

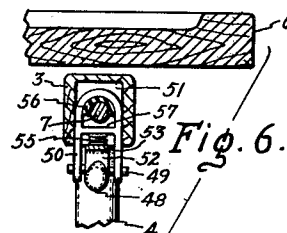
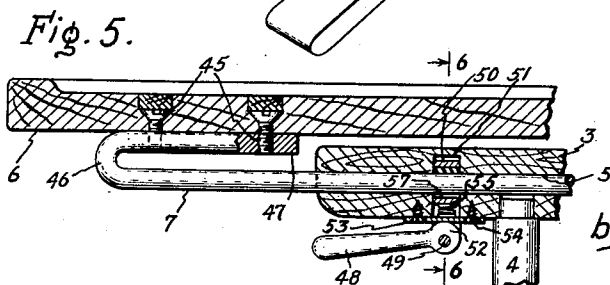
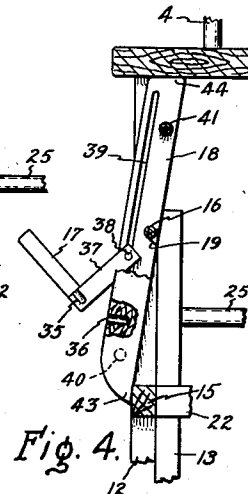
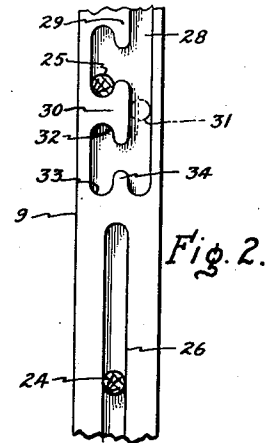
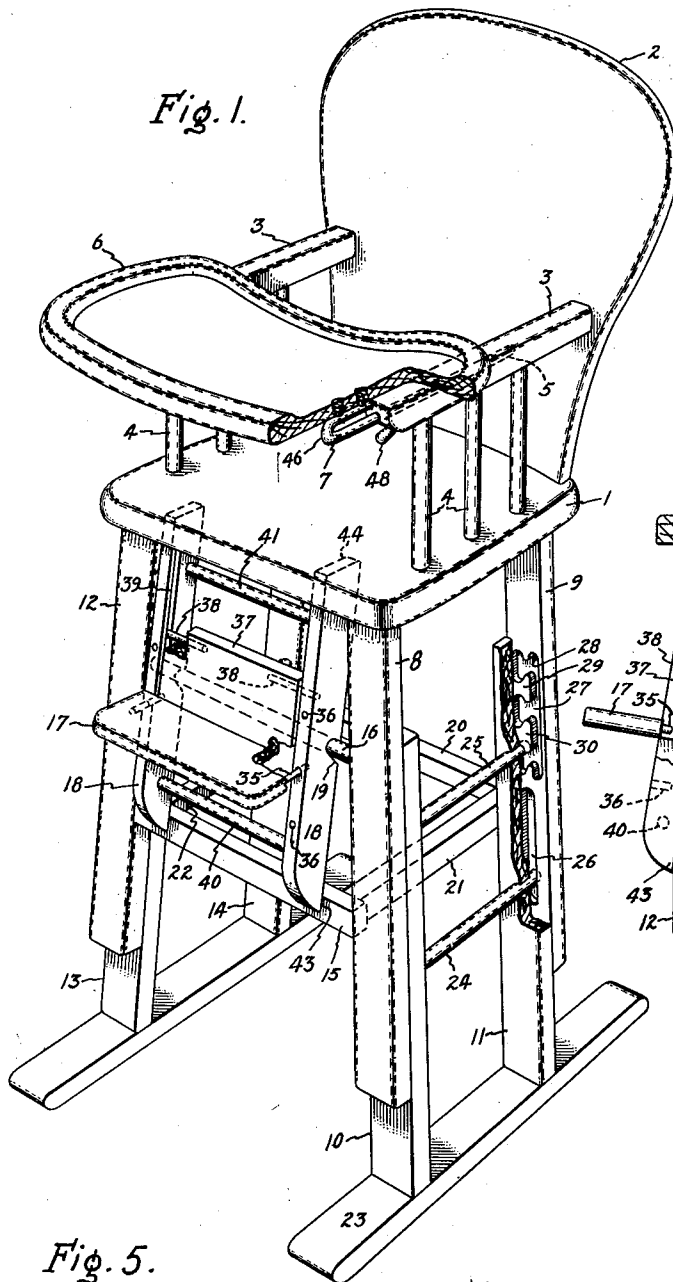
Oct. 23, 1956

G. T. DERBY

2,767,774

HIGH CHAIR WITH TRAY ATTACHMENT

Filed March 13, 1952



Inventor
George T. Derby,
by George H. Baldwin
His Attorney.

1

2,767,774

HIGH CHAIR WITH TRAY ATTACHMENT

George T. Derby, Jacksonville, Fla.

Application March 13, 1952, Serial No. 276,357

1 Claim. (Cl. 155—127)

My invention relates to adjustable high chairs, and more particularly to adjustable leg and tray arrangements particularly adapted to use in high chairs.

An object of my invention is to provide a high chair readily adjustable to be appropriate to the size of the infant or child who is to use the chair, and, further, to be accommodated to several types of use.

A specific object of my invention is to provide an improved tray and tray attachment for a high chair wherein the tray is readily removed from or locked into adjustable position on the high chair.

The novel features which I believe to be characteristic of my invention are set forth with particularity in the appended claim. My invention itself, however, both as to its organization and method of operation, together with further objects and advantages thereof, may best be understood by reference to the following description taken in connection with the accompanying drawing in which Fig. 1 is a perspective view of a high chair in accord with my invention; Fig. 2 is an enlarged detail partially sectional view of a portion of the leg adjusting arrangement of the chair of Fig. 1; Fig. 3 is a detail, partially sectional side view of the adjustable footrest portion of the chair of Fig. 1; Fig. 4 is a view similar to that of Fig. 3 demonstrative of the method of adjustment of the footrest; Fig. 5 is an enlarged sectional side view showing the adjustable mounting arrangement for the tray of Fig. 1; and Fig. 6 is a similarly enlarged sectional front view of the tray mounting arrangement.

As seen in Fig. 1, the high chair of my invention comprises the usual seat 1 and back 2. Arms 3 extends forwardly from the back and posts 4 support the arms from the seat in the usual manner. The forward end of each arm is drilled to form a cylindrical socket comprising cavity 5, the cavities of the two arms being parallel. A tray 6 is provided with a metal rod 7 underneath the tray at each side, the rods being parallel and arranged for sliding insertion into the respective arm sockets 5, in which they are clamped to support the tray in desired adjustable position by clamping means hereinafter specifically described in connection with Figs. 5 and 6.

Adjustments in height of the chair are afforded by the leg arrangement wherein four upper leg members are attached firmly to the seat 1 and extend downwardly therefrom to couple, in pairs, with pairs of respective lower leg members. Of the upper leg members, members 8 and 9 of the left hand pair are seen in Fig. 1 coupled to members 10 and 11 of the left hand lower leg member pair. Only the front member 12 of the right hand pair of upper leg members is seen in the drawing, although it will be understood that the leg arrangement at the right hand side, comprising the pair of lower leg members 13 and 14, is similar and complementary to the arrangement for the left hand side.

The front upper leg members 8 and 12 of the right and left pairs are braced and rigidly connected by a cross brace 15 and a dowel brace 16, each extending between the front upper leg members, and an adjustable footrest

2

platform 17 is supported by side rails 18 having notches 19 in which the dowel 16 is engaged.

The rear upper leg members are interconnected and braced by a cross brace 20, which extends from leg member 9 to the rear upper leg member (not shown) of the right hand pair. Side braces 21 and 22 are attached near respective ends of cross braces 15 and 20 to brace the upper leg members of each pair in parallel relation. While the leg members of each pair are parallel, they extend slightly outwardly from the sides of the chair.

The left hand side lower leg members 10 and 11 are interconnected by a foot 23 and by two dowels 24 and 25. Each dowel is rigidly attached to each of leg members 10 and 11, and each dowel extends through and slightly beyond each of members 10 and 11 at each end of each dowel. The protruding ends of the dowels act as pins to engage in channels formed in the inner faces of the lower portions of upper leg members 8 and 9. Of these channels, a lower straight channel 26 extends longitudinally along the upper leg member 9 in which it is formed, and the pin comprising the rearwardly protruding end of the lower dowel 24 is free to slide up and down in this channel.

The rearwardly protruding end portion of upper dowel 25 engages within an upper channel 27 in the inner face of leg member 9 and may slide freely up and down in a straight channel portion 28 or engage above or below a selected one of several lands 29, 30, two such lands being shown by way of illustration. The base of each land forms a rounded socket behind an enlarged portion which bounds longitudinal channel portion 28.

As seen in Fig. 2, dowel 25 is resting in a socket formed by the upper edge of land 30, while the lower dowel 24 is disposed within longitudinal lower channel 26. The particular position illustrated may occur when the chair has been tilted to lift the foot 23 from the floor. Under these conditions, and referring to both of Figs. 1 and 2, the left hand pair of legs may be extended by grasping dowel 25 between leg members 10 and 11, raising the dowel, and with it members 10 and 11, until it may be slipped out into channel portion 28, lowering the dowel 25 along the channel portion 28 through the intermediate position indicated by dotted lines at 31 and until the dowel can be slipped under land 30 and into the cavity bounded by the lower or socket side 32 of land 30, at the top, and by a socket 33 at the bottom of the channel. During this adjustment, dowel 24 travels downwardly in channel 26.

With the dowel pin portion trapped between sockets 32 and 33, under land 30, when the chair is standing normally on a floor, the upper dowel will engage socket 33, but if the chair is lifted or tilted, the dowel will fall into socket 33, being retained from sliding into the channel portion 28 by a small land or ear 34 dividing the portion 28 from the socket 33.

Referring particularly again to Fig. 1, it is to be noted that the overall length of channel 27, from top to bottom, is no greater, and preferably slightly less, than that length of leg member 11 which extends above the lower side of dowel 25. Accordingly, even though dowel 25 rests at the lowermost end of channel 27, the leg member 11 covers all of channel 27. Only during adjustments, when dowel 25 is in the portion 28 of channel 27, is any part of either channel exposed. As shown, the channels 26 and 27 extend only part way through the leg member 9.

Channels similar to those of leg member 9 are provided in the rear face of leg member 8, and the forward protruding ends of dowels 24 and 25 from pins which move in such channels simultaneously and with the same effect as the movements of the rearward protruding end portions or pins in the channels in leg member 9. The same arrangement, too, is provided for the right hand

pairs of leg members. Adjustment of the leg length on one side of the chair, accordingly, is followed by a similar equalizing adjustment of the legs on the other side.

By means of the adjustments, the height of the seat 1 may be varied from about 18 or 20 inches from the floor to about 26 or 28 inches. Such adjustments permit the chair to be used at an ordinary dining table with or without tray 6 attached thereto, or as a high chair of convenient desired height. If the child is assisted in his eating by a standing adult, the chair may be adjusted to full height, for example, while a seated adult may find assistance more readily given if the chair is at some intermediate height. As the infant progresses into childhood, the height of the chair may be from time to time suitably reduced. As such adjustments are made, it will also be found desirable to adjust the position of footrest platform 17 with respect to seat 1 and to adjust the position of tray 6 with respect to the back 2. Provisions for such adjustments are a part of my invention.

Footrest platform 17 is adjustably mounted to a pair of side rails 18 by means of dowel pins 35 extending rearwardly from near each end of the platform and entering drilled openings 36 in the side rails. The platform is further connected to the side rails through a generally vertical member 37 attached to the platform and disposed between the side rails. A dowel 38 extends outwardly from each end of member 37 and travels in a cooperating groove 39 in each side rail. The rails are held in parallel relation by braces 40 and 41 secured to each rail.

To adjust the position of the platform 17, it is tilted forwardly from the chair to remove dowel pins 35 from the pair of openings 36 in which they have been seated, the platform is moved, sliding dowels 38 along grooves 39, until the desired position is reached, and pins 35 are inserted in the appropriate desired different pair of openings 36.

Fig. 3 demonstrates, in partial cross section, the relation of the parts while the pins 35 are engaged to retain platform 17 in a predetermined position, while Fig. 4 shows the interrelation during adjustment with platform 17 swung forward, pivoting about the axis of dowels 38 which have turned and slid downwardly in grooves 39. As shown in Fig. 4, the pins 35 are arranged to enter the lowermost pair of the openings 36.

The mounting of the side rails 18 to the frame of the chair may be understood by reference to any of Figs. 1, 3 and 4. This mounting is accomplished by notches 19 formed in the rearward side of the rails. These notches receive the cylindrical brace 16 which extends between the forward upper leg members 8 and 12, and the rails are thus pivotally supported on this brace. The weight of the platform and rails is so distributed that these members tend to rotate counterclockwise, as seen in the figures about the brace, and the pressure of feet resting on the platform 17 increases this tendency. The rails are so proportioned that the lower ends 43 rest against the cross brace 13 of the front upper leg members and the upper ends 44 jam against the underside of seat 1 at the same time, to hold the rails 18 firmly in position. It is not essential that the top and bottom ends both meet some portion of the chair frame, although support is thereby afforded firmer than that which would exist if the tops jammed against seat 1 only without the lower ends 43 meeting brace 13, or vice versa.

Further portions of the chair and platform arrangement shown in Figs. 3 and 4 are numbered to correspond to the portions heretofore described in connection with Fig. 1.

The attachment means for tray 6 are disclosed in detail in Fig. 5. Metal rods 7 are attached to the body of the tray as by bolts 45 and are formed to extend rearwardly from the curved forward portion 46 in parallel directions under the tray to terminate approximately under the rear edge of the tray. The tray is attached to the arms 3 of the chair by inserting the free ends of the rods 7 in sockets 5 drilled longitudinally back into the arms

from the forward ends of the arms. Thus the tray may be positioned far back over the arms, leaving room between the tray and chair back for a small child, or less far back for a larger child, or the tray may be completely removed, for example, to permit use of the chair at a dining table.

While the rod curvature at 46, as shown, is abrupt, and the rod at its bolt attached end 47 is not flattened, whereby the rearward positioning of the tray is limited by the contacting of the forward ends of the arm by rod ends 47, it will be apparent that ends 47 may be flattened or countersunk into the undersurface of the tray, that the top of the arm ends may be grooved to receive ends 47, or that the curvature at 46 may be of greater radius, whereby the rods could slide further into sockets 5 until curved portions 46, for example, would meet the extreme ends of the arms. Whether or not such provisions should be made is determined by the proportions of the arms and tray and of other portions of the chair.

A clamping device is arranged in and under each of arms 3 to retain the rod 7 in its adjusted desired position. This device comprises an operating handle 48 pivotally attached by a pivot pin 49 to the lower portion of a yoke or strap member 50 which extends upwardly from pin 49 into a mortise-like cavity 51 of the arm 3 and is movable selectively upwardly and downwardly by operation of the handle 48. This movement of the yoke occurs as a result of the offset or cam head 52 of the handle which engages a plate 53 spanning the cavity and held in place by screws 54. Plate 53 partially covers the lower open end of the cavity, leaving space for the lower yoke ends to pass below the plate.

The arrangement is such that motion of the handle 48 into a downwardly extending position releases pin 49 to permit the pin to travel slightly upwardly, in response to the upward biasing force of spring 55, while rotation of the handle into the approximately horizontal forward position shown in Fig. 5, through cam action of head 52 on plate 53, pulls pin 49 forceably downward. The cam is preferably formed to provide a slight over-center action as handle 48 is rotated far enough to engage the underside of the end of the arm 3, just above the handle position of Fig. 5. A continuous upward biasing force on yoke 50, and thus on pin 49, is furnished by a compression spring 55.

The action of yoke 50 on rod 7 can be further understood by reference to the sectional view of Fig. 6, wherein it will be seen that pin 49, which is raised and lowered by cam head 52 in accord with the position of handle 48, is anchored in yoke 50 and selectively pulls yoke 50 downwardly to bear heavily, through a friction shoe 56, against rod 7 or to release the yoke for upward motion under the influence of spring 55. The upward force of spring 55, in the construction shown, is applied against a web 57 formed as a part of the yoke, and the lower end of the spring is seated against the upper side of plate 53.

The clamping mechanism may be readily detached or installed since it is a unit, and it is held in place entirely by screws 54. Spring 55, when handle 48 is in a downward or backwardly extending position, lifts the top of the yoke and shoe 56 above the line of socket 5 and high enough to be completely out of contact with the rod 7 when it is inserted in the socket. Cavity 51, accordingly, intersects and extends upwardly completely through and beyond the socket 5 sufficiently to permit yoke 50 to rise above its clamping position, as best seen in Fig. 6.

If desired, the tray 6 may be conveniently stored when not in eating position by inserting the left hand tray rod in the cavity of the right hand arm, or vice versa, permitting the tray to hang along one side or the other of the chair.

While I have shown only certain preferred embodiments of my invention by way of illustration, many modi-

5

6

fications will occur to those skilled in the art, and I therefore wish to have it understood that I intend, in the appended claim, to cover all such modifications as fall within the true spirit and scope of my invention.

What I claim as new and desire to secure by Letters Patent of the United States is:

In a high chair having a tray with a pair of parallel bars affixed under said tray, a pair of forwardly extending arms with a respective elongated socket extending rearwardly in each said arm from its forward end, said sockets being parallel and receiving said respective bars in a sliding fit therein, each said arm having a cavity opening through its lower surface and extending upwardly through and above said socket thereof, each cavity having opposite sides toward the respective sides of its chair arm, a strap of generally inverted U shape disposed in each said cavity bridging over the respective bar in said socket and having leg ends extending downwardly below said lower surface at said respectively opposite sides of the respective cavity, a plate for each cavity narrower than the cavity attached at respective end portions of the plate under said arm and extending between the legs of the respective strap, a compression spring above and bearing on said plate disposed between said legs of each respective said strap, a web attached to and extending between the legs of each said strap engaged with the respective spring thereby to urge said strap upwardly in said cavity, a circular cam pivoted between said leg ends of each said strap, a respective operating handle

joined to each said cam, each said cam bearing on the underside of the respective plate and being operable by its said handle between predetermined positions to force said strap downwardly against the force of said spring into a predetermined bar-locking position and alternately to release said strap for raising by said spring into a predetermined bar releasing position, each said web being spaced from the upper end of its strap to lie below the socket when the strap is in its said bar-releasing position, and a friction shoe attached within the upper end of each said strap and above the respective bar compressed by the strap against the bar when the strap is in its said predetermined lowered bar-locking position and raised above said socket when the strap is in its said predetermined bar-releasing position.

References Cited in the file of this patent

UNITED STATES PATENTS

20	550,613	Harvey	Dec. 3, 1895
	649,831	Fuller	May 15, 1900
	724,475	Hilmo	Apr. 7, 1903
	1,505,518	Workman	Aug. 19, 1924
	1,540,616	Hagopian	June 2, 1925
25	1,787,108	Harter	Dec. 30, 1930
	2,478,280	Kroll et al.	Aug. 9, 1949
	2,516,265	Shulman	July 25, 1950
	2,546,871	Schley	Mar. 27, 1951
30	2,563,347	Long	Aug. 7, 1951