June 9, 1942. R. STINSON 2,285,845

HIGHCHAIR AND TRAY LOCKING DEVICE THEREFOR

Filed April 18, 1939

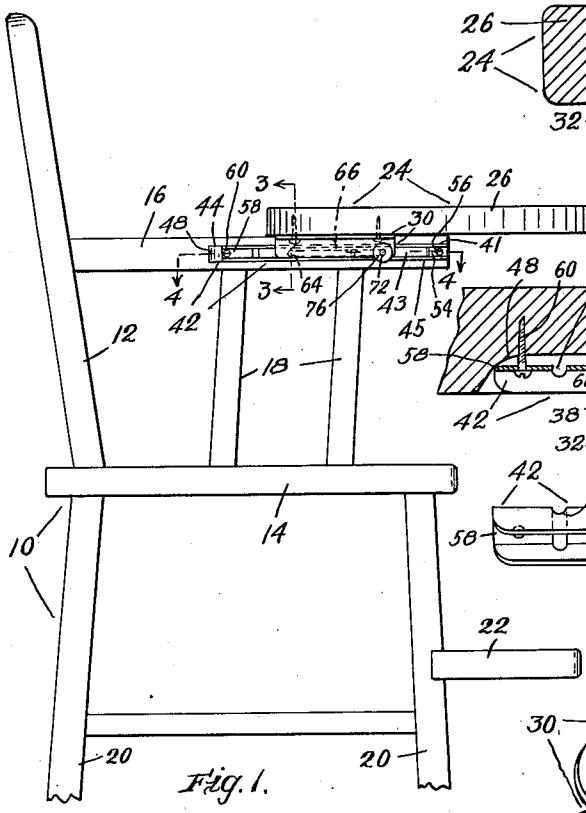

Fig. 1.

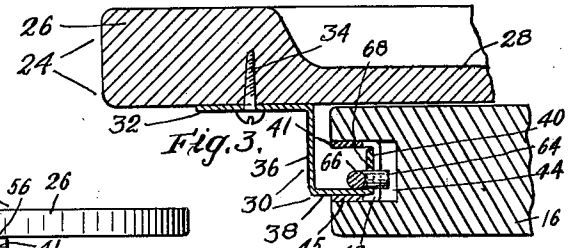

Fig. 3.

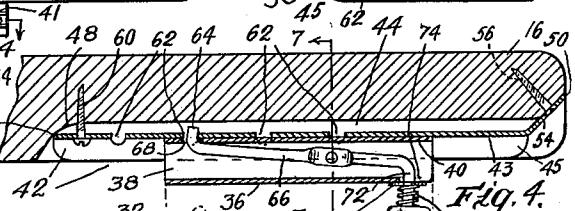

Fig. 4.

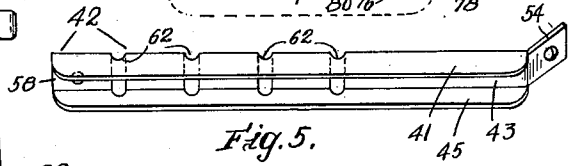

Fig. 5.

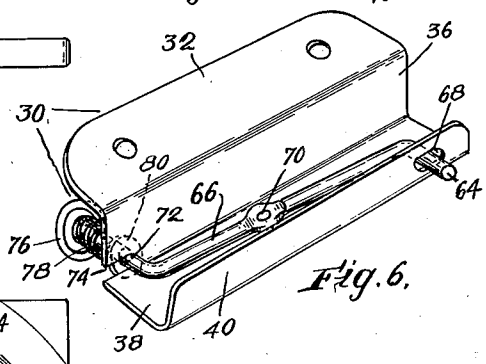

Fig. 6.

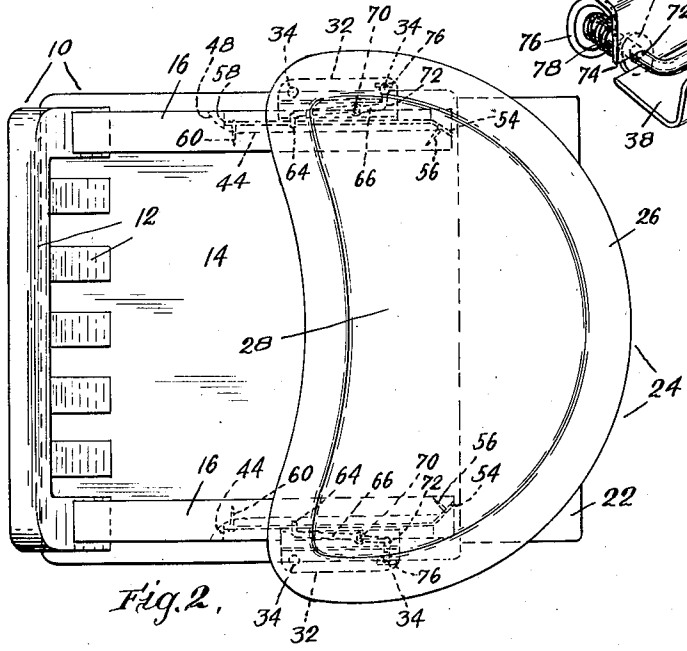

Fig. 2.

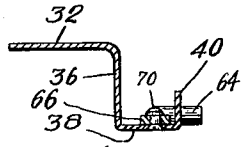

Fig. 7.

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HIGH CHAIR AND TRAY LOCKING DEVICE THEREFOR

Richard Stinson, Athol, Mass.

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13 Claims. (Cl. 155—127)

The present invention relates to locking devices and particularly to locking devices for maintaining a slidable tray releasably in any one of several predetermined positions on the arms of a high chair.

High chairs having trays which are slidable rearwardly and forwardly on the arms of the chairs are in common use. The trays not only provide a support for a child's toys and food but also prevent the child from falling out of the chair. The trays are usually removable and are also capable of being locked in a plurality of positions lengthwise of the arms. It is important that the rearward and forward movements of the tray on the arms be relatively easy and free from binding to facilitate removing or adjusting the position of the tray. It is also important that the tray be locked rigidly in a selected position so that it cannot be unlocked by the child shaking the tray or fingering the locking device. It is also important that the locking device be so constructed that injury to the child or to the person manipulating the tray will be prevented.

One of the objects of the present invention is to provide an improved tray locking device by which the above mentioned advantages will be obtained.

Another object of the invention is to provide an improved high chair having a tray locking device incorporating the above mentioned advantageous features.

A further object is the provision of a tray locking and supporting device that is strong, durable, simple and capable of being manufactured and installed on the chair and tray economically.

Other objects of the invention are to improve generally upon the construction of high chairs and tray locking devices.

With the above and other objects and features in view, the invention will now be described with particular reference to the accompanying drawing in which;

Fig. 1 is a view in side elevation of a high chair embodying the present invention;

Fig. 2 is a plan view of the chair shown in Fig. 1;

Fig. 3 is a view in cross section on an enlarged scale taken along the line 3—3 of Fig. 1;

Fig. 4 is a view in cross section on an enlarged scale taken along the line 4—4 of Fig. 1;

Fig. 5 is a perspective view of one of the cooperating locking elements;

Fig. 6 is a perspective view of the other cooperating and locking element; and

Fig. 7 is a view in cross section taken along the line 7—7 of Fig. 4.

The present invention is illustrated as embodied in a high chair 10 of a size particularly adapted to be used by small children.

The chair is provided with an upwardly and slightly rearwardly inclined back 12 secured to a seat 14. Generally horizontal side arms 16 are secured at their rear ends to the sides of the back 12 and at their intermediate and forward portions to the seat 14 by vertical posts 18. The chair is supported upon legs 20, on the front pair of which is fixed a foot rest 22. The arms 16 provide a support for a tray 24 which is removably located over and preferably out of contact with the top faces of the arms and is arranged to be moved forwardly and rearwardly on the arms 16.

The tray 24 comprises a rim portion 26 and a bottom or body portion 28. The tray may be formed, as illustrated, of one piece of wood from which the rim and bottom or body portion are formed. It is evident, however, that the tray may be constructed otherwise.

The tray 24 is provided with brackets 30 on its bottom face adjacent to its opposite side edges and outside the lines of the chair arms. Each bracket 30 has a horizontal attaching portion 32 provided with holes for receiving screws 34 for securing the brackets to the tray 24. As illustrated, the screws 34 are arranged to pass into the rim 26 which provides a secure anchorage for the screws 34. Each bracket 30 is provided with a vertically depending side wall 36 confronting and laterally spaced from the side face of the associated chair arm, a horizontal bottom wall 38 projecting on the side opposite the top part 32, and a vertical upstanding wall 40 at the side part of the bottom wall 38 and spaced from and parallel with the depending wall 36. The horizontal bottom wall 38 and the vertical upstanding wall 40 form a channel member that is slidably located removably within a stationary channel member 42 which forms a runway or guide for the tray.

Said channel member 42 has a vertical bottom wall 43 and top and bottom horizontal walls 41 and 45 and is mounted in a groove 44 formed in the forward portion of the outside of each of the arms 16 so that the outer edge of the channel is substantially flush with the side face of the chair arm. The grooves 44 are formed by a rotating cutter which forms a groove of sub-

stantially uniform depth except at the rear end 48 where the groove terminates in a curved part corresponding to the curvature of the rotating cutter. The front end portion 50 of the groove, as illustrated, extends to the front end portion of the arms 16. The forward end of the bottom wall 43 of the channel member 42 is provided with an inwardly and forwardly extending end portion 54 provided with a hole to receive a screw 56 for securing the forward end of the channel member 42 to the arm 16. The rear end part 58 of the bottom wall of the channel member 42 is seated against a part of the curved end wall 48 of the groove 44 thereby conveniently providing a space between the vertical portion of the channel member 42 and the bottom of the groove. The rear end part of the channel member 42 is secured to the arm 16 by a screw 60 which passes through the bottom wall and into the chair arm and also acts as a stop to limit the rearward movement of the bracket member 30.

The channel member 42 is provided with a plurality of vertical slots 62 arranged in a horizontal row lengthwise through its bottom wall and arranged to receive the hooked end 64 of a locking member 66 which is located in the channel of the bracket 30 and pivoted intermediate its ends on the horizontal bottom wall 38 of the bracket by a pin 70. The hooked end 64 extends through a hole 68 formed in the vertical upstanding wall 40 and is thus free to enter a selected slot 62 in the channel member 42. The forward end of the locking member 66 is provided with an outwardly extending portion 72 which passes through a slot 74 formed in the forward end portion of the vertical depending wall 36 of the bracket 30. The outwardly extending portion 72 is provided with a manually-engageable button 76 which may be secured thereto in any suitable manner. A helical compression spring 78 is interposed between the button 76 and said vertical depending wall 36 to normally maintain the hooked end portion 64 normally in its outward or locking position. A washer 80 may, if desired, and as illustrated, be interposed between the inner end of the spring 78 and the vertical side wall 36 to receive the thrust of the spring.

It is to be noted that the channel members 42 in each of the side arms 16 are so located that the entire channel member 42 is contained within the groove 44 so that no parts thereof project deleteriously beyond the groove. This construction prevents injury to the person or clothing of the child or of the person manipulating the tray.

The vertical upstanding wall 40 and the horizontal bottom wall 38 of the bracket member 30 fit into their associated arm-channels in such a manner that objectionable vertical movement between the tray and the chair is prevented and the vertical depending side wall 36 is so constructed that the bottom portion of the tray is spaced slightly above the tops of the side arms 16. The tray 24, therefore, is entirely supported by and movable upon the metal channel members 42. This construction insures that the tray may be adjusted more easily and quickly because of the metal to metal contact between the cooperating sliding parts.

It is also to be noted that the brackets 30 are so spaced relatively to each other on the side portions of the tray 24 that the distance between the vertical upstanding walls 40 of the brackets 30 and the inner walls 43 of the vertical portions of the channel members 42 is approximately equal, thereby eliminating any objectionable sidewise movment of the tray relatively to the arms 16.

When it is desired to remove the tray 24 from the high chair 10, the buttons 76 are pressed inwardly thereby moving the hooked ends 64 on the locking member 66 out of the vertical slots 62 which permits the tray 24 to be pulled forwardly and out of the channel members 42. When it is desired to replace the tray it is only necessary for the person manipulating the tray to slide the vertical upstanding portions of the brackets 30 into the channel members 42. It is not necessary to depress the buttons 76 since the forwardly extending inclined portions 54 of the channel members 42 operate as guides or cams to swing the locking members 66 out of locking position. The tray, therefore, may be moved rearwardly until the hooked end portions of the locking members 66 are opposite to the first vertical slots 62 in the channel members 42 when the spring 78 will act to force the ends 64 into the vertical slots 62, thereby preventing any further rearward movement until the buttons 76 are again depressed. It is apparent that the tray 24 may be locked in any one of four adjusted positions and it is also apparent that this number of adjusted positions could be increased or decreased merely by varying the number of vertical slots formed in the channel members 42.

Although the locking members 66 have been illustrated as applied to both brackets 30, it is evident that one of these locking members 66 could be omitted if desired.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. In a locking device for high chair trays, a chair channel member having a plurality of openings therein, a cooperating tray member having a channel part fitting into and slidable within said channel member, said cooperating tray member also having a portion elevated above said channel part and adapted to be secured to the bottom surface of a tray, and a locking member pivoted to and located in the channel part of said cooperating member and having a portion projected laterally through said channel part and into selected openings in said channel member for maintaining the channel member and the cooperating member in locked adjusted position.

2. In a high chair, a seat, a pair of side rails, means for supporting the side rails above said seat, a tray mounted on said side rails for forward and rearward movement, said rails each having a groove located in the outer side portion thereof, a channel member in each of said grooves and having a plurality of openings therein, a pair of cooperating members fixed to said tray, said cooperating members each having an inwardly extending portion fitting into one of said channel members, and means pivoted to one of the cooperating members extending into one of said openings for locking one of said channel members and its cooperating member in adjusted position.

3. In a high chair, a seat, a pair of side rails, means mounted on the seat for supporting the side rails above the seat, a removable tray mounted for forward and rearward movement above said rails, said rails each having a groove located in the outer side portion thereof, a channel member fixed in each of said grooves having a plu-

rality of openings therein, a pair of cooperating members fixed to said tray and each having an inwardly extending portion slidably fitting into one of the channel members, and means carried by one of said cooperating members and extending into one of said openings for locking said channel and cooperating members in adjusted position.

4. In a high chair, a seat, a pair of rails, means on said seat for supporting the side rails above said seat at opposite sides thereof, a removable tray mounted for forward and rearward movement above said rails, said rails each having a groove located in the front end portion of the outer side portion thereof, a channel member having vertical slots mounted in each of said grooves and spaced from the bottom of said groove, means at the rear end portion of each of said channel members for securing the members in said grooves, a forwardly and inwardly extending end portion on each of said channel members for securing the forward ends of said channel members in said grooves, bracket members fixed adjacent to each side of said tray having an inwardly extended portion arranged to be received in each of said channel members, and means pivoted on said bracket members arranged to be received in said slots for locking the tray in adjusted position.

5. In a high chair, a seat, a pair of side rails, means for supporting the side rails above said seat at opposite sides thereof, a removable tray arranged for forward and rearward movement above said rails, said rails each having a groove located in the front end portion of the outer side thereof, a channel member in each of said grooves having openings therein, means at the rear end portion of each of said channel members for securing the members in said grooves, forwardly and inwardly extending end portions on each of said channel members for securing the forward end of each of said members in each of said grooves, bracket members secured adjacent to the sides of said trays, said bracket members each having a horizontal and vertical portion arranged to be received in its cooperating channel member, and means pivotally mounted on the horizontal portion of each of said brackets and having a portion cooperating with a selected opening in each of said channel members for locking the tray in adjusted position.

6. In a high chair, a seat, a pair of side rails, means fixed to the seat and to said side rails for supporting the side rails above said seat at opposite sides thereof, a tray mounted for forward and rearward movement above said rails, and means for supporting said tray and for locking the tray in adjusted position, said means comprising a pair of channel members each carried by the outer side portion of each of the side rails and having locking apertures therein, a pair of bracket members fixed to the tray and each having channel portions arranged to fit into each of the channel members, and means pivotally secured to and disposed within said channel portions for entering the locking apertures in the channel members to lock the tray in adjusted position.

7. In a high chair, a seat, a pair of rails, means fixed to the seat and to the side rails for supporting the side rails above the seat at opposite sides thereof, a tray mounted for movement rearwardly and forwardly above said rails, said rails each having a groove located in the outer side portion thereof, a channel member in each of said grooves and arranged to be contained within said groove and spaced from the bottom thereof, said channel members each having locking apertures therein, spaced bracket members secured to the tray adjacent to opposite sides thereof, inwardly extending horizontal and vertical portions forming channel parts on each of said bracket members arranged to fit into each of said channel members whereby the tray is supported, and locking members pivoted to said horizontal portions and disposed in said channel parts, each locking member having a hooked end arranged to enter a selected aperture in each of said channel members for locking the tray in adjusted position.

8. In a high chair, a seat, side rails, means for supporting the side rails above said seat at opposite sides thereof, a tray mounted for movement forwardly and rearwardly above said rails, said rails each having a groove located in the outer side portion thereof, a channel member fixed in each of said grooves and spaced from the bottom thereof, a pair of bracket members fixed to said tray adjacent to opposite sides thereof, said bracket members each comprising a horizontal securing portion, a vertically depending side wall, a horizontal bottom wall and a vertical inner wall, said horizontal bottom wall and said vertical inner wall arranged to fit into a channel member to prevent vertical movement of the tray, a locking member mounted on each of said bracket members having a hooked end portion arranged to enter a selected opening in each of the channel members to lock the tray in adjusted position, and spring means associated with each of said locking members normally urging each of said members into locking position.

9. In a high chair, chair arms having horizontal slots in their outer side faces extending longitudinally of the arms from the front ends thereof, channel members in said slots each having upper and lower horizontal walls and a vertical bottom wall, means spacing the vertical bottom wall from the bottom of the slot, the forward parts of said bottom walls having forwardly and inwardly directed end projections, at least one of said bottom walls having a series of spaced locking apertures distributed in the length of the wall, a tray over said arms, brackets on the under face of said tray outwardly of said arms having walls forming channel members slidable in the channel members of said arms, at least one of said tray channel members having a locking lever pivotally mounted therein intermediate its ends and having one end part projected inwardly of the associated arm channel member and a selected aperture thereof and the other end projected oppositely and terminated in a manually engageable operating member, and spring means acting on said lever in a direction tending to maintain it releasably located in an aperture of the associated arm channel member.

10. In a locking device for high chair trays, a chair channel member having bottom and side walls, the bottom wall having a series of slots therethrough arranged lengthwise of the channel, a tray member having a base, a depending portion, a horizontal portion and an upstanding end portion, the horizontal and end portions adapted to enter the channel with the horizontal portion bearing on a side wall and the end portion confronting the bottom wall of the channel and closely edgewise confronting the other side wall of the channel, and a locking member overlying and pivoted to the horizontal portion dis-

posed between the depending and end portions and having a laterally extending manually engageable part projecting beyond the depending portion and a laterally extending locking part projecting beyond the end portion and arranged to enter a selected one of all the channel slots.

11. In a high chair, a seat, a pair of side rails mounted thereon above the seat, a removable tray mounted for forward and rearward movement above said rails and projected on both sides beyond said rails, a channel member fixed on the outer side of each rail under a projected part of the tray, said channel member having a bottom wall with a series of openings therethrough, means spacing said bottom wall from the side of the associated side rail, a pair of cooperating members underlying the bottom face of and fixed to the tray having inwardly extending portions slidably fitting each into a separate channel member, and means carried by said cooperating members cooperating with said openings for locking said cooperating members in adjusted position with respect to said channel members.

12. A locking device for high chair trays adapted to be attached to the chair arm rail and to the tray to hold them in slidably adjusted position, said device comprising a chair channel member having means for securing it to the chair arm rail and having upper and lower spaced horizontal walls and a vertical connecting wall, a cooperating tray member having a horizontal tray-supporting part within said channel member between said spaced horizontal walls and slidable on the lower horizontal wall and an elevated horizontal part positioned above the chair arm rail and arranged for attachment to the under side of the tray, and means pivotally mounted on said cooperating tray member and having a portion extending laterally and into said channel in position to engage a selected locking aperture in the vertical connecting wall to maintain said member in adjusted locked position.

13. A locking device for high chair trays adapted to be attached to the chair arm rail and to the tray to hold them in slidably adjusted position, said device comprising a chair channel member having means for securing it to a chair arm rail and having spaced upper and lower horizontal walls and a vertical connecting wall having a plurality of locking apertures therein, a cooperating tray member having a tray-supporting part fitting into and slidable within the channel member between the spaced walls thereof and on the lower wall, said cooperating tray member also having an elevated portion positioned above the chair arm rail and adapted to be secured to the bottom surface of a tray, a locking member pivoted to said cooperating tray member having one hooked end portion and a manually engageable other end portion, and spring means acting on said locking member arranged to urge said hooked end portion into said channel member and into locking position in selected apertures in the channel member to lock the channel and tray members in adjusted position.

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