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TRAY LATCHING MECHANISM FOR HIGH CHAIRS

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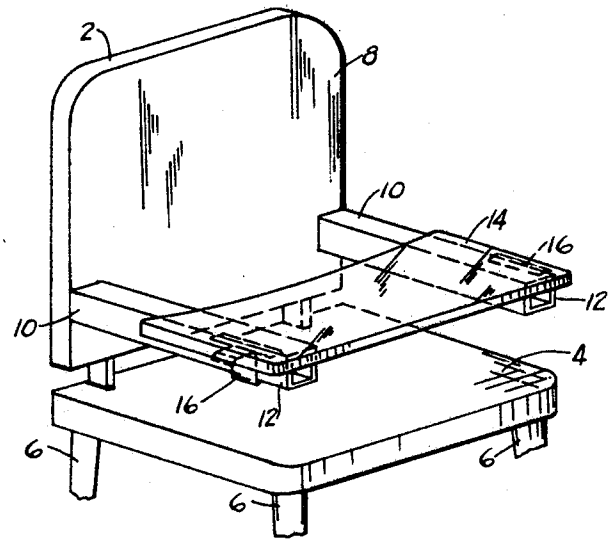


FIG. 1

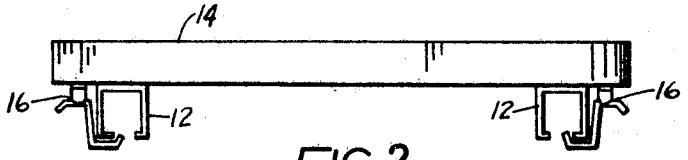


FIG. 2

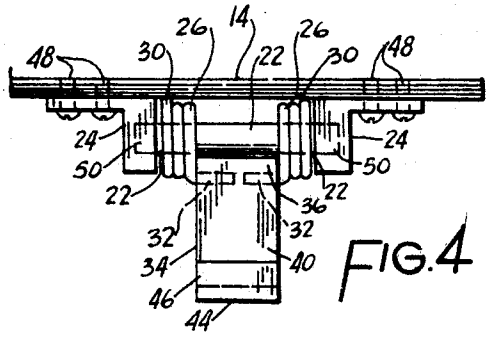


FIG. 4

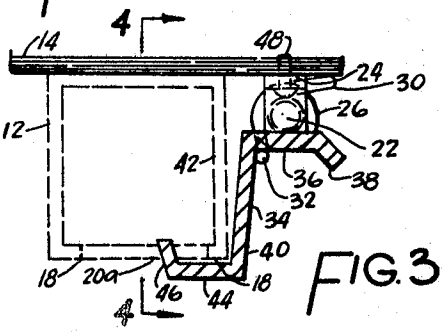


FIG. 3

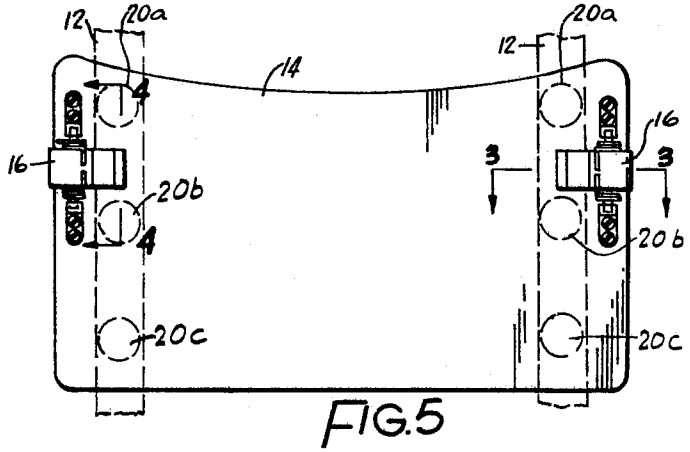


FIG. 5

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TRAY LATCHING MECHANISM FOR HIGH CHAIRS

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U.S. Cl. 297—153 1 Claim

ABSTRACT OF THE DISCLOSURE

A high chair with side arms formed of hollow tubing having holes in their lower surfaces. An adjustable tray has a pair of spring biased levers with upwardly extending fingers which are extended into the holes in the tubing.

This invention relates to a high chair for children and particularly to an improved means for adjustably fastening the tray section of the high chair to the side arms thereof.

The type of high chair with which this invention is concerned is one which is very widely used. In the chair of this kind a rectangular horizontal seat portion is supported at each corner by legs which may be attached directly to the seat portion or to a frame which in turn carries the seat portion. In another conventional method of construction, pairs of metal legs may actually form part of a support frame by their inverted U shape configuration in which cross bars serve as frame members supporting the seat structure.

A chair back is connected to the seat portion or frame thereof at the rear thereof, or a frame structure supporting the back is so connected. Horizontal side arms which extend forwardly of the seat back are fastened at the rear ends thereof to the back or may be formed integral with the frame which is shaped in such a manner that sections of it form such arms. An example of the latter is a frame structure comprising a pair of U shaped members vertically oriented with the bight portion generally perpendicular to the seat and adjacent to the seat back with the lower side of each forming part of the frame supporting the seat and the upper sides forming the arms of the high chair.

In each instance a tray section is removably and adjustably supported on the side arms.

As is familiar, such tray serves not only as a surface for serving the child's meals, play surface and the like, but in addition secures the child in the chair and thus prevents him from accidentally tumbling from the chair and being injured.

For these reasons it is essential that the tray be attached to the arms in a secure and reliable manner to insure against the child dislodging it, spilling food, breaking dishes, or worse, injuring himself.

Besides the essential requirement that the tray be secure, it is extremely important from the practical standpoint that it be easy to adjust longitudinally of the arms and also be completely removable. These features are important to allow the chair to adjust to the individual child over a growing period, to permit placing the child in the chair and removing him from it readily, as well as the proper cleansing of the tray which is necessary quite often with the average child using a high chair.

While some of these objectives have been accomplished by various prior art devices for securing the tray to the arms, they have often been extremely complex, expensive, highly susceptible to malfunction, and often inconvenient to operate.

The present invention overcomes these deficiences by

providing a tray latching mechanism which is safe, efficient, simple in construction, and easy to operate.

The latch mechanism of this invention comprises in combination each of the side arms of a hollow construction in which the lower surface of the arms or tubings are provided with holes, and each side of the lower surface of the tray outwardly of the arms being provided with a hand operated lever which is spring biased against the outer surface of the tubing forming each arm and has an upwardly directed finger at the inner end thereof which fits into the holes of the lower surface of the tubing.

The engagement of the levers in the holes forms a secure, but adjustable, fastening of tray to the arms. The tray may be conveniently repositioned or removed entirely by a slight, manually applied, pressure on the outer hand gripped portion of the levers to overcome the biasing of the springs.

Additional advantages and features inherent in the present invention will be apparent from a consideration of the following description of an illustrative embodiment of the invention which is meant to include any obvious equivalents thereof within the purview of those skilled in the art.

In the following description reference is made to the accompanying drawings forming a part of the specification, wherein like numbers refer to like parts throughout, in which:

FIG. 1 is a partial perspective view of a high chair incorporating the improved latching mechanism of the present invention.

FIG. 2 is a front view of the tubings forming the arms of the chair with the tray in place thereon.

FIG. 3 is a sectional view taken along lines 3—3 of FIG. 5 showing in enlargement the latching mechanism with the arm-tubing in outline.

FIG. 4 is a sectional view, taken along line 4—4 of FIG. 3 and FIG. 5.

FIG. 5 is a bottom view of the tray section, with the arm-tubing shown partially in outline.

In FIG. 1 there is shown a high chair **2** having a seat portion **4** supported by four legs **6**. In the embodiment illustrated, the legs **6** are attached directly to the seat portion **4**, but it is apparent that they could carry a frame section to which in turn the seat would be attached. Likewise, a back **8** is shown attached directly to the rearward edge of the seat portion **4**, but could likewise be connected to a frame.

A pair of side arms **10** are attached to the outer section of the front surface of the back **8** and extend forwardly and generally parallel to the side edges of the seat portion **4**.

According to the present invention, the side arms **10** are made in the form of hollow longitudinal tubings **12**. The tubing **12** supports the tray **14** which is securely, but adjustably fastened to the tubings **12** by the latch mechanisms **16** as shown generally in FIGS. 2 and 5. It will be understood that the arm may be solid with a hollow tubing secured underneath the same and said hollow tubing be provided with holes.

The latching mechanism **16** for one side of the tray is shown in greater detail in FIG. 3 and FIG. 4.

The lower surface **18** of the tubing **12** has a plurality of holes **20***a*, *b* and *c* formed therein which runs longitudinally of the tubing.

While the drawing illustrates three such holes, there may, of course, be more or less depending upon the number of adjustments desired.

A shaft **22** is carried by a pair of generally L shaped support members **24**. A pair of coiled springs **26** are carried on the shaft **22** and spaced longitudinally of each other by the lever **34**. The end **30** of each spring terminating away from the lever **34** is biased against the un-

derside of the tray **14**, and conversely the terminal portion **32** of each spring is turned generally perpendicular to the plane of the coil and biased against the under surface of the lever **34**.

The lever **34** has an upper horizontal segment **36** which is held against the shaft **22** by the force of springs **26** acting through the terminal portions **32** of the springs. A diagonally depending section **38** integral with outer portion of segment **36** forms, together with segment **36**, a suitable gripping surface for the operation of the mechanism **16** by hand. At the inner portion of segment **36** the lever **34** turns downward into a depending segment **40** which is approximately perpendicular to segment **36**. The interior of the angle formed by the juncture of segment **36** and segment **40** serves to retain the terminal portions **32** of the springs **26**.

Segment **40** of the lever **34** generally parallels the outer side **42** of the tubing **12** and is of such length as to extend slightly below the lower surface **18** of the tubing **12** when the tray **14** is resting on the tubing **12**. The lever **34** is then formed into a base segment **44** which joins the segment **40** at approximately a right angle and is of such length that a terminal upwardly projecting finger **46** fits into the hole **20***a* in the undersurface **18** of the tubing **12**.

As shown most clearly in FIG. 4, the L shaped support members are each fastened to the lower surface of the tray **14** by fastening means **48** which in the embodiment illustrated are screws. Any other conventional means such as rivets and the like may be employed.

A recess **50** in the depending part of each L shaped support members **24** retains the shaft **22** in place.

The operation of the latch is simple and direct.

With the tray **14** in place on the tubings **12** the levers **34** are urged against the outer sides **42** and lower surfaces **18** of the tubings **12** by the springs **26**. The fingers **46** of the levers **34** are positioned in a pair of the holes **20***a* of the tubings **12**. The tray **14** is thus positively locked against any lateral movement.

The firm contact of the upper surface of base segment **44** of the lever **34** with the lower surface **18** of the tubing **12** serves to prevent the tray from sliding forward or backward on the tubings once placed in the desired position.

To adjust the position of the tray **14** on the arms **10**, one merely has to press up on the levers **34** at the sections **38**, overcoming the spring tension, and moving the levers **34** out of contact with the tubings **12**, and slide the tray **14** to the desired position, or slide it entirely off if necessary.

While the invention has been explained by a detailed description of certain specific embodiments, it is understood that various modifications and substitutions can be made in any of them within the scope of the appended claim which is intended also to include equivalents of such embodiments.

What is claimed is:

1. In a high chair comprising a rectangular horizontal seat portion, legs supporting said seat portion, a seat back extending upwardly from the rear of said seat portion, a pair of fixed side arms spaced above the side edges of said seat portion and parallel thereto, said side arms being fixedly mounted on said seat back and extending outwardly therefrom in a generally perpendicular direction to form a cantilever support, a tray supported on top of said pair of side arms, and including the combination wherein said side arms are hollow, the lower surface of each arm has a hole therein, said tray is adjustably and removably secured to said arms by means of a pair of latches, said latches being pivotally mounted on said tray with said latches movable to a position away from said side arms to allow said tray to be lifted from said side arms, each of said latches being positioned on the lower surface of said tray inwardly of, but adjacent to the respective side edges of said tray, and outwardly of said arms, each of said latches comprising a shaft which is oriented parallel to said arm, spaced vertically from said tray and supported at each end by support means fastened to said tray, a pair of coiled springs carried axially on said shaft, a lever positioned intermediate of said springs below said shaft and spacing said springs longitudinally of each other on said shaft, the end segment of each spring away from said lever being extended away from said arm and from the coil of the spring at a point above said shaft and is of a length sufficient to engage the lower surface of said tray, the terminal segment of each spring adjacent said lever being turned perpendicular to the plane of the coil of the spring and parallel to said shaft thereby forming, in cooperation with the other spring, a biased support for said lever, said lever comprising, integrally, an end segment extending outwardly of said shaft, a horizontal portion inward of said end segment in tangential contact with the lower surface of said shaft a segment depending from said horizontal portion and adjacent the outer side of said arm and extending below the lower outer surface of said arm, a lower horizontal base segment running inwardly from said depending portion and terminating in an upwardly projecting finger adapted to normally extend into said hole in said arm.

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