of the board 38 forwardly of the arm rest 20 and substantially at the same level as the upper surface of the arm rest 20, as shown in Figures 1 and 2. This complete adjustability of the board 38 enables the occupant of the wheelchair 12 to have a utility board for the support of books, magazines, newspapers, art material, or the like, at any angle desired with reference to the arm rest 20 and seat 16 of the wheelchair 12.

The tray assembly 10 is easily attached to and detached from the wheelchair 12 by manual manipulation of one or both straps 58 to move each or either away from the support element 30 or 32 a distance sufficient to allow the frame leg 24 to pass behind the shoulder or offset

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portion 62 of the strap 58, against the compression of the associated spring 64.

If found desirable, the table or board 38 may be fixedly secured to the support elements 30 and 32, omitting the bolts, brackets and links which permit the board to be adjustably positioned.

In Figure 6 is shown one of the support elements of a modified form of the tray assembly of the present invention for use with a chair having only the arm rest frames including legs, but not having the hand grip bars as heretofore described with reference to the form of the invention shown in Figures 1 to 5. In this embodiment of the tray assembly, the support elements 70, only one of which is shown, each have opposed side edges 72 and 74 with the side edge 72 conformably shaped to fit the leg 76 of the arm rest frame. The portion 78 of the support element side edge 72 adjacent the upper end is arcuately curved outwardly and is conformably shaped to fit the curved upper end portion 80 of the leg 76. The resilient holding member or strap 82 is attached by one end to the support element 70 in the same manner as above described with reference to the holding member or strap 58, and has an identical embracing means on the other end engageable with an adjacent portion of the arm rest frame leg 76 for attachment of the modified form of the tray assembly to the chair arm rest frame. A horizontally disposed flat board 84 is superimposed upon and supported upon the horizontal flat surfaces of the support element 70.

When the modified form of the tray assembly shown in Figure 6 is attached to the arm rest frame leg 76, the embracing means on the end of the strap 82 engages the adjacent portion of the frame leg 76 and the curved portion 78 of the side edge 72 of the element 70 rests upon and engages the curved portion 80 on the upper end of the leg 76. When so positioned, the flat surface 86 on the upper end of the one support element 70 is coplanar with the flat surface on the upper end of the other element 70 and both flat surfaces lie in a horizontal plane. Conventional means, such as a screw 88 fixedly secures the boards 84 in position upon the support elements 70.

What is claimed is:

1. The combination with a chair having opposed arm rest frames each including an upstanding leg and a horizontally disposed hand grip bar projecting forwardly from said leg intermediate the ends thereof, of a tray assembly comprising a pair of vertically disposed support elements arranged in lateral spaced relation and each having the lower end shaped to rest upon one of said hand grip bars and having the upper end shaped to a horizontal flat surface, a resilient holding member having one end secured to each of said support elements and having the other end provided with embracing means, said support elements being positioned so that the lower ends rest upon said hand grip bars with the embracing means of said holding members engaging the adjacent portions of said arm rest frame legs and with the horizontal surfaces lying in a common plane spaced above said hand grip bars, a horizontally disposed flat board superimposed upon and resting upon said horizontal flat surfaces, and means connecting said board to said support elements for movement from the horizontal position to positions at an angle to the horizontal.

2. The combination with a chair having opposed arm rest frames each including an upstanding leg and a horizontally disposed hand grip bar projecting forwardly from said leg intermediate the ends thereof, of a tray assembly comprising a pair of vertically disposed support elements arranged in lateral spaced relation and each having the lower end shaped to rest upon one of said hand grip bars and having the upper end shaped to a horizontal flat surface, a resilient holding member having one end secured to each of said support elements and having the other end provided with embracing means, said support elements being positioned so that the lower ends rest

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upon said hand grip bars with the embracing means of said holding members engaging the adjacent portions of said arm rest frame legs and with the horizontal surface lying in a common plane spaced above said hand grips bars, a horizontally disposed flat board superimposed upon and resting upon said horizontal flat surfaces, means connecting said board to said support elements for movement from the horizontal position to positions at an angle to the horizontal, and cooperating releasable securing means on said support elements and said board for holding the latter in any position of its movement.

3. The combination with a chair having opposed arm rest frames each including an upstanding leg and a horizontally disposed hand grip bar projecting forwardly from said leg intermediate the ends thereof, of a tray assembly comprising a pair of vertically disposed support elements arranged in lateral spaced relation and each having the lower end shaped to rest upon one of said hand grip bars and having the upper end shaped to a horizontal flat surface, a holding member embodying a strap having one end pivotally secured to each of said support elements and having an offset portion inwardly of the other end forming a shoulder, said support elements being positioned so that the lower ends rest upon said hand grip bars with the shoulders of said holding members engaging the adjacent portions of said arm rest frame legs with the horizontal surfaces lying in a common plane spaced above said hand grip bars, a horizontally disposed flat board superimposed upon and resting upon said horizontal flat surfaces, and means connecting said board to said support elements for movement from the horizontal position to positions at an angle to the horizontal.

4. The combination with a chair having opposed arm rest frames each including an upstanding leg and a horizontally disposed hand grip bar projecting forwardly from said leg intermediate the ends thereof, of a tray assembly comprising a pair of vertically disposed support elements arranged in lateral spaced relation and each having the lower end shaped to rest upon one of said hand grip bars and having the upper end shaped to a horizontal flat surface, a holding member embodying a strap having one end pivotally secured to each of said support elements and having an offset portion inwardly of the other end forming a shoulder, spring means biasing each of said straps toward the adjacent support element, said support elements being positioned so that the lower ends rest upon said hand grip bars with the shoulders of said holding members engaging the adjacent portions of said arm rest frame legs with the horizontal surfaces lying in a common plane spaced above said hand grip bars, a horizontally disposed flat board superimposed upon and resting upon said horizontal flat surfaces, and means connecting said board to said support elements for movement from the horizontal position to positions at an angle to the horizontal.

5. The combination with a chair having opposed arm rest frames each including an upstanding leg and a horizontally disposed hand grip bar projecting forwardly from said leg intermediate the ends thereof, of a tray assembly comprising a pair of vertically disposed support elements arranged in lateral spaced relation and each having the lower end shaped to rest upon one of said hand grip bars and having the upper end shaped to a horizontal flat surface, a resilient holding member having one end secured to each of said support elements and having the other end provided with embracing means, said support elements being positioned so that the lower ends rest upon said hand grip bars with the embracing means of said holding members engaging the adjacent portions of said arm rest frame legs and with the horizontal surfaces lying in a common plane spaced above said hand grip bars, a horizontally disposed flat board superimposed upon and resting upon said horizontal flat sur-

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faces, and means securing said board to said support elements.

6. The combination with a chair having opposed arm rest frames each including an upstanding leg, of a tray assembly comprising a pair of vertically disposed support elements arranged in lateral spaced relation and each having the upper end shaped to a horizontal surface, a resilient holding member having one end secured to each of said support elements and having the other end provided with embracing means, said support elements being positioned so that the embracing means of said holding members engage the adjacent portions of said arm rest frame legs and with the horizontal surfaces lying in a common plane, and a horizontally disposed flat board superimposed upon and supported on said horizontal flat surfaces.

7. The combination with a chair having opposed arm rest frames each including an upstanding leg, of a tray assembly comprising a pair of vertically disposed support elements arranged in lateral spaced relation and each having the upper end shaped to a horizontal surface, a resilient holding member having one end secured to each

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of said support elements and having the other end provided with embracing means, said support elements being positioned so that the embracing means of said holding members engage the adjacent portions of said arm rest frame legs and with the horizontal surfaces lying in a common plane, a horizontally disposed flat board superimposed upon and supported on said horizontal flat surfaces, and means fixedly securing said board in position on said support elements.

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