April 18, 1961 C. A. STINE 2,980,165

ADJUSTABLE TRAY

Filed July 14, 1959

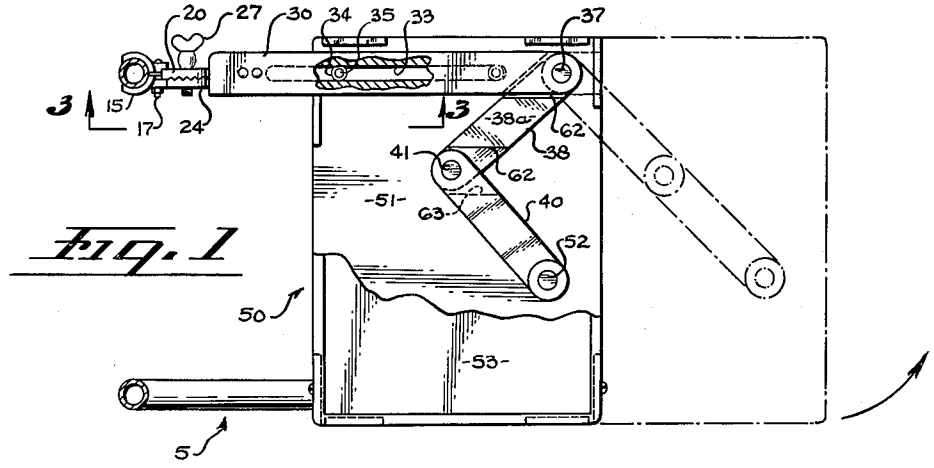

Fig. 1

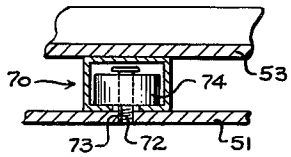

Fig. 6

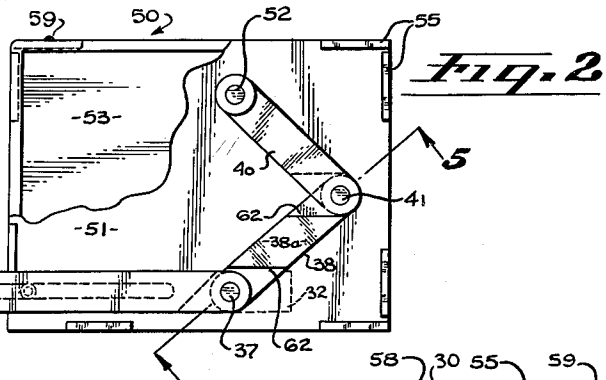

Fig. 2

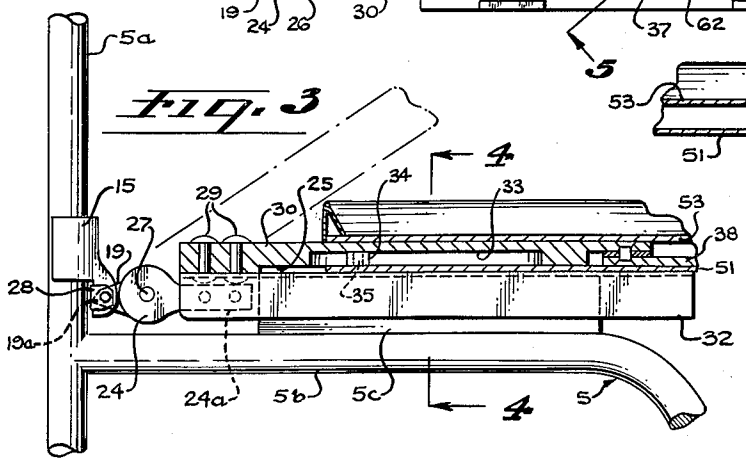

Fig. 3

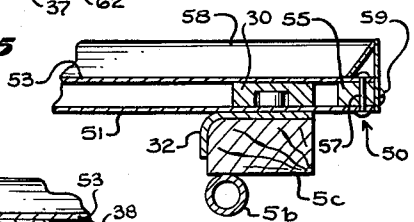

Fig. 4

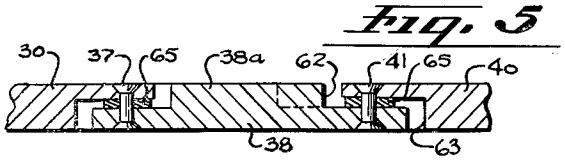

Fig. 5

CARL A. STINE
INVENTOR

BY Mason & Graham

ATTORNEYS

United States Patent Office 2,980,165 Patented Apr. 18, 1961

2,980,165

ADJUSTABLE TRAY

Carl A. Stine, 4135 Woodman Ave., Sherman Oaks, Calif.

Filed July 14, 1959, Ser. No. 826,965

6 Claims. (Cl. 155—128)

This invention has to do with adjustable tray devices and at present it provides peculiar advantages when used as an adjustable tray device for a wheel chair, it of course has advantages in various other uses.

While trays which are slideably adjustably attachable to a wheel chair are old, such trays must be installed for each use and must be removed from the chair after each use, which usually requires the assistance of someone other than the occupant of the chair. Also, when such prior devices are attached to a chair, the occupant of the chair cannot swing it out of the way or get into and out of the chair. Also in using prior trays, if an occupant of the chair desires to read a book while it is supported on the tray, the occupant must in some manner prop up the book to give it the desired tilt.

It is therefore an object of my present invention to provide a tray device which may remain attached to the chair and which may be swung laterally into and out of use position; which the occupant may adjustably slide forwardly and backwardly to adapt it to occupants of different sizes; and in which the chair occupant may tilt the tray to a convenient position to support a book or the like while reading.

It is a further and more subordinate object of my invention to provide novel structural features and combinations which are peculiarly conducive to providing a tray having the above mentioned advantages and features.

Still further objects and corresponding advantages will appear hereinafter.

While I shall point out, in the appendant claims, the features and combinations which I believe to be new, I shall now, for the purpose of enabling those skilled in the art to practice my invention, describe in detail presently perfect embodiments thereof, for which purpose I shall refer to the accompanying drawing wherein—

Fig. 1 is a top plan view, with a part broken away for illustrative purposes, showing the position and relationship of the parts when the tray is in one position;

Fig. 2 is a view similar to Fig. 1 except that it shows the relationship of parts when the tray is in another position;

Fig. 3 is an enlarged view taken on line 3—3 of Fig. 1;

Fig. 4 is a section taken on line 4—4 of Fig. 3;

Fig. 5 is an enlarged section taken generally on the line 5—5 of Fig. 2; and

Fig. 6 is a fragmentary sectional view showing a modified form of my invention.

Referring now to the drawing, the numeral 5 generally denotes a support which, in the present embodiment, may be the upright posts 5*a* of a chair having arms 5*b* and arm rests 5*c*.

For securing my device to one of the upright posts 5*a* of the chair, I provide a bracket which is in the form of opposed semi-circular clamping jaws 15 which are clamped about the post by means of a bolt 17 which extends through aligned openings in the jaws and through a bracket portion 19, which has a round or disc like outer end portion 20 one of whose surfaces presents a circumferential row of teeth 22. An opposed bracket portion 24 also presents a circumferential row of teeth 26 disposed to mesh with the teeth 22 when the bracket portions 20, 24 are secured together by a thumb screw 27. Bracket portion 19 has a somewhat angular bottom corner 19*a* at its inner end which tends to "dig into" the post 5*a* as portion 19 is swung downwardly about the bolt 17, to positively prevent any slippage of the bracket relative to the post. To prevent damage to the surface of the post 5*a*, I may use a U-shaped shield member 28 secured on the bracket by bolt 17 and extending between corner 19*a* and the post.

Bracket 24 has an extension portion 24*a* which is secured, as by rivets to a bottom arm 32, which is in the form of an angle iron, and also acts as a spacer between arm 32 and a top arm 30. Arm 32 rests atop the arm rest 5*c*.

The arms 30 and 32 are secured together by the rivets 29, and arm 30 has a stepped portion 25, so that the outer end portions of the arms are in spaced superimposed relation; that is, arms 30, 32 may be considered in the broader aspects as one integral arm presenting spaced superimposed bifurcations at its outer end.

Top arm 30 has a longitudinal, downwardly opening, slot 33 between its ends, in which slot a roller 34 is mounted on a spindle 35 secured in an opening, not shown, in the bottom wall 51 of the tray member.

The outer or free end of the top arm has pivotally secured thereto, as by a pivot pin 37, a link 38, which latter link is pivotally secured to the contiguous end of a second link 40 as by a pivot pin 41. Link 40 is pivotally secured at its outer end to the bottom wall 51 of the tray member generally designated 50, as by a pivot member 52. Bottom arm 32 is longer than arm 30 to provide added support for the tray member.

The tray member is generally rectangular in plan section and has a top wall 53. The tray walls 51, 53 are held in spaced, parallel relationship by spacer members 55, rivets 57 and by a flanged edge member 58 which latter is secured to the spacer members 55 as by screws 59. The flanged edge member 58 terminates short of the upper left hand corner of the tray member as shown in Figs. 1 and 2, to permit the top arm 30 to extend into the tray member between the top and bottom walls 51, 53 in such manner as to permit the tray member to swing laterally about 90° relative to the arms.

The top arm 30 slideably extends between the walls 51, 53 of the tray member, while the bottom arm bears against the bottom surface of the bottom wall 51 of the tray member and also spaces the bottom wall from the arm rest 5*c*.

In operation, it is apparent that the tray member 50 may be slid longitudinally of the arm rests, or it may be swung laterally between the positions shown in Figs. 1 and 2. When the tray member is in the position of Fig. 1, it is positioned for use as a tray in front of the occupant of the chair, while when it is in the position of Fig. 2, it is in position for use as a side tray.

When it is desired to use the tray member to support a book or the like while it is being read by the occupant of the chair, the thumb screw 27 may be released to permit the bracket member 24 to rotate relative to the bracket portion 20 to permit tilting of the tray member. When the tray member is tilted to the desired position, the thumb screw is again tightened to retain the teeth of the bracket portions 20, 24 in mesh.

As best shown in Fig. 5, the link member 38 has relatively thick portion 38*a* intermediate ends, presenting at each end a diagonal stop shoulder 62. Link 40 also presents at one end a diagonal stop shoulder 63. Spacer

washers 65 are provided between the inter-connected link portions around the pivot pins.

In Fig. 6, I show a modified form of my invention wherein, as the top arm, I use an arm 70 of C cross-section. A spindle member 72 is threaded into a hole 73 in the bottom wall 51 and projects into the channel of the arm where it rotatably carries a roller 74.

I claim:

1. An adjustable tray device comprising a tray member having spaced parallel top and bottom walls, a tray supporting arm slideably extending at its outer end portion between and engaging said walls, link means pivotally connecting said outer end portion of said arm to one of said walls for swingable and slideable movement relative thereto and means for supporting the inner end portion of said arm from a chair of the like.

2. The adjustable tray device of claim 1 wherein said tray supporting arm presents a longitudinal slot and wherein said bottom wall carries a projection extending into said slot.

3. The adjustable tray device of claim 1 wherein said link mentioned means includes a pair of pivotally interconnected links one of which is pivotally connected to the outer end portion of said arm and the other of which is pivotally connected to one of said walls of said tray member.

4. An adjustable tray device comprising a tray member having spaced parallel top and bottom walls, an arm whose outer end portion defines a pair of superimposed bifurcations, the top one of said bifurcations slideably and swingably extending between said walls and the bottom one of said bifurcations slideably and swingably engaging the bottom surface of said bottom wall, pivotally interconnected links pivotally securing the outer end portion of one of said bifurcations to one of said walls and support means for the inner-end portion of said arm.

5. An adjustable tray device comprising a tray member having spaced parallel top and bottom walls, an arm whose outer end portion defines a pair of superimposed bifurcations, the top one of said bifurcations slideably and swingably extending between said walls and the bottom one of said bifurcations slideably and swingably engaging the bottom surface of said bottom wall, pivotally interconnected links pivotally securing the outer end portion of the top one of said bifurcations to one of said walls, and clamp means for securing the inner end portion of said arm to a support.

6. An adjustable tray device comprising top and bottom walls the top one of which forms an article supporting tray, means at the margins of said walls securing them together in spaced parallel relationship, said means being interrupted at a corner of said marginal portion whereby to provide a corner entrance between said walls, a tray supporting arm of rectangular cross section slidably extending through said entrance into position between and engaging the inner surfaces of said walls, said arm having an end portion projecting outwardly through said entrance and having a centrally located, longitudinally extending slot terminating short of its ends, a spindle carried by one of said walls adjacent said entrance, a roller carried by said spindle and disposed in said slot, and means carried by said projecting end portion of said arm for securing it to a support; said arm being swingable between, relative to and in a plane parallel with said walls about said roller as a fulcrum.

References Cited in the file of this patent

UNITED STATES PATENTS

453,931	Lenhart	June 9, 1891
480,386	Hutton	Aug. 9, 1892
1,026,149	Crane	May 14, 1912
1,634,929	Blitz et al.	July 5, 1927
1,950,128	Vorbeck	Mar. 6, 1934
1,983,981	Hanson	Dec. 11, 1934
2,649,893	Spriggs	Aug. 25, 1953