Sept. 16, 1958 J. V. ROSSI 2,852,068

FOLDING HIGH CHAIR

Filed April 5, 1956 3 Sheets-Sheet 1

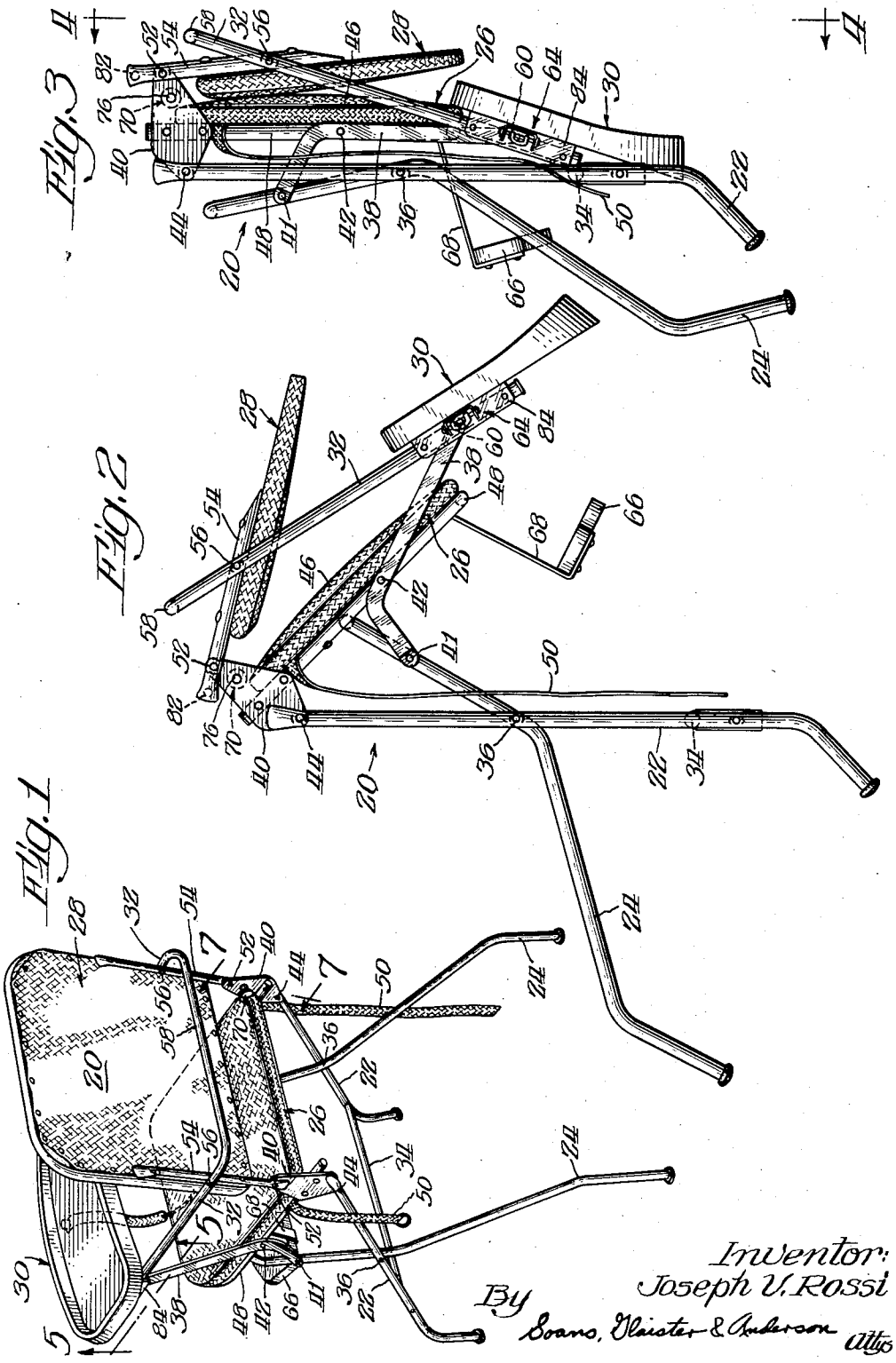

Fig. 3

Fig. 2

Fig. 1

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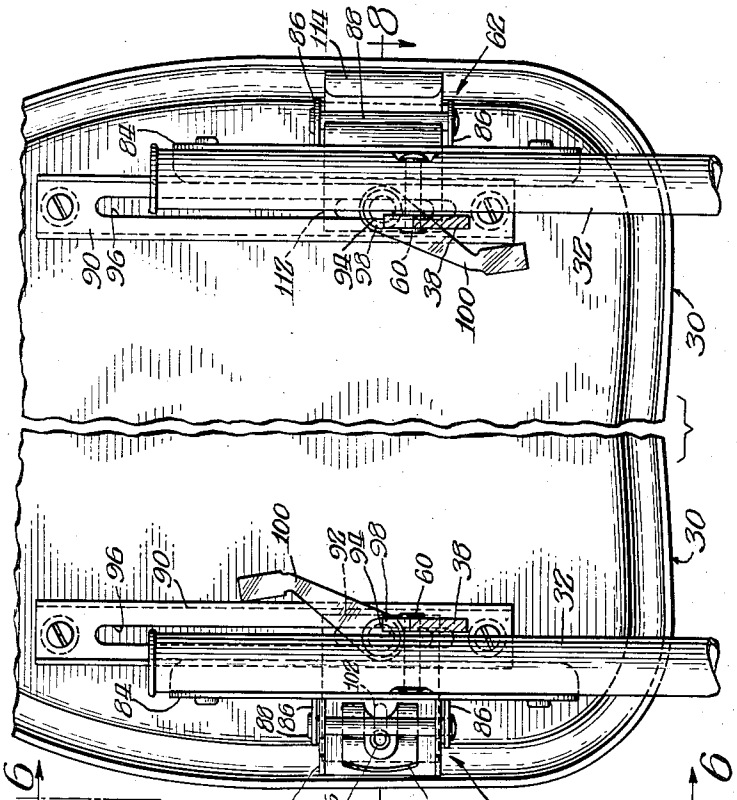

Fig. 5

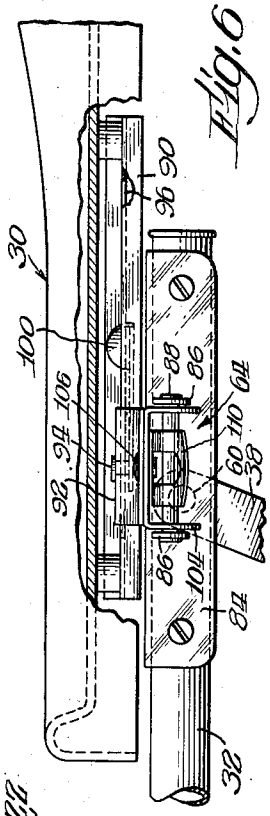

Fig. 6

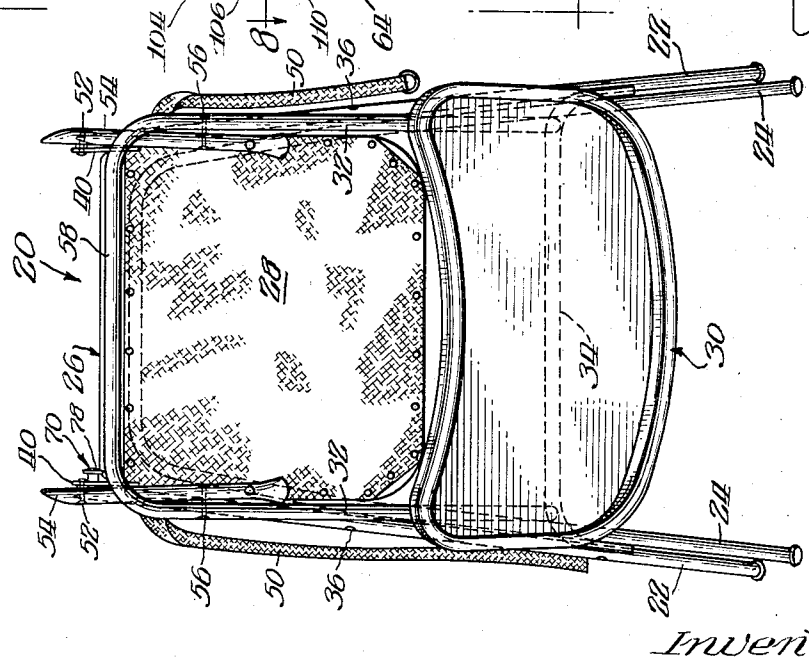

Fig. 4

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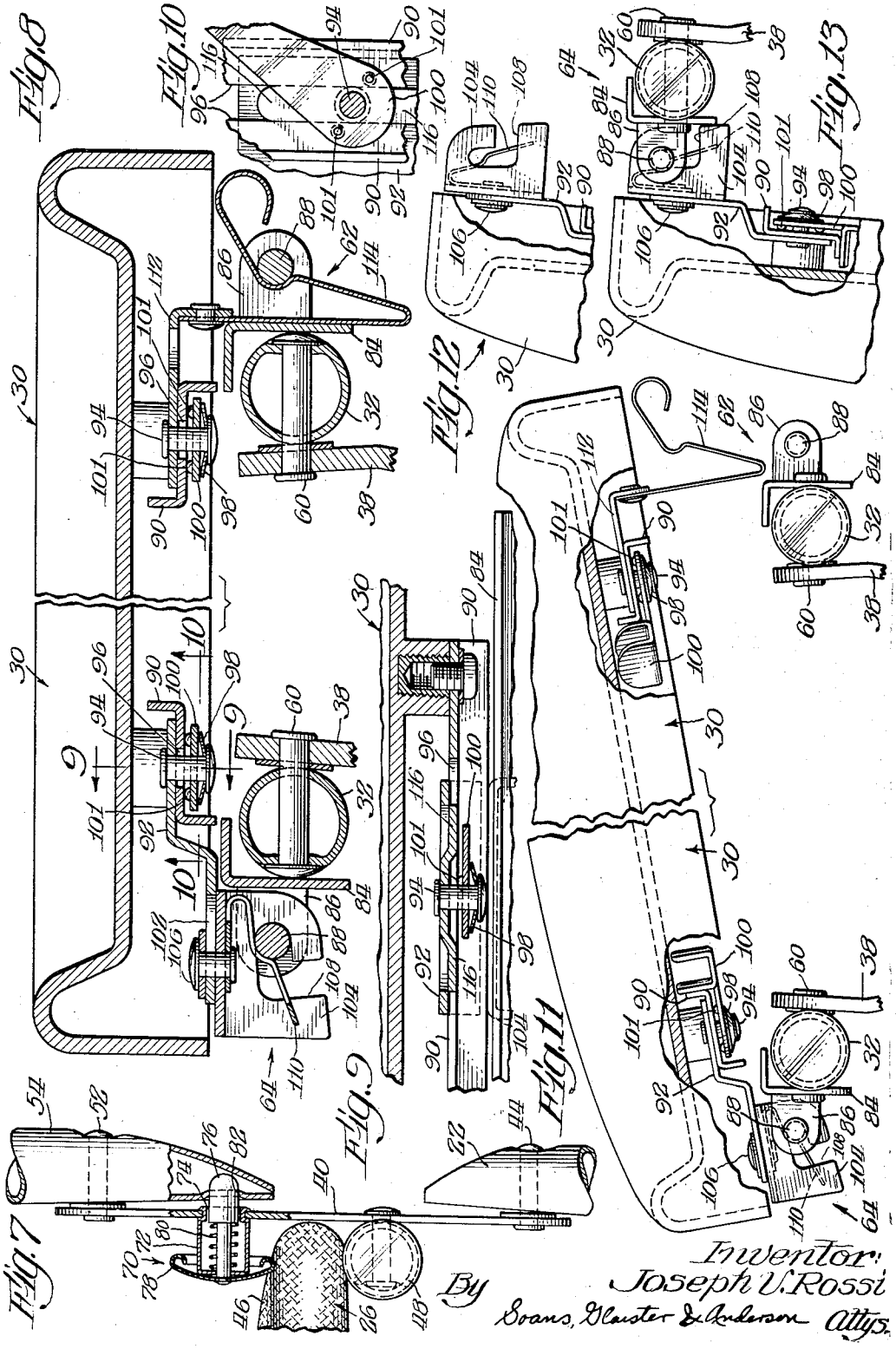

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FOLDING HIGH CHAIR

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3 Claims. (Cl. 155—127)

The present invention relates generally to chairs and is more particularly directed to an improved form of collapsible high chairs.

In a folding chair, particularly a collapsible high chair which includes a tray and a footrest, it is important to provide a structure which will fold into the most compact unit possible. It is also desirable in a folding high chair to provide a relatively wide base which will preclude the possibility of accidental tipping of the chair, and to also include means which will prevent accidental folding of the chair when in use.

It is a primary object of the present invention to provide an improved form of folding high chair which is positively locked against folding movement in its operative, erect position and which may be folded into a compact unit. A further object of the invention is to provide a folding high chair with a positive latching mechanism for maintaining the chair in its operative position wherein the latching mechanism requires manual operation in order to condition the chair for folding into a compact unit. Other objects and advantages will become apparent as the disclosure progresses with reference to the accompanying drawings wherein:

Fig. 1 is a perspective rear view of the selected embodiment of the invention;

Fig. 2 is a side view illustrating the chair of Fig. 1 in an intermediate stage of folding;

Fig. 3 is a side elevational view of the chair in its completely folded position;

Fig. 4 is a view of the folded chair taken along the line 4—4 in Fig. 3;

Fig. 5 is an enlarged, fragmentary view taken along the line 5—5 in Fig. 1, with parts broken away;

Fig. 6 is a fragmentary view taken along the line 6—6 in Fig. 5, with parts broken away and in section in order to more clearly illustrate certain details of construction;

Fig. 7 is an enlarged fragmentary view, taken generally along the line 7—7 in Fig. 1, with parts broken away and in section;

Fig. 8 is an enlarged sectional view taken along the line 8—8 in Fig. 5;

Fig. 9 is a sectional view taken along the line 9—9 in Fig. 8;

Fig. 10 is a sectional view taken along the line 10—10 in Fig. 8;

Fig. 11 is a view similar to Fig. 8, with the tray shown in its partially released position;

Fig. 12 is an enlarged fragmentary view of the structure in Fig. 11, illustrating a portion of the latch mechanism which is seen at the left in Fig. 11; and

Fig. 13 is a view of the latch mechanism of Fig. 12, shown in position on the tray-supporting arm of the high chair.

The provision of a folding high chair which has a sufficiently large base to avoid accidental tipping and yet is capable of being folded into a compact unit presents a real problem. Furthermore, even though a wide base is provided through the use of legs which have

their lower portions widely spaced apart, there still exists the possibility that an active child can effect sufficient relative movement between the folding leg members to collapse or partially collapse the chair. It is desirable, therefore, to also provide means for positively locking the chair in its erect position. The present invention generally provides these features through the use of a novel folding arrangement for the relatively movable portions of the chair, and by providing a positive locking mechanism which coacts with at least two of such relatively movable elements to releasably fix the chair in its seat-forming position.

With reference particularly to Figs. 1 and 2 of the drawings, the embodiment selected to illustrate this invention is a collapsible high chair **20** having a pair of front legs **22**, a pair of rear legs **24**, a seat bottom **26**, a seat back **28**, and a tray **30** which is carried by a pair of tray supporting arms **32**. The two front legs **22**, which are preferably of tubular steel or the like, are formed as an integral unit with a cross brace **34** disposed therebetween adjacent the lower end portion of the legs. The rear legs **24** are preferably made from a tubular steel member, which is bent into a generally U-shaped form so as to provide a fixed relationship between the two rearwardly extending legs. The front legs **22** are pivotally connected at an intermediate section thereof with an intermediate section of the rear legs, as by the pins **36**. The seat bottom **26** is supported in position adjacent the upper ends of the four chair legs thus provided by means including a pair of connecting links or braces **38** and a pair of vertically extending plate members or arms **40**. The braces **38** are in the form of bell cranks, each of which are pivotally connected at one end, by pins **41**, to the upper end of one of the rear legs **24**, and these braces also extend upwardly to a pivotal connection with the seat bottom, such as is provided by the pins **42**. The vertically extending plate members **40** are fixed to a rearward portion of the seat bottom **26** and the upper ends of the front legs **22** are pivotally connected to a lower portion of these plate members, as by the pins **44**. In the illustrated embodiment, the seat bottom **26** comprises a padded seat member **46** and a generally U-shaped tubular frame member **48** which is detachably secured in underlying position to the forward and side edges of the seat member **46**. A seat strap **50** is attached to the seat bottom and is positionable to hold a child in the chair.

The brace members **38** which are disposed adjacent the forward section of the seat bottom **26** have their intermediate crank portion pivotally connected, by pins **42**, to the tubular frame member **48** of the seat at a position forwardly therealong. Thus it is seen that relative movement of the seat bottom **26** and the rear supporting legs **24** is provided about the axis of the pins **41** on the upper end of the rear legs, as well as about the axis of the pins **42** which connect the seat frame member **48** and the braces **38**.

The seat frame member **48** preferably extends rearwardly of the padded seat along opposite sides thereof, and the pair of plate members **40** are fixed to this extended portion in a position extending above and below the seat. As indicated, the lower end of each of these plate members **40** includes a pivotal connection **44** with the upper end of the associated front supporting leg **22**. The upper end of each plate member is pivotally connected, as by pins **52**, with a tubular frame member **54** comprising a portion of the seat back **28** and which is attached to the rearward side edges thereof. Thus it is seen that the plate members **40** afford pivotal movement of the seat back **28** and of the front supporting legs **22** relative to the seat bottom **26** about the pair of axes

defined by pins 44 and 52, respectively, which are spaced from the plane of the seat bottom 26.

The tray supporting arms 32 are preferably a U-shaped member of tubular steel or the like, which is pivotally connected adjacent the bight of the U to an intermediate portion of the frame members 54 on the back of the chair by means of pins 56. Of course, sufficient clearance is provided between the back 20 of the chair and the rearwardly disposed, transverse portion 58 of the tray supporting member to afford the necessary clearance for the relative movement which is provided between the chair back and the tray supporting arms 32.

The tray supporting arms 32 extend forwardly in generally overlying relation to the opposite side edges of the seat bottom 26, and a forward end portion of each arm is pivotally connected, by a pin 60 (Fig. 8) or the like, to the upwardly extending end of the crank arm forming the associated brace member 38. The forward end portions of the tray supporting arms 32 also include a pair of latch mechanisms 62 and 64 which afford releasable attachment of the tray to the arms in a manner to be described later. The high chair 20 is also provided with a footrest 66 which comprises a generally flat, rectangular member of wood or the like and which is supported in depending forwardly-extending relation to the seat bottom 26, as by means of a pair of brace members 68.

With the described arrangement, it will be seen that relative movement is provided between the front and rear legs about the axis of the pivot pins 36, and that such relative movement effects movement of the seat bottom 26 about the axis of the pivot pins 44 at the upper end of the front supporting legs. Due to the position of the brace members 38 and their relationship to the rear supporting legs 24, the seat 26, and to the tray supporting arms 32, the folding movement of the seat is accompanied by a folding of the chair back 28 and the tray supporting arms 32, in the manner illustrated best in Figs. 2 and 3. It is to be particularly noted that the interconnection of the relatively movable portions of the chair through the brace members 38, and the disposition of the pivot axes 52 and 44 for the chair back and the front supporting legs, respectively, on the plate members 40 is such that the legs, seat, back and tray of the high chair are all folded together into a minimum amount of space.

As noted in Figs. 1 to 3, there is also provided a seat lock 70 on one side of the chair adjacent the rearward edge of the seat member 46. Generally, as seen in Fig. 7, this lock comprises generally a retractable pin which is mounted on one of the plate members 40 in position for insertion through an opening in the lower end of the frame member 54 on the chair back. More particularly, the lock mechanism 70 includes a tubular guide means 72, which is welded or otherwise fixed on the plate member 40 in concentric relation to an opening 74 therethrough, and a detent in the form of a plunger rod 76 which is movable relative to the guide member 72 and through the opening 74 in the plate member. A disc-shaped button 78 or the like is fixed to one end of the detent 76. A coil spring 80 is disposed around a reduced end portion of the detent extending within the tubular guide member 72, in order to bias the enlarged free end of the detent in outwardly extending relation to the plate member 40 in the path of the chair-back frame member 54. The lower end of the frame member 54 on the chair back 28 includes an opening 82 therethrough in position for alignment with the detent 76 when the chair back is erect and the chair is in its unfolded, seat-forming position. It is preferable that the detent or plunger rod 76 be positively actuated for both the locking or unlocking of the frame member, in order to thereby prevent accidental collapsing of the chair and to assure proper and complete unfolding of the chair to its seat-forming position.

The adjustable latch mechanisms 62 and 64 which are provided for releasably attaching the tray 30 on the supporting arms 32 is particularly illustrated in Figs. 5, 6 and 8–13. As seen in these figures, the latch 64 at the left is intended to provide universal movement of the tray 30 relative to the associated supporting arm 32, while the latch 62 at the opposite side of the tray is intended to releasably hold the tray in position and is operable to partially release the tray so that the tray may be swung out of position with respect to the seat bottom 26.

The portion of each latch mechanism which is attached to the tray-supporting arm 32 is the same in both cases and, therefore, a description of one is believed to be sufficient. This fixed portion of the latch comprises an elongated member 84 which is generally L-shaped in cross-section and which is riveted or otherwise secured to the tray supporting arm along the forward side edge portion thereof. A pair of spaced apart ears or legs 86 are provided along the member 84 in laterally extending relation thereto. These ears are provided with aligned openings for supporting a rod 88 therebetween.

The latch mechanism 64, at the left in Figs. 5, 8 and 11, is intended to provide universal, supported movement of the tray 30 relative to the supporting arms 32 while permitting detachment of the tray from the arms. This mechanism includes a slotted, elongated member 90 which is fixed to the underside of the tray 30 with its slotted portion in elevated relation to the tray. A slide member 92 is adjustably, pivotally secured to the member 90, as by means of a pivot pin 94 which is fixed to the slide and has its reduced intermediate portion engaging the slot 96 in the member 90. A spring washer 98 or the like is positioned between the slide member 92 and the outer end of the pivot pin 94, and a cam lever 100 having a cam portion 101 (Fig. 9) is mounted on the rivet between the spring washer and the member 92, to thereby provide for releasable pressing engagement of the spring washer against the slide supporting member to selectively hold the slide 92 in position. The laterally extending portion of the slide 92 also includes a slot 102, and a channel-shaped member 104 is movably secured to the slide by means of a rivet 106 extending through the slot in the latter. The flanges of this channel member 104 include similar L-shaped apertures 108 which are aligned and adapted to engage spaced portions along the rod 88 fixed to the tray supporting arm 32. Intermediate the flange portions of the channel-shaped member 104 there is fixed a spring clip 110 which is adapted to press against the rod 88 to thereby maintain the latter in position at the closed end of the L-shaped aperture 108.

As seen particularly in Figs. 12 and 13, the tray 30 is initially positioned on one of the tray supporting arms by placing the latch 64 so that the rod 88 on the tray supporting arm 32 is disposed within the innermost portion of the L-shaped apertures. This movement is done in opposition to the spring clip 110 and the latter holds the channel-shaped member 104 in position on the chair. Thus it is seen that the tray 30 is free to pivot about the axis of the rod 88 and also about the axis of the pin 106 to thereby provide universal movement of the tray. Consequently, the tray may be held on the supporting arm 32 in a position transversely of the tray supporting arms, or in a position depending along the adjacent side of the chair to provide free axis of the chair seat, and that the tray 30 is freely movable intermediate these positions.

When the tray 30 is moved into its operative position overlying the tray supporting arms 32, it is releasably held in place by means of the latch mechanism 62 at the end of the tray opposite the above-described latch 64. The latch 62 includes a slide member 112, generally similar to the slide member 92 described with respect to the previous latch mechanism 64 and which is adjustable in a similar manner along the member 90 fixed on the underside of the tray. In this respect, elements which are identical

with parts of the previously described latch **64** will be given identical numbers.

A laterally extending portion of the slide member **112** has fixed thereto a generally U-shaped spring clip **114**, which is adapted for positioning intermediate the rod **88** and the elongated member **84** fixed to the tray supporting arm **32**, as seen particularly in Figs. 8 and 11. With respect to both of the latches **62** and **64**, the slide member which is mounted for sliding movement within the slot **96** of member **90** includes a raised portion **116** (Fig. 10) which is slidably received by the slot **96** to thereby afford linear motion of the slide relative to the elongated member **90**.

Consequently, it is seen that the tray **30** is adjustably positionable on the supporting arms **32** in any selected position relative to the chair back **28** afforded by the slotted members **90**. It is also seen that the tray may be removed from its operative position to provide access to the seat **46**, without entirely removing the tray from the support afforded by the latch **64** on the chair.

Although shown and described with respect to a particular embodiment, it will be apparent to those skilled in the art that other modifications might readily be made without departing from the principles of this invention.

I claim:

1. A collapsible high chair comprising a pair of supporting front legs and a pair of supporting rear legs, each of said front legs extending across one of said rear legs and being pivotally connected thereto at a position intermediate the ends of said legs, a seat bottom, a pair of members fixed to the rear portion of said seat bottom at opposite sides thereof and in vertically extending position above and below said seat bottom, means pivotally connecting the upper end portion of said front legs to said members at positions below said seat bottom, a seat back having its lower portion pivotally connected with said members at positions above said seat bottom, a pair of brace members pivotally interconnected between the upper end portions of said rear legs and a forward portion of said seat bottom and extending upwardly from the latter, and a pair of tray-supporting arms pivotally connected to said seat back at intermediate positions along the side thereof and extending forwardly from said seat back to a pivotal connection with the upper end portion of said brace members.

2. A collapsible high chair comprising a pair of supporting front legs and a pair of supporting rear legs, each of said front legs extending across one of said rear legs and being pivotally connected thereto at a position intermediate the ends of said legs, a seat bottom, a pair of members fixed to the rear portion of said seat bottom at opposite sides thereof and in vertically extending position above and below said seat bottom, means pivotally connecting the upper end portion of said front legs to said members at positions below said seat bottom, a seat back having its lower portion pivotally connected with said members at positions above said seat bottom, a pair of brace members pivotally interconnected between the upper ends of said rear legs and a forward portion of said seat bottom and extending upwardly from the latter, a pair of tray-supporting arms pivotally connected to said seat back at intermediate positions along the side thereof and extending forwardly from said seat back to a pivotal connection with the upper end portion of said brace members, and a releasable locking mechanism on said chair in position to secure two of the pivotally connected parts of the chair against relative movement to thereby maintain the chair in its seat-forming position.

3. A collapsible high chair comprising a pair of supporting front legs and a pair of supporting rear legs, each of said front legs extending across one of said rear legs and being pivotally connected thereto at a position intermediate the ends of said legs, a seat bottom, means pivotally connecting the upper end portion of said front legs to a rear portion of said seat bottom, a seat back having its lower portion pivotally connected with a rear portion of said seat bottom, a pair of brace members pivotally interconnected between upper end portions of said rear legs and a forward portion of said seat bottom and extending upwardly from the latter, and a pair of tray-supporting arms pivotally connected to said seat back at intermediate positions along the side thereof and extending forwardly from said seat back to a pivotal connection with the upper end portion of said brace members.

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