April 11, 1961 H. A. GELMAN 2,979,118

HIGH CHAIR CONSTRUCTION

Filed May 8, 1958

Fig. 1

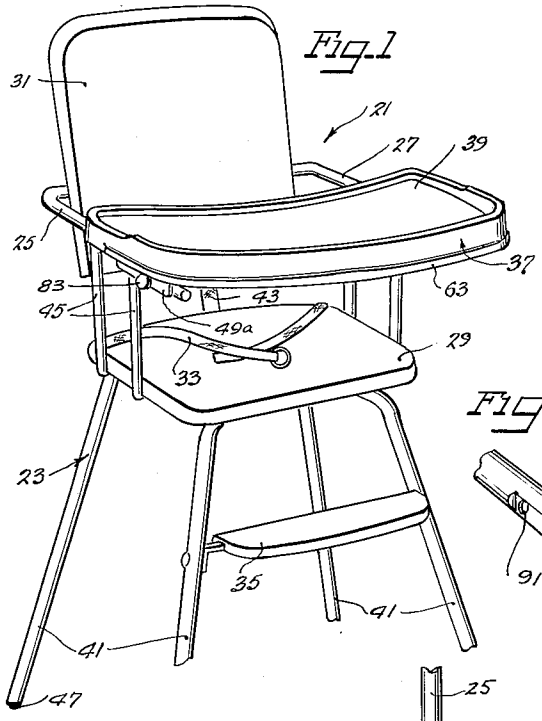


Fig. 2

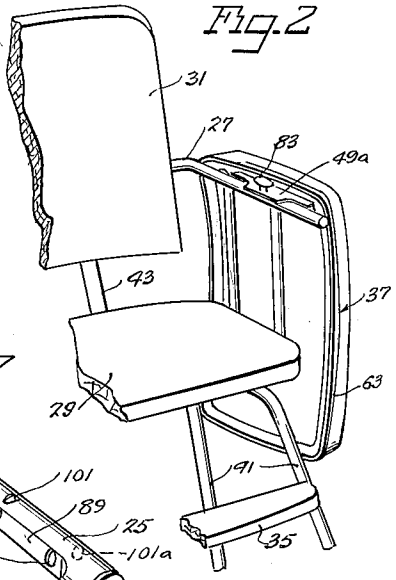


Fig. 7

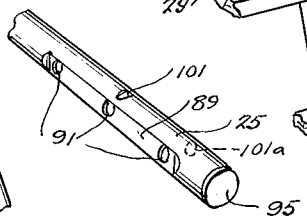


Fig. 4

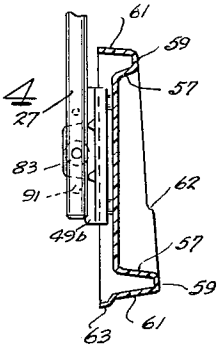


Fig. 3

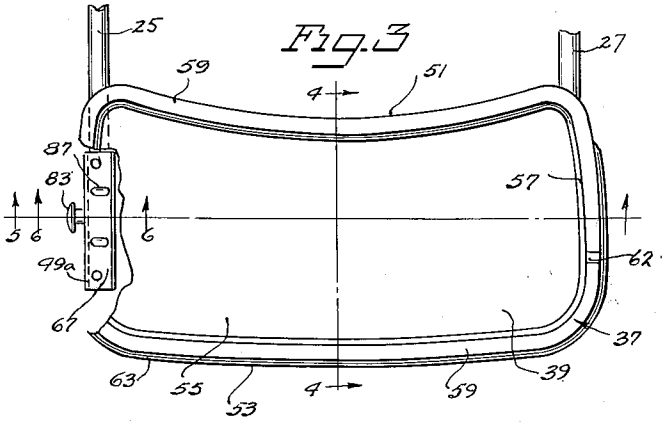


Fig. 5

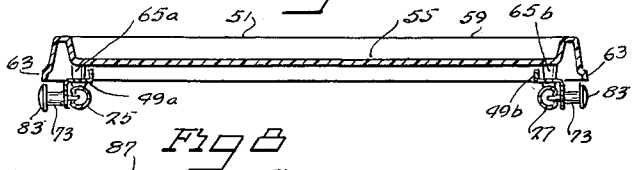


Fig. 6

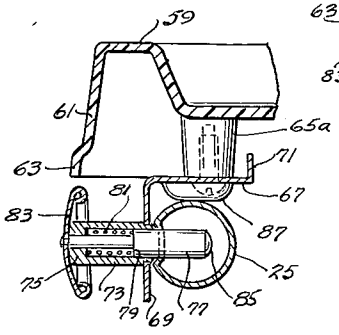
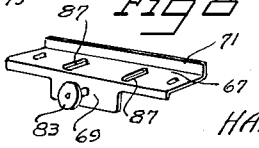


Fig 8



Inventor
HARRY A GELMAN
By Soans, Anderson, Luedeka & Fitch
Atty's

United States Patent Office 2,979,118 Patented Apr. 11, 1961

2,979,118

HIGH CHAIR CONSTRUCTION

Harry A. Gelman, Chicago, Ill., assignor to Comfort Lines, Inc., Chicago, Ill., a corporation of Illinois

Filed May 8, 1958, Ser. No. 734,010

2 Claims. (Cl. 155—127)

The present invention relates generally to infants' high chairs and more particularly to an improved tray for a high chair and improved means for selectively positioning the tray in a number of positions relative to the high chair.

The placing of an infant in the seat of a high chair often involves a considerable amount of manipulation when the tray is supported in the usual position on the arms of the chair. This is especially true with very young infants whose legs often fold underneath them, and with older children that can be comfortably accommodated within the seat only when the tray is in the extreme outward position. In both cases, it is much simpler to position the child in the chair when the tray is removed. This presents a problem, particularly in crowded kitchens, of where to place the removed tray when assisting the child into the seat. Moreover, in the case of smaller infants, it is very desirable to have the tray readily available for quick and easy positioning on the arms of the high chair. This is quite important, as in the usual case, continued care must be exercised to prevent the infant from slipping or falling from the chair. Of course, a similar problem is encountered when removing the child from the high chair.

An effective solution to this situation is achieved by the provision of an arrangement affording storage of the tray on the high chair in close relation to the seat, while at the same time, permitting free and easy entry to the seat. In addition, increased ease of operation may be obtained when positioning the tray in either of the horizontal operative positions or in an inoperative storage position by utilization of an improved supporting means disclosed herein.

Accordingly, the principal object of the present invention is the provision of a new and improved high chair tray assembly. A more specific object is to provide such a tray assembly which is of inexpensive and yet of extremely durable construction and which may be readily removed or selectively positioned with ease in either of a number of generally horizontal positions or in an inoperative storage position.

Another object of the present invention is the provision in a high chair of the type described of improved means for supporting and positioning the tray in a number of horizontal positions and for supporting the tray in a storage position.

Other objects and advantages of the present invention will be understood by reference to the following description and the accompanying drawings wherein there is illustrated one embodiment of a high chair construction in accordance with the present invention.

In the drawings:

Figure 1 is a perspective view of a high chair illustrating various of the features of the present invention and shown with the tray in an operative position.

Figure 2 is a fragmentary, perspective view of the high chair shown in Figure 1, with the tray suspended in an inoperative position.

Figure 3 is a plan view of the improved tray assembly employed with the high chair shown in Figures 1 and 2, with portions of the tray broken away to more clearly illustrate structural details.

Figure 4 is a cross sectional view taken along line 4—4 of Figure 3.

Figure 5 is a sectional view, taken along line 5—5 of Figure 3.

Figure 6 is an enlarged cross sectional view taken along line 6—6 of Figure 3.

Figure 7 is an enlarged perspective view illustrating the end of one of the supporting arms of the high chair; and

Figure 8 is an enlarged perspective view of one of the improved brackets associated with the tray assembly.

In the high chair shown in Figure 1 and indicated by the reference numeral 21, there is provided a tubular metal frame 23 including a pair of supporting arms 25 and 27, an elevated seat 29 and a back rest 31 supported on the frame, a belt 33 to strap a child in the seat, a foot rest 35 which may or may not be adjustable, and a tray assembly 37 supported on the pair of arms 25 and 27. The illustrated tray assembly 37 includes a novel one piece tray 39 and improved means for detachable engagement with the supporting arms. In this regard, each of the supporting arms 25 and 27 is also formed in a novel manner for cooperation with the tray assembly to selectively position the tray assembly in either of a number of horizontal positions spaced from the back rest or to suspend the tray in an inoperative generally vertical position, as illustrated in Figure 2.

The structural frame 23 may be arranged in any of a variety of ways, however, the disclosed frame includes four legs 41, an upright back support 43, and a U-shaped bar suitably attached to the back support and extending forwardly to form the supporting arms 25 and 27. A side frame is provided on each side of the chair by a number of ribs or braces 45 extending from the arms 25 and 27, and suitably connected to the legs 41. However, the side braces 45 may be connected to the seat 29 if desired.

The frame may be made of various materials of either metal or wood, and in the disclosed construction is generally of triple chrome plated heavy tubular steel. The bottom of each of the legs is provided with a cap 47 which is preferably of plastic or rubber to allow movement of the chair along the floor without marking or cutting into the floor.

The back rest 31 and seat 29 may be of wood or other material and in this case are suitably secured to the frame structure and are covered with an attractive plastic fabric which may be readily cleaned.

The tray assembly 37 as shown in Figures 3, 4, 5 and 6 is comprised of an improved tray 39 and means including a pair of brackets or attaching elements 49*a* and 49*b* for engaging with the supporting arms 25 and 27 to position the tray in a variety of positions. In this connection, the illustrated tray 39 is formed of one piece, molded plastic construction to provide an extremely strong and durable tray which is nevertheless of relatively inexpensive fabrication. In plan view, the tray 39 is of generally rectangular form having a rearward or concave edge 51 and a forward or outer edge 53 of slightly convex shape. In addition, the four corners of the tray are curved to eliminate sharp corners which might cause injury to the child or scratch or mar adjacent furniture. The tray is additionally formed with a planar, central recessed area 55, see Figure 3, surrounded by a peripheral rim or upward extending lip 57. The rim 57 serves the very useful function of preventing spilled foods or fluids from running on to the floor or on to the clothing of the child or other people nearby. Extending out-

wardly from the top edge of the peripheral rim is a circumferential ledge 59.

The tray 39 is bounded by a skirt 61 which extends downwardly from the outer edge of the ledge 59 to a level beneath the plane of the planar recessed area 55 in spaced relation to the inner, upwardly directed rim 57.

The heigh of the skirt is greater along the forward edge than along the rearward edge to increase the resiliency of the skirt. The increase in height of the skirt is provided by the combination of a gradual increase in the height of the rim 57 along the sides of the tray and by a step 62 (see Figure 4) in the rim adjacent the forward end of each of the sides. Although greater height in the skirt can be provided by merely extending the skirt a greater distance downwardly, it is preferred to increase the height of the skirt in the manner described and illustrated, as the increased rim height results in greater protection against spillage from the tray. The skirt 61 also extends slightly outward along the front and along a portion of the sides to prove a further increase in resiliency. In addition, offset flange 63 is provided around the lower edge of the skirt 61 on the sides and forward edges of the tray to afford greater strength and protection against chipping or cracking of the lower edge of the skirt.

The described skirt 61, which is spaced from the central area 55, is designed to protect the tray from cracking or breaking by absorbing the force of a blow striking the perimeter of the tray. In this respect, when a force is applied to the peripheral edge of the tray, the skirt tends to resiliently deform in an inward direction and thereby dissipates the force of the blow and prevents damage to the other parts of the tray. The spacing, curvature, and the outward and downward inclination, particularly at the front edge of the tray, contribute substantially to the resiliency of the skirt. Another protective feature of the skirt is provided by the extension of the skirt to a level below the bottom surface of the tray to thereby prevent direct striking of the corner formed by the central area 55 and the upwardly extending rim 57.

Moulded integrally on the bottom surface of the central area 55 at each side thereof, in generally parallel relation, are a pair of spaced apart bosses 65*a* and 65*b*. Each of the brackets 49*a* and 49*b* is generally L shaped in cross section, and is secured by means of self-tapping screws or other suitable means, along one leg 67 thereof to one of the pair of bosses 65*a* and 65*b*, respectively, with the other leg 69 thereof extending downwardly adjacent the respective sides of the tray. The brackets 49*a* and 49*b* and the bosses 65*a* and 65*b* are arranged to position the downwardly extending legs 69 in parallel relation at a distance slightly greater than the distance between the outwardly facing side surfaces of the supporting arms 25 and 27. Each of the brackets 49 is also formed with an upturned flange 71, as shown, which gives added strength and rigidity to the brackets.

The downward extending leg 69 of each of the brackets 49 has connected thereto as shown best in Figure 6, an outwardly extending hollow sleeve 73 which has an inwardly directed circumferential flange 75 at the outward end thereof. Extending through the sleeve is a pin or dowel 77 having a greater diameter at the inner end than the outer end to thereby form an intermediate shoulder 79. Surrounding the dowel 77 and included between the shoulder 79 and the inward flange 75 is a spring 81 which biases the dowel in an inward direction. Suitably attached to the end of the dowel 77 extending outward of the flange 75 is a button 83. In this connection, the button 83 provides a means for readily withdrawing the dowel 77 from the extending position inward of the downward leg 69. This action permits removal or repositioning of the tray assembly relative to the supporting arms. In addition, the inner end 85 of the dowels

is rounded to afford greater ease in positioning of the tray relative to the supporting arms.

The leg 67 of the L-shaped brackets is provided with a pair of spaced apart, generally transverse and rounded bosses 87 for establishing two-point bearing contact between the tray assembly and the upper surface of the supporting arms. The two-point contact thus employed at each side of the tray assembly has been found to be very effective in eliminating the wobble that is often present between the tray and the supporting surfaces of the high chair.

The supporting arms 25 and 27 of the disclosed high chair take the form of a tubular U-shaped bar. This construction, however, may be varied, as desired, to provide a pair of outstanding and generally parallel arms for supporting and positioning the tray. In this connection, means for guiding and positioning the tray assembly are provided adjacent the outer end of each of the supporting arms 25 and 27. As best illustrated in Figure 7, a longitudinal groove 89 of generally arcuate cross section is located on the outwardly facing side surface of each of the supporting arms. A series of aligned holes 91 is provided longitudinally in the grooves 89 for selectively receiving the dowel 77 associated with the downward extending legs of the brackets 49. The provision of the arcuate grooves performs a double function by serving, first, as a strengthening rib in the tubular member and second, by acting as as guideway for assisting in positioning of the tray by guiding the travel of the rounded end 85 of the dowels when repositioning the tray assembly relative to the supporting arms.

The arrangement including the bosses 87 and the dowels 77 on the brackets 49, in combination with the supporting arms 25 and 27, provides a snug fit between the tray assembly and the arms without detracting from the ease with which the tray assembly may be removed or repositioned.

The outer end of the tubular supporting arms 25 and 27 is provided with a plastic cap 95 in order to cover any burrs or sharp corners which might otherwise cut a child, tear clothing, or scrape woodwork.

Another of the features of the present invention is the ability to store the tray assembly when not in use on the high chair. In this connection, the tray assembly may be suspended as seen in Figure 2, adjacent the side of the high chair by providing a hole 101 in the upper surface of one of the supporting arms for cooperation with one of the dowels 77 of the tray assembly. It is preferable, however, to provide each of the supporting arms with such a hole in order to accommodate storage of the tray assembly along either of the sides depending upon which side is most convenient under the circumstances. Although the hole may be located closely adjacent the end of the supporting arm, such as indicated at 101*a* in Figure 7, certain advantages may be achieved by locating the hole 101 further inward from the outer end of the arm. In the illustrated disclosure, each of the holes 101 is positioned inwardly of the end of its arm a sufficient distance to confine the pivotal action of the tray assembly about vertical axes by the abutment of the pair of bosses 87 against the adjacent outwardly facing side of the supporting arm. In addition, the length of the bracket leg 69, on either side of the dowel 77, is preferably long enough to minimize swing of the tray assembly in a vertical plane. Accordingly, with this preferred construction the tray assembly may be suspended in a snug fashion which prevents undesirable rattle and free pivotal action about the dowel, but which does not reduce the ease in positioning or removal of the tray assembly.

The tray assembly 37 may be readily located on the supporting arms in any of the available horizontal positions by grasping the tray with the hands and by pulling the buttons 83 outwardly with the fingers to retract the dowels 77. When both the dowels 77 are retracted with-

in the sleeves 73, the tray may be readily slipped over the supporting arms 25 and 27 until the downwardly extending legs 69 straddle the arms in outward relation and the tray assembly rests on the bosses 87 of the legs 67. By releasing the buttons, the rounded inner end 85 of the dowels will be aligned in each of the longitudinal grooves 89. The tray may then be slid forwardly or rearwardly as desired to the nearest hole 91 in each of the arms 25 and 27. At this point, the dowels 77 will be automatically inserted within the openings by action of the springs to position the tray.

The tray assembly may be repositioned by retraction of the buttons until the dowel pins are out of engagement with the holes 91 and by sliding the tray assembly along the guideway grooves of the supporting arms until the dowels engage another pair of holes in the supporting arms 25 and 27. In addition, the tray assembly may be removed completely from the high chair by outwardly extending the buttons until the dowels are retracted and by lifting the tray assembly off the supporting arms. The tray assembly may then be suspended from either of the arms by releasing the buttons 83 and by merely inserting one of the extending dowels 77 within one of the openings 101.

Accordingly, it will be seen that the tray assembly and the supporting arms of the high chair are provided with improved means for guiding and positioning the tray assembly on the supporting arms in a number of generally horizontal positions or in a suspended vertical position. In addition, the arrangement employed for guiding and positioning of the tray assembly is of simple and economic construction and may be readily and easily cleaned as required. Moreover, the tray assembly disclosed herein includes a one piece, plastic tray of sturdy and durable construction to withstand the normal severe abuse to which a high chair is usually subject.

Other additional changes and modifications may be made in the disclosed construction to achieve certain of the features mentioned herein without departing from the principles of the present invention.

I claim:

1. A tray assembly for detachable use with a pair of parallel supporting arms on an infant's high chair, said tray assembly comprising a molded plastic one-piece tray formed with a recessed central planar region, a peripheral rim extending upwardly from said recessed region, a ledge extending around and outwardly from the upper edge of said rim, and a peripheral skirt having an upper portion extending downwardly in spaced relation to said rim from the outer edge of said ledge to below the plane of said recessed region and terminating in a reinforcing, outwardly offset flange portion of relatively lesser height than the upper portion of the skirt and extending substantially vertically downwardly along the lower margins of the front and sides of said skirt in position to protect said skirt from damaging blows.

2. A tray assembly for detachable use with a pair of parallel supporting arms on an infant's high chair, said tray assembly comprising a molded plastic one-piece tray formed with a recessed central planar region, a peripheral rim extending upwardly from said recessed region, a ledge extending around and outwardly from the upper edge of said rim, a peripheral skirt extending downwardly in spaced relation to said rim from the outer edge of said ledge to a position below the plane of said recessed region, said skirt terminating in a reinforcing, outwardly offset flange extending substantially vertically downwardly along the lower margins of the front and sides of said skirt in position to protect said skirt from damaging blows, and a pair of downwardly extending spaced-apart bosses formed on the under side of said recessed central region and disposed along each of the opposite side portions thereof in position for mounting thereon a pair of attaching elements adapted to be releasably secured to the arms of the high chair.

References Cited in the file of this patent

UNITED STATES PATENTS

1,270,273	Dunlap	Jan. 25, 1918
1,675,985	Martin	July 3, 1928
2,278,414	Carlson	Apr. 7, 1942
2,633,182	Lehman et al.	Mar. 31, 1953
2,687,167	Janesick	Aug. 24, 1954
2,790,484	Pollack	Apr. 30, 1957
2,816,598	Shone	Dec. 17, 1957
2,833,335	Leclair	May 6, 1958
2,900,011	Casey	Aug. 18, 1959
2,900,013	Hamilton	Aug. 18, 1959

FOREIGN PATENTS

18,928	France	May 19, 1914
437,963	Great Britain	Nov. 8, 1935
163,925	Australia	Nov. 18, 1954