April 7, 1942. C. G. CARLSON 2,278,414

INFANT FURNITURE

Filed Nov. 20, 1939

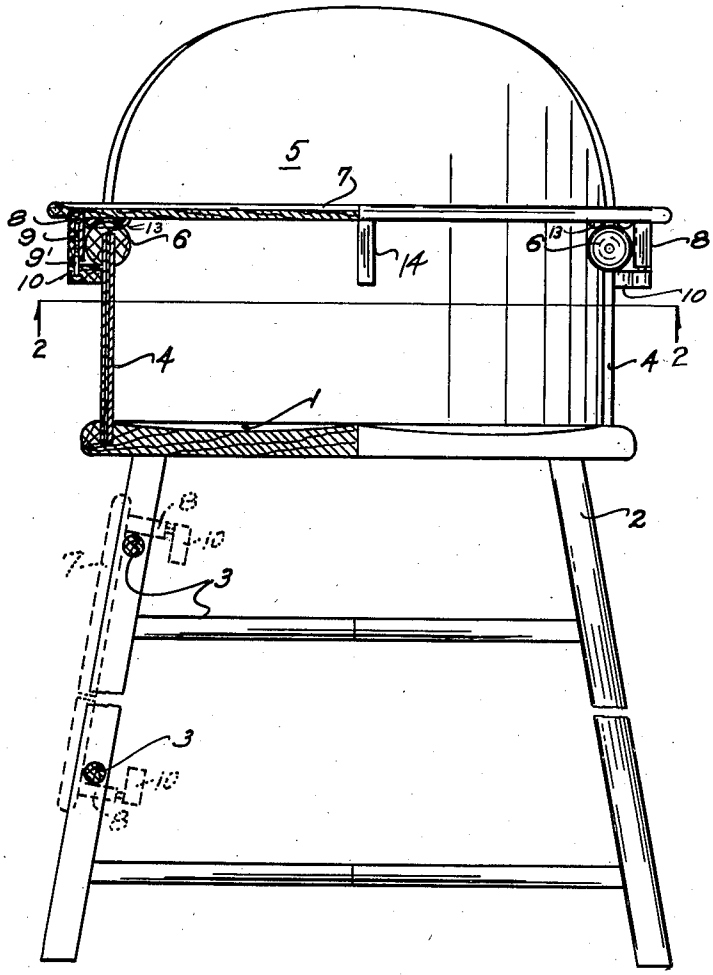


FIG. 1

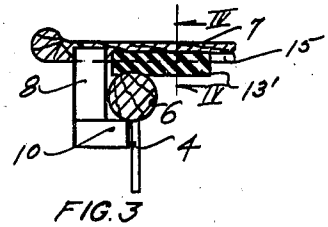


FIG. 3

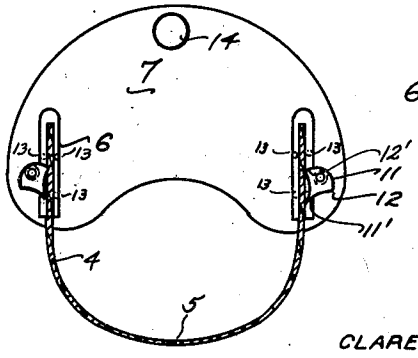


FIG. 2

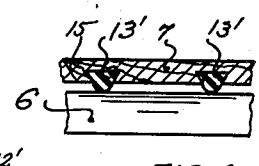


FIG. 4

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INFANT FURNITURE

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3 Claims. (Cl. 155—127)

This invention relates to high chairs and more particularly to the method of, and apparatus for, the securement and the removal of a tray with respect to such chair.

Various devices have been employed for removably securing a tray and guard on the arms of high chairs upon which a child's food or toys may be placed and by which he is prevented from leaving the chair.

The instant invention concerns itself with simple and positive means of economical construction for effecting this general end. It is also an object of this invention to provide a mechanism whereby the tray is easily secured and removed on and from the high chair.

It is another object of this invention to provide means of securement which permits a pleasing design to inhere in the chair when the tray is removed.

It is another object of this invention to provide for securement of the tray in an unlimited number of positions on the arms of the chair.

It is another object of this invention to provide for securement of the tray on the chair in such manner as to avoid the possibility of rattling the tray by the child.

It is another object of this invention to provide a chair and tray ensemble such that both are free of detritus-gathering interstices.

It is another object of this invention to provide a chair and tray ensemble for movement as a unit in two different relationships.

It is a further object of this invention to provide two independent means of locking the tray to the high chair.

A further object of the invention is to render it impossible for a child to release the tray when properly fastened.

Other objects will appear from a consideration of the following specification in which reference is had to the drawings attached hereto, in which:

Figure 1 is a fragmentary front view, partially in section, of a chair ensemble;

Figure 2 is a bottom view as in the direction 2—2 in Figure 1;

Figure 3 is a fragmentary section of a modification; and

Figure 4 is a section at line IV—IV of Figure 3.

A chair comprising a seat 1, legs 2, and rungs 3, with plywood sides 4 and back 5, is provided with the wooden arm rests 6 having undersurface portions which overhang, or project outward, with respect to the sidewalls 4.

A wooden tray 7 is provided with depending hard-wood posts 8 at a distance apart to clear the arm rests slightly, to the lower end of each of which posts there is pivoted, in spaced relation thereto, as by means of a deep-seated wood screw 9 having a bearing shank 9', an arm 10 having a circular surface a portion of which forms a gripping-surface 11 and a convergent tail-piece 11' so proportioned and pivoted that the other circular portions clear the arm rests 6 when their median plane of symmetry is normal to the arm rests, and that the available lever arm for securing the tray is long, whilst the available lever arm to release the tray is relatively short after movement of the arm to secured position.

As illustrated in the drawing, the pivot point of arm 10 is close to the surface 11, that is, nearer to the surface 11 than the center of curvature of surface 11. Therefore, when arm 10 rotates, that part of the surface 11 which is nearest to the pivot point (shank 9') always lies in extension of the round post 8. Accordingly, when the tail-piece 11' is disposed outward so that the line through it and the pivot point is substantially at right angles to wall 4, the said nearest part of surface 11 is disposed to clear the arm rest 6.

Since the shoulders 12 and 12a are farther from the center of rotation of arm 10 than the said nearest part of 11, the circular surface 11 must necessarily approach and engage wall 4 as the shoulders 12 or 12' are moved in rotation about the pivot. Circular surfaces 11 of the opposed arms 10, incident to the rotation of the arms to the position of Figure 2, act in opposition to engage the opposite walls 4 with a cam action which squeezes the walls towards each other and act to grip the walls therebetween causing an inward deflection of the walls which may be utilised for locking the tray to the arms as later described.

The head of the screw 9 forms a thrust bearing for the arm 10. The clearance between the post 8 and the arm 10 permits adjustment of the screw 9 to take up slack produced by wear of buttons 13, hereinafter described.

These attributes are somewhat obvious from a consideration of the drawing, it being observable that tailpiece 11' lies against the side 4 when in secured position so that it is impossible for the child to get his fingers between the same, and to exert a force on the end of this tailpiece to release the tray. An adult possesses the necessary strength to engage the arm at the shoulder 12 to thereby effect opening by a shorter lever arm. It will be noted that the arms 10 may be rotated

in either direction to secure the tray, rearward being preferable.

In the secured position, there is a slight clearance between the bottom of the tray and the arm rests which is maintained by groups of resilient buttons 13, as of rubber, which are so proportioned and arranged as to be compressed when the arms 10 are rotated to secured positions. It will be observed that the groups of buttons 13 are further arranged to receive the arm rests saddle-fashion, and so that the line of pressure of the arm 10 passes therebetween. Accordingly, each side of the tray is independently fastened, a feature of additional safety.

The buttons 13 are also distributed forwardly and rearwardly of the posts 8 to insure equality of pressure and true level of tray surface.

When the tray is not in use the arm and post units may be hooked over the rungs of the chair, as shown in dotted lines, so that the chair and tray may be moved about as a unit without securement of the tray to the arm rests.

Reference to Figure 2 discloses that, if desired, the arcuate extent of surface 11 may be made such that the shoulder 12', in its movement to the illustrated position, deflects wall 4 inwardly, and releases the wall slightly in the position shown so that the wall presses on the shoulder 12' and tail piece 11'. In this way a self locking effect may be attained, the side walls 4 pressing outwardly to hold the arms 10 in secured position.

Means are provided to permit tray 7 to be loaded while resting in level position on a flat surface, which consists in a leg 14, of a length equal to the distance of the lower side of arm 10 from the bottom of the tray 7, secured to the tray 7 near the forward edge of the tray. Leg 14 and the fastening devices 8 and 10 form a three legged table which can rest on any desired level plane to receive dishes or the like prior to lifting the same for carrying to the chair.

In the modifications of Figures 3 and 4, instead of using buttons of rubber, as employed in the first described modification, the bearing member is formed of a generally V-sectioned strip of rubber 13' dovetailed into a dovetail recess 15 in tray 7. With this modification arm 10 may bear directly on the lower end of post 8, and, in order to compensate for the flattening of the strip 13' with repeated use, portions of the strip so flattened may be cut-off and the strip moved in groove 15 to line up a new edge to take the thrust of arm 6.

I claim:

1. In combination, a high chair having side members providing undersurfaces, a tray, and means on said tray for engaging said undersurfaces comprising an arm having a tailpiece, the arrangement being such that said arm provides a long leverage for its movement to its securing position, and only a shorter leverage for movement to release the tray.

2. In combination, a high chair having a seat, a back, and arm rests, means integral with and forming a continuation of said back extending to form supports for said arm rests and rigidly secured to said seat and to said arms, said means and said back being such that the supports for said arms are resiliently deflectable inwardly upon exertion of a compressive force on the opposed supports, and said arm rests being larger than said supports and extending laterally with respect thereto, a tray, and means on said tray cooperative with said supports to utilize the resiliency thereof to securely fasten the tray to the chair, against the arm rests.

3. In combination, a high chair having a seat, a back, and arm rests, means resiliently supporting said arm rests for deflection upon exertion of a force on the opposed supports, a tray, means comprising a pair of posts projecting downwardly from said tray beside the arm rests, a pair of rotatable members, and means associated with said members forming latches, said rotatable members being rotatable on said posts and adapted to engage and deflect said supporting means, and to latch said tray to said arm rests.

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