

May 3, 1960

A. MILLER
FOLDING HIGH CHAIR

2,935,122

Filed July 31, 1958

3 Sheets-Sheet 1

Fig. 1

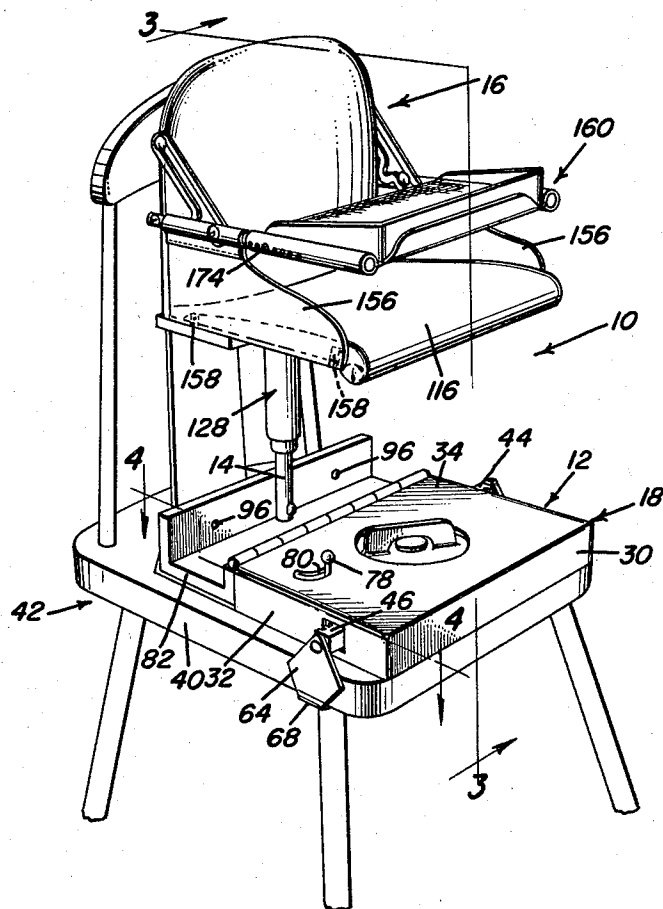
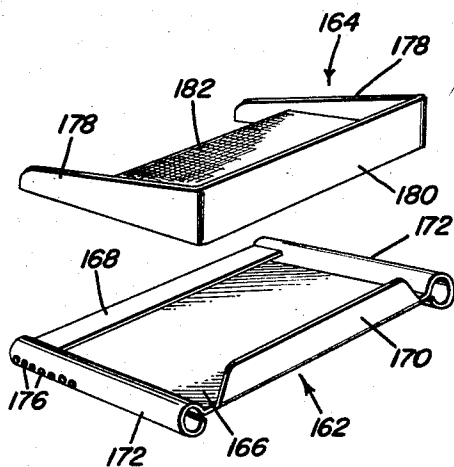


Fig. 7



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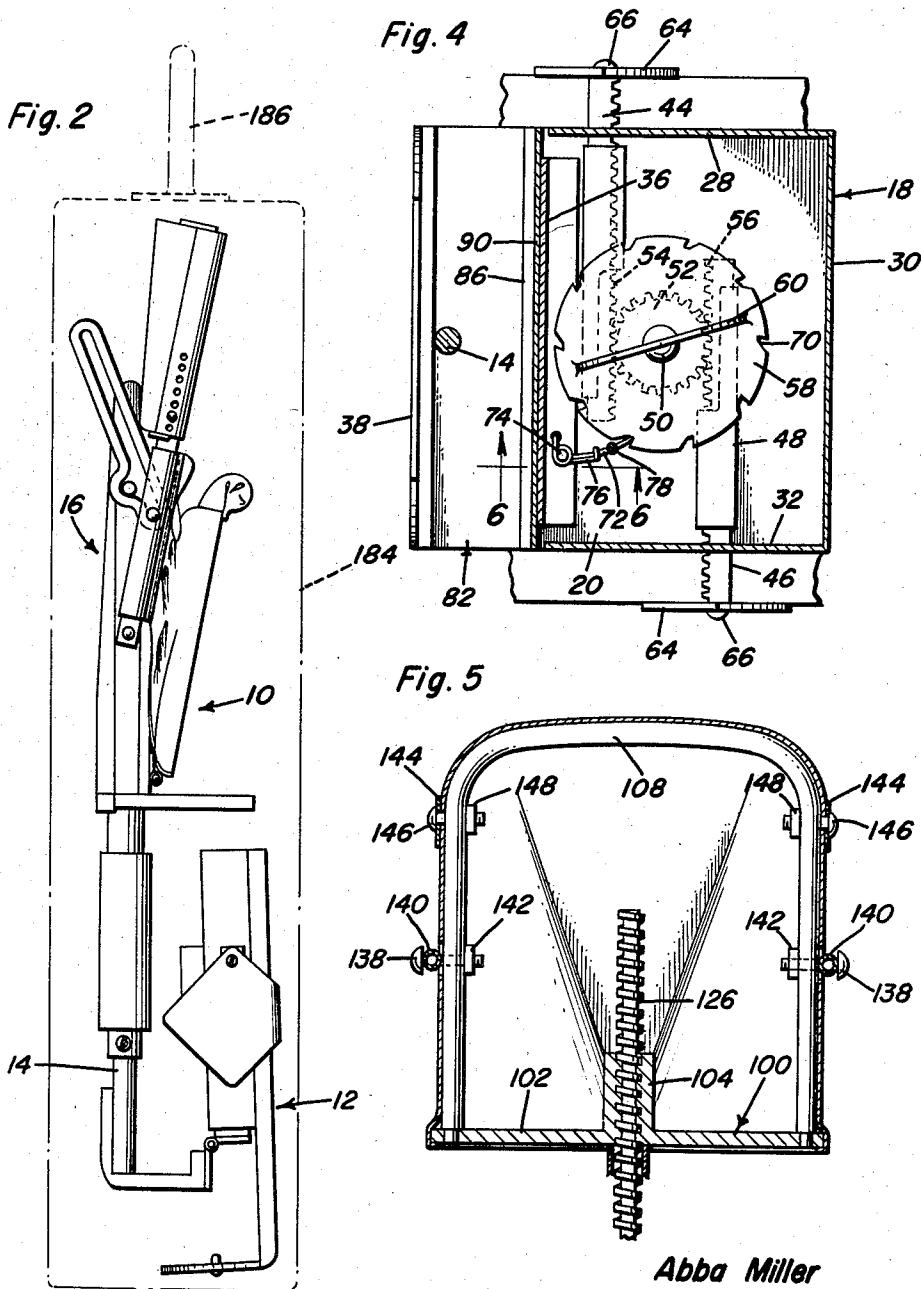
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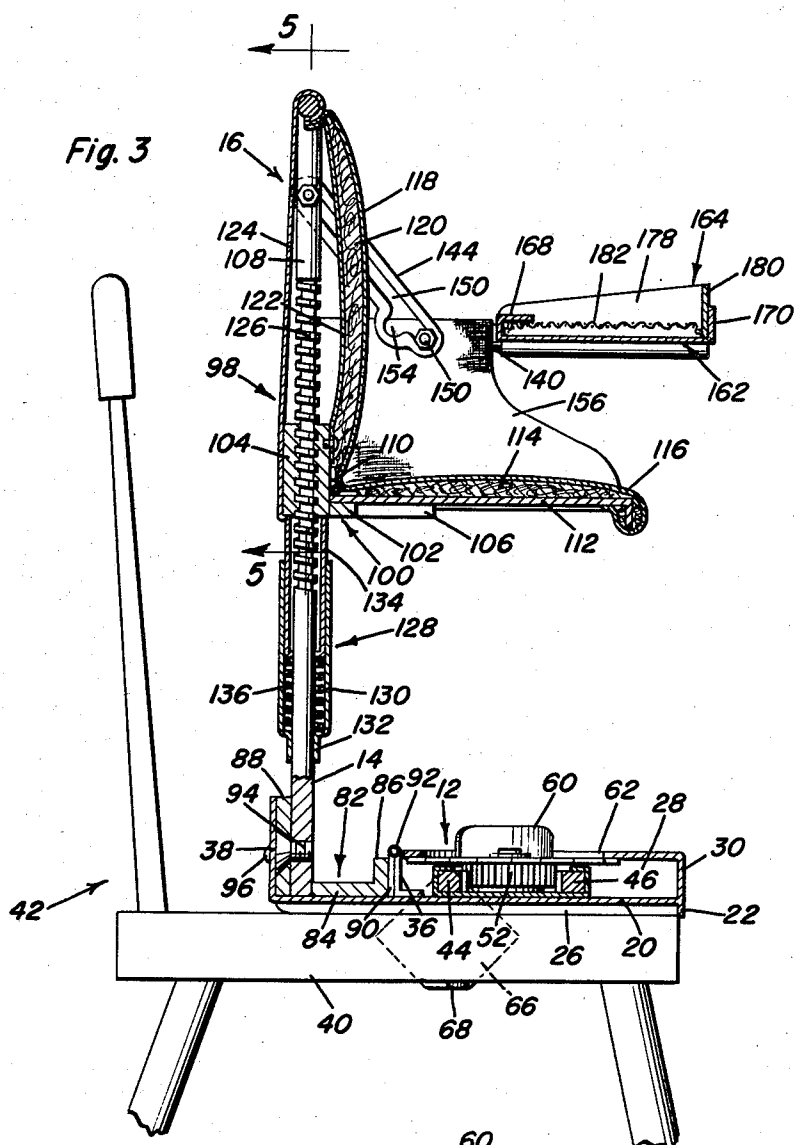
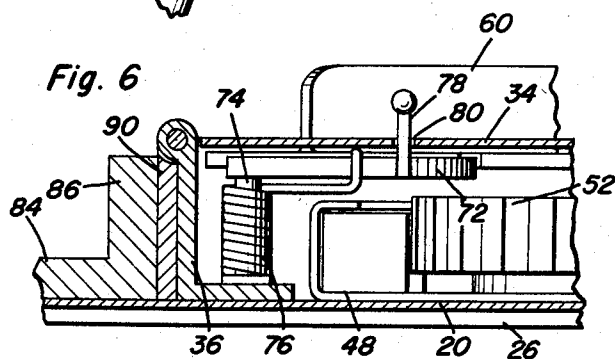
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3 Sheets-Sheet 3



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2,935,122

FOLDING HIGH CHAIR

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3 Claims. (Cl. 155—131)

This invention relates in general to new and useful improvements in children's furniture, and more specifically to an improved folding high chair.

The primary object of this invention is to provide an improved child's high chair which is so constructed whereby it may completely fold into a relatively small package for ease of transportation.

Another object of this invention is to provide an improved children's high chair which is adapted to be mounted on a seat of a conventional type of chair or other type of seat, the high chair including a base having suitable clamp means for retaining the high chair on the usual seat.

Still another object of this invention is to provide a novel clamp means for retaining a high chair base on a chair seat, the clamp means being in the form of a pair of arms extending outwardly from the base and having clamp plates on the ends thereof, there being guide mechanisms for moving the arms with respect to the base and retaining the arms in such positions.

A further object of this invention is to provide an improved high chair construction which includes a tray, the tray being provided with a removable insert including a screen overlying the bottom of the tray in spaced relation whereby liquids spilled in the tray will pass through the screen and be retained by the bottom of the tray and solid foods dropped onto the tray will rest upon the screen so as to be retrievable by the child.

A still further object of this invention is to provide an improved children's high chair which includes a standard having a screw threaded connection with the chair portion of the high chair whereby the chair may be vertically adjusted as desired.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a perspective view of the high chair which is the subject of this invention and shows the same mounted on a seat of an ordinary kitchen chair, the lower parts of the legs of the kitchen chair being broken away;

Figure 2 is a side elevational view of the high chair of Figure 1 on a larger scale and shows the same folded for transportation, there being illustrated in broken lines a convenient carrying case for the high chair;

Figure 3 is an enlarged fragmentary vertical sectional view taken substantially upon the plane of the section line 3—3 of Figure 1 and shows the specific details of the various parts of the high chair including the means for permitting vertical adjustment of the chair of the high chair;

Figure 4 is an enlarged horizontal sectional view taken substantially upon the plane indicated by the section line 4—4 of Figure 1 and shows the specific details of the means for clamping the base of the high chair to the seat

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of the kitchen chair, the seat of the kitchen chair being partially broken away;

Figure 5 is an enlarged fragmentary vertical sectional view taken substantially upon the plane indicated by the section line 5—5 of Figure 3 and shows the specific details of the construction between the standard and the back of the chair;

Figure 6 is an enlarged fragmentary vertical sectional view taken substantially upon the plane indicated by the section line 6—6 of Figure 4 and shows the specific details of the latch mechanism for retaining the drive gear of the clamp means in adjusted position; and

Figure 7 is an exploded perspective view on a large scale of the tray structure of the high chair.

Referring now to the drawings in detail, it will be seen that there is illustrated the high chair which is the subject of this invention, the high chair being referred to in general by the reference numeral 10. The high chair 10 includes three basic components, a base, which is referred to in general by the reference numeral 12, a standard 14, and a chair, which is referred to in general by the reference numeral 16.

The base 12 includes a housing 18. The housing 18 is formed of a bottom wall 20 which terminates at its front wall and side wall in a depending flange 22. Underlying the bottom wall 20 is a suitable pad 26. The housing 18 also includes a side wall 28, a front wall 30 and a side wall 32. Connecting together the walls 28, 30 and 32 is a top wall 34 which is spaced above the bottom wall 20. The rear portion of the housing 18 is formed by a hinge leaf 36. It is pointed out at this time that the bottom wall 20 extends rearwardly of the hinge leaf 36 and terminates in an upwardly directed rear flange 38.

The base 12 is illustrated as resting upon a seat 40 of a chair, which is referred to in general by the reference numeral 42. Inasmuch as only the seat 40 of the chair 42 plays a part of the present invention, no other details of the chair 42 will be described.

In order that the base 12 may be clamped upon the seat 40, there is provided suitable clamp means which includes a pair of transversely disposed arms 44 and 46, as is best illustrated in Figure 4. The arms 44 and 46 extend through openings in the side walls 28 and 32, respectively. The arms 44 and 46 are guided within the housing 18 by a guide 48 which is secured to the bottom wall 20. Carried by the guide 48 intermediate the arms 44 and 46 is an upstanding shaft 50, the shaft 50 being mounted for rotary movement. Secured in the lower part of the shaft 50 is a drive gear 52. The drive gear 52 is meshed with rack portions 54 and 56 of the arms 44 and 46, respectively.

Overlying the guide 48 and secured to the upper part of the shaft 50 is a plate 58. The plate 58 has connected thereto a suitable handle to effect rotation thereof. The handle 60 passes upwardly through an opening 62 in the top wall 34.

Inasmuch as the gear 52 is disposed between the arms 44 and 46, rotation thereof will result in the movement of the arms 44 and 46 in opposite directions. Thus, when the gear 52 is rotated in one direction, the arms 44 move inwardly into the housing 18, and when it is rotated in the opposite direction, the arms 44 and 46 move outwardly of the housing 18.

Pivotally secured to the outer ends of the arms 44 and 46 outwardly of the housing 48 are clamp plates 64. The clamp plates 64 are of generally diamond-shape and are connected to their respective arms 44 and 46 by fasteners 66 at one corner thereof. The opposite corner of each plate 64 is bent inwardly, as at 68, to fit beneath the seat 40.

When it is desired to clamp the base 12 to the chair seat 40, the arms 48 and 46 are extended so that the plates 64 are easily positioned on opposite sides of the seat 40. They are then swung downwardly alongside of the side edges of the seat 40 and the arms 44 and 46 are retracted by rotating the gear 52. The gear 52 may be turned with relatively great torque to effect a tight clamping action. The arms 44 and 46 are retained in their chair clamping positions by means of the plate 58 which is provided with a plurality of circumferentially spaced notches 70. Engaged selectively with the notches 70 is a dog 72 to prevent rotation of the gear 52. The dog 72 is pivotally mounted on a shaft 74 extending upwardly from the hinge leaf 36 and is urged into position by means of a spring 76 carried by the shaft 74. The dog 72 includes a handle 78 which extends upwardly through the top wall 34 through an opening 80 formed therein whereby the dog 72 may be moved to a released position.

Seated on the bottom wall 20 of the base 12 rearwardly of the housing 18 is a channel-shaped bracket which is referred to in general by the reference numeral 82. The bracket 82 includes a lower web 84, a forwardly disposed vertical flange 86 and a rearwardly disposed vertical flange 88. The flange 86 has connected to the forward face thereof a hinge leaf 90 which is connected to the hinge leaf 36 by means of a pintle 92.

Secured to the central rear part of the bracket 82 and extending upwardly therefrom is the standard 14. The standard 14 is seated in the web 84 and secured to the flange 88 by means of a suitable fastener 94. Due to the hinged mounting of the bracket 82, it will be readily apparent that the base 12 may be folded with respect to the standard 14, as is best illustrated in Figure 2, in order that the high chair 10 may be folded into a compact state. The standard 14 is retained in an upright position at substantially right angles to the base 12 by means of suitable fasteners 96 which extend through the flange 38 and the flange 88, the fasteners 96 being removable.

The chair 16 has a back construction which is referred to in general by the reference numeral 98. The back construction 98 includes a main frame member which is referred to in general by the reference numeral 100. The main frame member 100 includes a horizontally disposed plate 102 having extending upwardly from the central part thereof an internally threaded sleeve 104. The ends of the plates 102 terminate in forwardly directed flanges 106 which function as stops. Secured to the outer ends of the plate 102 is an upstanding inverted U-shaped back frame 108.

Hingedly secured to the forward parts of the back frame member 108 adjacent the lower ends thereof by means of hinges 110 is a seat frame member 112. Overlying the seat frame member 112, which is in the form of a relatively wide, generally rectangular plate, is suitable padding 114. Overlying the padding 114 and suitably secured to the seat frame member 112 is a fabric covering 116. The fabric covering 116 extends upwardly forwardly of the back frame member 108 to form a back covering 118. Disposed rearwardly of the back covering 118 is suitable back padding 120 which is retained in position by a layer of fabric 122. The rear portion of the back structure 98 is covered by a fabric 124.

The standard 14 is threadedly engaged within the sleeve 104. The standard 14 having an upper screw threaded portion 126. By rotating the chair 16 with respect to the standard 14, it will be readily apparent that the chair 16 may be vertically elevated with respect to the base 12.

Inasmuch as the upper portion of the standard 14 is provided with screw threads 126, it is highly desirable that there be provided a suitable covering for the standard 14 which will encase the screw threads 126. This

covering is referred to in general by the reference numeral 128 and includes a lower covering 130 of a tubular construction. The covering 130 is secured to the lower part of the standard 14, as at 132, and is telescoped over an upper covering 134. The covering 130 has encased therein a coil spring 136 which urges the covering 134 up against the underside of the plate 102 to form a continuous casing for the standard 14 irrespective of its effective length. It is to be noted at this time that the upper portion of the standard 14 projects upwardly into the interior of the back construction 98, which is hollow.

Pivotally connected to the vertical portion of the back frame member 108 by means of bolts 138 are arms 140. The bolts 138 pass through the back frame member 108 and are threaded into nuts 142 fixedly secured to the inner parts of the back frame member 108.

In order that the arms 140 may be retained in horizontal positions, there is provided for each arm 140 a link 144. The upper end of each link 144 is pivotally connected to the back frame member 108 by a bolt 146. The bolt 146 passes through the upper part of the back frame member 108 and is threadedly engaged in a nut 138 rigidly secured to the back frame member 108. The link 144 for each arm 140 is connected to the arm 140 by means of a bolt 150. The bolt 150 is seated in an elongated slot 152 in the associated link 144 to permit pivoting of the arms 140 upwardly into the same general plane as the back frame member 108. The links 144 may be detached from their associated arms 140 through means of an enlarged link 154 of the slot 152. This permits the passage of the fastener 150 therethrough.

It is pointed out at this time that the arms 140 also form supports for sides 156 of the chair 16. The sides 156 have upper portions telescoped over the arms 140 and are detachably connected to the sides of the seat portion of the chair 16 by means of suitable snap fasteners 158.

The outer ends of the arms 140 have mounted thereon a tray structure which is referred to generally by the reference numeral 160. The tray structure 160 includes a tray member which is referred to in general by the reference numeral 160, and an insert which is referred to in general by the reference numeral 164.

The tray 162 includes a bottom wall 166 which has formed at the rear end thereof a reversely bent flange 168 overlying the rear part thereof. At the forward edge of the bottom wall 166 is a relatively high upstanding flange 170. The sides of the tray 162 are formed by upwardly projecting sleeve portions 172 formed along the side edges of the bottom wall 166. The sleeves 172 are telescopable over the outer portions of the arms 40 and retained in adjusted position thereon by means of spring clips or the like 174 which are selectively passed through suitable apertures 176 in the sleeves 172 and through like apertures (not shown) in the arms 140.

The insert 164 includes a frame formed of a pair of side walls 178 connected together by a front wall 180. Secured to the side walls 178 and the front wall 180 intermediate the height thereof is a screen 182.

The insert 164 is separable from the tray 162 and it is retained in place by snapping the screen 182 beneath the flange 168, as is best illustrated in Figure 3. The flange 180 then abuts the flange 170 and the friction therebetween normally retains the insert 164 in place. It is to be noted that at this time, the screen 182 is spaced above the bottom wall 166 of the tray 162. Thus, when a child spills milk and other liquid in the tray structure 160, this liquid will pass through the screen 182 and will not be available to the child to play in. At the same time, solid foods will not pass through the screen 182 and will remain available to the child to eat, if desired. This is also true of small toys and the like.

Inasmuch as the high chair 10 has the chair 16 thereof of vertically adjustably carried by the standard 14, it

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will be readily apparent that it may be utilized by children of different ages. In view of this, when the child has reached the age where the chair may be used as a youth chair, the tray structure 160 and the arms 140 may be removed by simply removing the bolts 138 and 146 and unsnapping the sides 156.

While the clamp plates 64 have been illustrated in conjunction with a kitchen chair seat 40, it is to be understood that the utility of these clamp plates 64 is not so limited. If desired, the base 12 may be positioned transversely of a vehicle car seat and the clamp plates 64 may engage the forward and rear edges thereof in order to securely clamp the base 12 to the vehicle car seat. The chair 16 may be then rotated to be positioned fore and aft in the vehicle so that the child may ride in a normal position.

Referring now to Figure 2 in particular, it will be seen that the high chair 10 may be folded so that the base 12, the standard 14 and the chair 16, in its collapsed state, may lie in substantially the same plane. Thus, the high chair 10 will assume a relatively flat state and may be conveniently packed away or carried in a carrying case, such as the carrying case 184, if desired. The carrying case 184 may be of the canvas type for lightness in weight, or may be of the rigid type, but in either event, it will be desirable that it is provided with a suitable handle 186.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and changes may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A high chair construction comprising a base, a standard projecting upwardly from said base, a chair carried by said standard, adjustable clamp means carried by said base for releasably clamping said base on a chair seat, said clamp means including a pair of arms projecting from said base in telescoped relation, means for retaining said arms in adjusted positions, said last mentioned means including rack portions on said arms, a gear carried by said base in engagement with said rack portions, and means for actuating said gear.

2. A high chair construction comprising a base, a standard projecting upwardly from said base, a chair carried by said standard, said chair including a rigid back structure which is hollow and which includes a lower

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frame member, said lower frame member having an internally threaded bore, the upper portion of said standard being externally threaded and being threadedly engaged in said frame member bore whereby the height of said chair with respect to said base may be varied by rotating said chair, and the seat pivotally connected to said back structure, said back structure having a stop, said seat being engaged with said stop to retain said seat in a supporting position, whereby said seat may be folded to lie generally in a plane passing through said standard, said standard being hingedly connected to said base whereby said base may be folded generally into a common plane with said chair.

3. A high chair construction comprising a base, a standard projecting upwardly from said base, a chair carried by said standard, said chair including a rigid back structure which is hollow and which includes a lower frame member, said lower frame member having an internally threaded bore, the upper portion of said standard being externally threaded and being threadedly engaged in said frame member bore whereby the height of said chair with respect to said base may be varied by rotating said chair, and the seat pivotally connected to said back structure, said back structure having a stop, said seat being engaged with said stop to retain said seat in a supporting position, whereby said seat may be folded to lie generally in a plane passing through said standard, said standard being hingedly connected to said base whereby said base may be folded generally into a common plane with said chair, adjustable clamp means carried by said base for releasably clamping said base in the chair seat, said clamp means including a pair of arms projecting from said base in telescoped relation, means for retaining said arms in adjusted position, said last mentioned means including rack portions on said arms, a gear carried by said base in engagement with said rack portions, and means for actuating said gear.

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