May 27, 1930. C. V. KING 1,760,414

CHAIR

Filed April 19, 1929 2 Sheets-Sheet 1

Fig. 1.

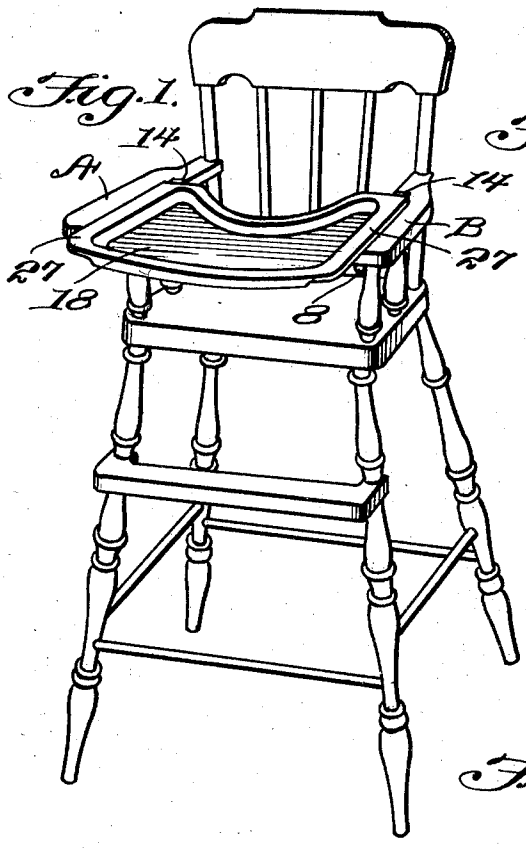


Fig. 2.

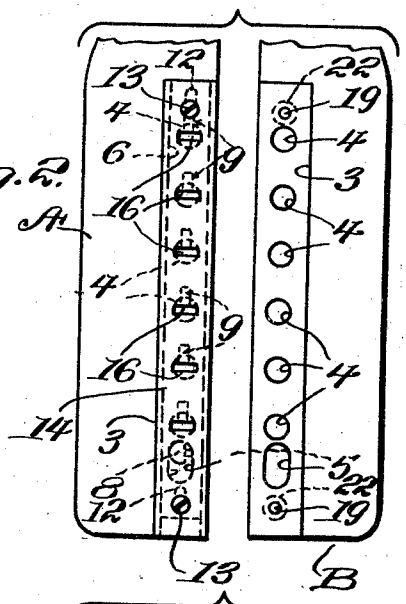


Fig. 3.

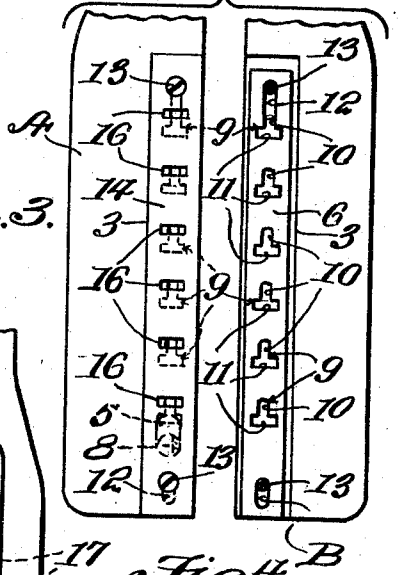


Fig. 5.

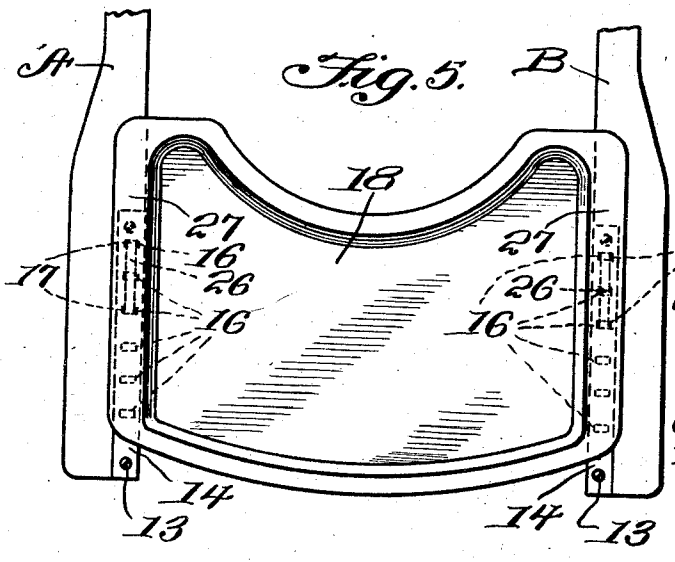


Fig. 4.



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Fig. 7.

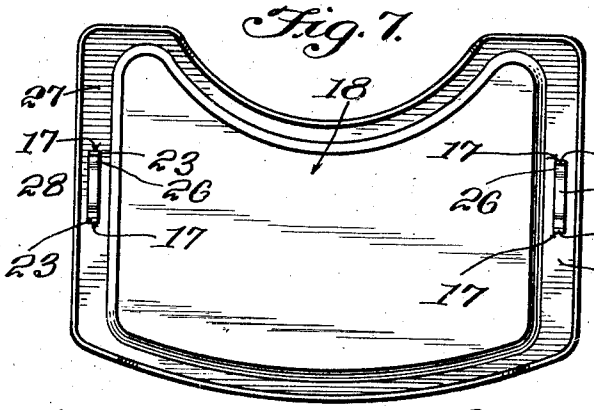


Fig. 9.

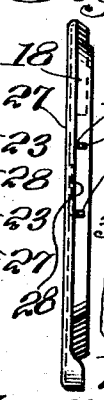


Fig. 16.

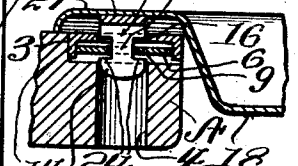


Fig. 17.

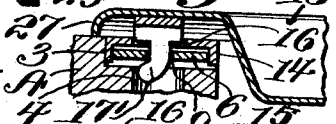


Fig. 8.

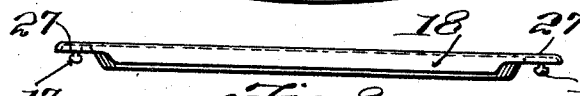


Fig. 6.

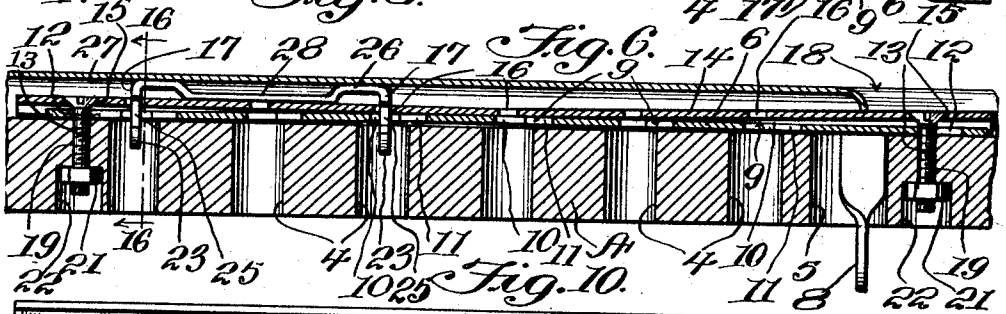


Fig. 10.

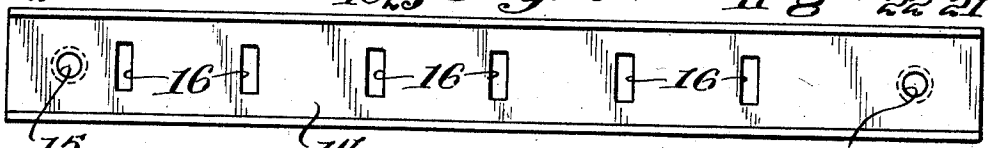


Fig. 12.



Fig. 13.

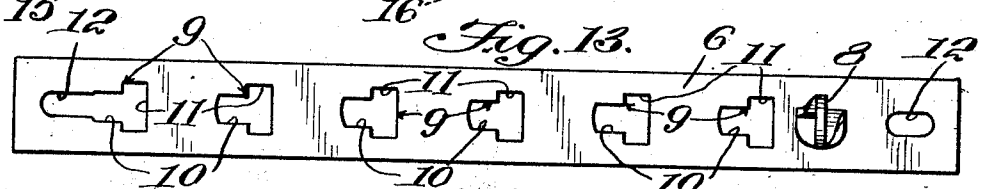


Fig. 14.



Fig. 11.



Fig. 15.



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Patented May 27, 1930 1,760,414

UNITED STATES PATENT OFFICE

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CHAIR

Application filed April 19, 1929. Serial No. 356,558.

My invention relates to improvements in chairs having arms with a transverse member such as a tray extending between the arms.

An object of the invention is to provide durable means of simple construction for readily and securely effecting connection and disconnection of the tray or other transverse members relative to the arms of the chair, and to provide a safe high chair.

Another object is to provide a tray or transverse member with apertured means for readily adjusting the tray to different positions along the arms, said apertures being of such narrow shape that injury to the fingers of a baby, by getting its fingers in the holes when the tray is removed, is impossible.

A further object is to provide structure such that in any position of locked adjustment of the tray along the arms, all of the holes in the apertured means in the arms are covered.

Another object is to provide an apertured plate in the upper surface of the arm with an apertured locking bar slidable immediately beneath the plate to engage pins projecting from the tray to lock the tray in position, the plate and bar being oppositely curved, and bolt means at their ends for urging them together and to adjust their tension.

A still further object is the provision of drainage openings entirely through the arms and beneath the apertured plates and locking bars, which will allow ready passage of anything that might be spilled so as to enter the lock in the arms.

The invention consists in the features, combination and arrangement of parts hereinafter described and particularly pointed out in the claims.

In the drawings:

Fig. 1 is a view of the chair with the tray thereon in foremost position of adjustment.

Fig. 2 is a plan view of the arms with the tray removed, the arm A showing the apertured plate or channel member secured to the arm by bolts, with the slidable locking bar moved to such position that the apertures in the plate are in unobstructed alignment with the holes in the arms, and the arm B showing the apertured channel and locking bar removed and showing the recess in the arm with the drainage holes through the arm and the hole or slot for receiving the handle or finger piece of the locking bar.

Fig. 3 is a view similar to Fig. 2 showing the arm A with the narrow rectangular apertures in the channel partially obstructed by the narrow portions of the key openings in the locking bar being moved to align therewith, and the arm B showing the locking bar in place without the overlying channel member.

Fig. 4 is a front end view of Fig. 2.

Fig. 5 is a top plan view of the arms with the tray thereon and adjusted to rearmost locking position.

Fig. 6 is a longitudinal vertical sectional view of the arm and tray of Fig. 5.

Fig. 7 is a bottom plan view of the tray.

Fig. 8 is a front end view of the tray.

Fig. 9 is a side end view of the tray.

Fig. 10 is a plan view of the channel.

Fig. 11 is an end view thereof, and

Fig. 12 is a side view.

Figs. 13, 14 and 15 are respectively plan, side, and end views of the locking bar.

Fig. 16 is a detail sectional view on line 16—16 of Fig. 8.

Fig. 17 is a view similar to Fig. 16 of a preferred modified form of locking pin 17′.

Referring to the drawings, 1 represents the high chair having arms A and B provided with recesses 3 in the upper surface of the arms and along their inner sides.

A series of spaced apart apertures 4 are provided in the arms extending entirely through the same from the bottom of the recess, and serve to drain anything which may be spilled on the arms, thus providing

a sanitary and readily washable and cleanable structure. These holes are adapted to align with the holes in the locking bar 6 and the channel 14 hereinafter referred to. An opening or slot 5 is provided in the forward part of each arm for reception of the depending handle of the locking bar. Bolt holes 19 are provided through the arms.

Placed in contact with the bottom of the recess 3 of each arm A and B, is a locking bar 6 provided with depending handle or finger piece 8 extending into and through the opening or slot 5, said slot permitting limited movement of the handle and bar longitudinally of the arm. The locking bar 6 is arched or curved as shown in Fig. 14, so that its ends only rest upon the bottom of the recess until pressed downwardly. The locking bar is preferably of sheet or plate metal of a somewhat resilient character. Key openings 9 having narrow portions 10 and wider portions 11 are provided in the locking plate or bar. Slots 12 are provided in the ends of the bar 6 to permit passage of the bolts 13 and to permit movement of the bar relative to the bolts.

Overlying the locking bar 6 is channel member or plate 14 provided with bolt receiving holes 15 in its ends and narrow rectangular transversely disposed apertures 16 for receiving the pins 17 of the tray 18.

The narrow shape of the rectangular apertures 16 prevents a baby from getting its finger caught therein when the tray is removed. The channel member or plate is arched or curved oppositely to the curvature of the locking bar as shown in Fig. 12, with its ends above its center, the center portion engaging the arched or raised central portion of the locking bar. The bolts 13 extend through the holes 15 in the channel member, the slots 12 in the locking bar and the holes 19 in the arms, and are provided with nuts 21 on their lower ends. The nuts are located in countersinks 22 in the lower ends of the holes 19. The bolts serve to securely and adjustably hold the parts in proper relation on the arms, and provide for fine adjustment of the resilient tension or spring engagement of the locking bar, with the channel and the arm. Thus the desired amount of tension providing resistance to movement of the slidable locking bar may be regulated to a fine degree.

The tray 18 is provided with the flattened pins 17 having enlarged or widened heads 23 at their lower ends. The flattened pins are of sufficient thinness to readily pass through the narrow rectangular openings 16 in the channel 14. The widened heads 23 of the pins, when the locking bar is moved to register the larger portions 11 of the key openings with the openings 16 in the channel member, will pass through the key openings and will enter the drainage holes 4. The shoulder 24 formed at the juncture of the head 23 of the pins 17 with the narrower shank portion 25 will then be below the locking bar, so that when the locking bar is then moved to bring the narrow portions 10 of the key openings over the shoulder 24, the pins and tray are locked in position by the locking bar.

The tray cannot be removed until the locking bars are moved by operating the same by the handles or finger pieces extending beneath the arms.

The locking bar may be arranged with its key openings disposed in either direction, so that it would lock by moving in the direction opposite to that shown, within the scope of the invention.

As shown, and preferably, the key openings are disposed with their narrower portions to the rear so that the bar is moved forwardly to lock and rearwardly to unlock the pins and tray.

For more securely holding the tray in locked position, and also to insure that the tray when in any locked position will overlie all of the openings in the channel, two spaced pins on each side of the tray are provided. The spacing is preferably equal to two of the spaces between successive apertures in the channel, so that the pins when in locking position will be each inserted in an aperture with an aperture between them.

In the construction shown, the apertures are so spaced and their number is such that they provide four locking positions of the tray, in each of which the tray overlies all of the apertures.

The pins may be independently secured to the tray in any suitable manner but preferably they are formed from the same strip of metal 26 bent into U-shape as shown and secured to the under side of the flange 27 of the tray as by soldering or in any suitable manner.

The central portion of the member 26 may be elevated as at 28 to provide a bearing surface, adapted to engage the upper surface of the channel member.

The drainage holes 4 also serve to receive the heads of the pins when the tray is in position on the arms.

The structure of my locking device is such that only the finger piece projects below the lower face of the arms.

In Fig. 17 is shown a preferred modified form of locking pin 17′ of such shape that, the tray being provided with said locking pins 17′ on its opposite sides and curving downwardly and outwardly in opposite directions, only one side of the tray need be unlocked in order to permit removal of the tray. The tray with pins 17′ thereon is preferably applied in the manner described with both locking bars moved to open position. Both sides are then locked by moving both locking bars to locking position. The tray

is then securely locked. In removing the tray both sides may be unlocked and the tray removed in the manner described. However, the unlocking of but one side is sufficient to permit the removal of the tray without injury to the pins, since the lifting of the unlocked side of the tray causes the curved or hooked pins at the opposite side to slip sidewise upwardly and inwardly and out of the locking apertures which would prevent vertical removal of the double hooked pins. Thus injury to the tray and its pins in this form of the invention cannot result from unlocking but one side of the tray and swinging it upwardly to remove it.

It will be apparent that the tray may be applied with only one side unlocked, by first placing the tray at an incline and inserting the hooked pins at the locked side in the reduced aperture and then swinging the tray downwardly at the unlocked side. However, the main purpose of the outwardly curving hooked pins is to provide an effective means of securely locking the tray and at the same time to render the unlocking of the pins at but one side of the tray sufficient to permit removal of the tray and to render it impossible to injure the tray and its pins by forcing it.

I claim:

1. In combination, a chair having arms, a tray or the like extending between the arms, said tray member having a depending transversely flattened pin at each end thereof, said flattened pins having widened heads at their lower ends, said arms each having a rectangular recess in its top surface along its inner edge, said arms being provided with spaced apart drainage holes extending through the arms from the bottom of the recess, said drainage holes also serving to receive the heads of the pins, a locking bar slidable on the bottom of said rectangular recess, said locking bar being arched or curved so that its ends only normally engage the bottom of the recess, a channel member in said rectangular recess inverted over and enclosing said locking bar, said channel member being curved oppositely to said locking bar with its ends normally elevated above its center, said channel member having a series of narrow transversely disposed rectangular apertures for selectively receiving said depending flattened pins, said locking bar having a series of key openings corresponding to the holes in the channel member, the enlarged portions of the said key openings being adapted to register with the holes in the channel to permit passage of the head of the pin therethrough, and the narrower or slot portions of the key openings being adapted when positioned above the head of the pin to prevent withdrawal thereof, said locking bar having a handle or finger piece depending therefrom, and said arm having a slot for receiving said handle and permitting movement thereof longitudinally of the arm, said arm having bolt holes in its ends, said channel having registering bolt holes in its ends, and said locking bar having bolt receiving slots in its ends registering with bolt holes, and bolts extending through said registering bolt holes for rigidly securing said channel member to the arm while permitting adjustment of tension and limited sliding movement of the locking bar, and nuts on the bolts.

2. Apparatus according to claim 1 in which said tray is provided with a pair of spaced pins at each end thereof, said spaced pins being disposed substantially centrally of the width of said tray, the width of said tray at said ends being greater than the length of the series of apertures so that the tray in any locking position overlies all of the apertures.

3. Apparatus according to claim 1 in which said tray is provided with a pair of spaced pins at each end thereof, said spaced pins being disposed substantially centrally of the width of said tray, the width of said tray at said ends being greater than the length of the series of apertures so that the tray in any locking position overlies all of the apertures, said spaced pins at each end being spaced apart a distance twice the spacing of the apertures.

4. In combination, a chair having arms with recesses in their upper faces and with a series of apertures spaced apart along the said recess and extending therefrom down through the arms, a plate overlying each of said recesses and having spaced apart apertures registering with the spaced apart openings of the arms, a perforated locking bar slidable in the recess and below the plate, a tray having headed pins to pass through the apertures in the overlying plates and the perforated locking plates, said locking plates having a finger piece for operating the same, the said openings through the arms serving to receive the headed pins and for drainage of spilled material, substantially as described.

5. In combination, a chair having arms, apertures in said arms, a locking bar slidable in each arm, said locking bar having openings therein registering with the arm apertures, said openings each having a narrow portion and a wide portion whereby when the bar is moved in one direction the arm apertures are reduced and when the bar is moved in the other direction the arm apertures are rendered unrestricted, a tray having hook-shaped means at its ends, said hook-shaped means at one end of the tray facing outwardly in the opposite direction from that in which the hook-shaped means at the opposite end of the tray faces, said hook-shaped means thus being constructed to pass through the apertures and to be applied and removed from said arms while but one locking bar is positioned to render the apertures unre-

stricted, regardless of the position of the other locking bar.

6. In combination in a high chair having arms, a tray extending between and overlapping the arms, said tray having depending pins at its ends, each arm having a series of apertures spaced therealong and extending therethrough from top to bottom, and a locking bar slidably supported by the arm and having openings to interlock with the pins, said apertures in the arms receiving the pins.

In testimony whereof, I affix my signature.

CARLTON V. KING.