Jan. 15, 1957 W. J. GRACE 2,777,503

FOLDING HIGH CHAIR

Filed May 9, 1955 2 Sheets-Sheet 1

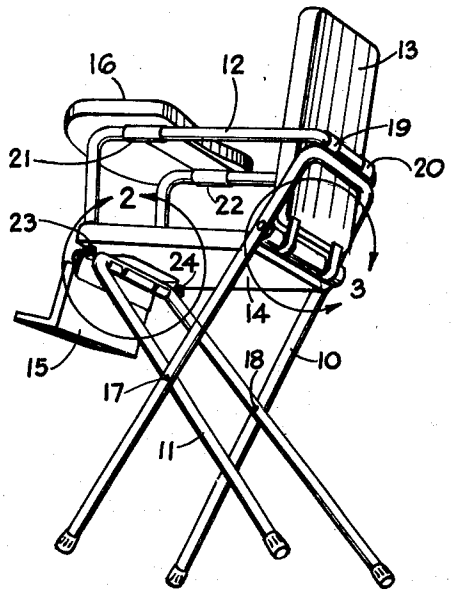


FIG. 1

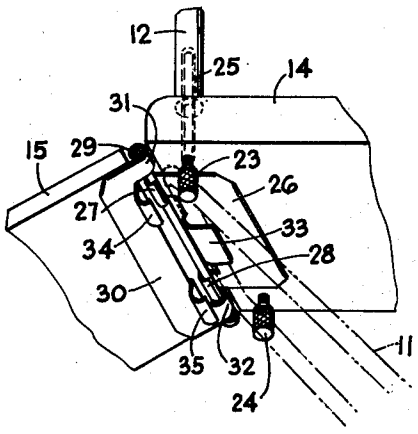


FIG. 2

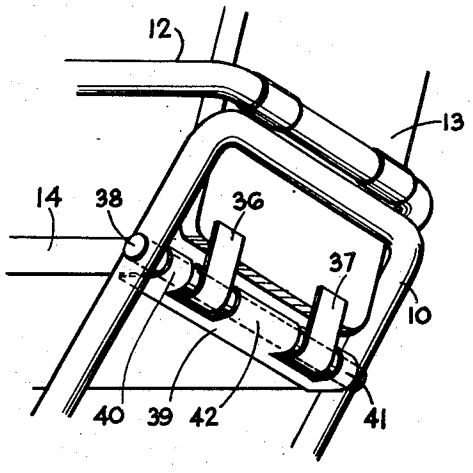


FIG. 3

INVENTOR.
WILLIAM J. GRACE
BY Elliott & Pastoriza
ATTORNEYS

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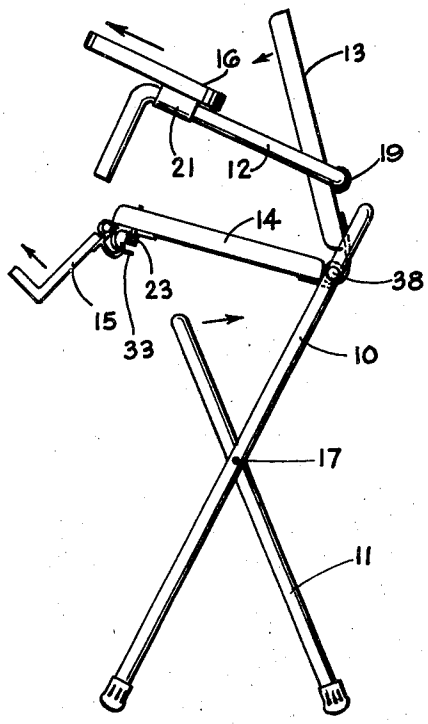


FIG. 4

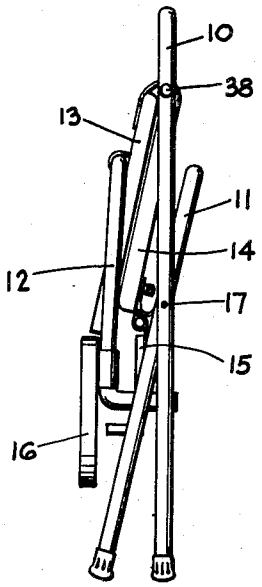


FIG. 5

INVENTOR.
WILLIAM J. GRACE
BY Elliott & Pastoriza
ATTORNEYS

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FOLDING HIGH CHAIR

William J. Grace, Santa Monica, Calif.

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4 Claims. (Cl. 155—147)

This invention relates generally to chairs for seating and/or feeding young children, and more particularly to an improved high chair which may be conveniently folded into a compact structure when not in use.

The advantages of a reliable and inexpensive folding type high chair for children, especially in crowded living conditions, are apparent. It is important that such a high chair not collapse unintentionally as some prior art type of conventional chairs are prone to do. Further it is desirable that the chair be rugged, inexpensive, and simple to operate.

A primary object of the present invention accordingly, is to provide a folding high chair which is sturdy and dependable when in unfolded, operative position, and yet one which may be easily folded without the use of special tools and the like.

More particularly, an object is to provide a folding high chair of the above type which is adapted to stand by itself when folded, or be easily carried about while in such position.

Another important object of the invention is to provide a folding high chair which employs a minimum number of standard movable pieces whereby its cost of manufacture is minimized.

These and further objects and advantages of this invention are attained by providing seven basic elements or pieces which may each be mass produced and which, when coupled together, form a sturdy and secure foldable high chair for children.

Two of the basic elements comprise first and second inverted U shaped members having their legs respectively pivoted together in scissors fashion to form a supporting structure for the remaining elements. Three other members respectively provide a back rest, seat, and foot rest. The front edge of the seat member is coupled to the upper edge of the foot rest and to the central portion of the second inverted U shaped member. The rear edge of the seat is similarly coupled to the lower edge of the back rest and to the upper portion of the first inverted U shaped member.

A third U shaped member is horizontally positioned to encircle the rear portion of the back rest to which it is pivoted. The free ends of this third U shaped member extend forward above the seat to form arm rests terminating in downturned ends adapted to rest on the top front edge corners of the seat. A tray member is slidably secured between the arm rests. Temporary securing means are provided for holding the downturned end portions of the arm rests securely to the seat, and a further locking means is provided on the foot rest and arranged, upon downward swinging movement of the foot rest to operative position, to secure the central portion of the first U shaped member in position.

To fold the chair, it is only necessary to remove the

temporary securing means from the arm rests, swing the foot rest upwardly to unlock the second U shaped member, and then scissor the structure together. The tray and arm rests swing downwardly into a compact position with the first and second U-shaped members, and the upper central U shaped portion of the first U shaped member provides a convenient carrying handle.

A better understanding of the invention will be had by referring to the accompanying drawings, in which:

Fig. 1 is a perspective view of the folding high chair of this invention in unfolded, operative position;

Fig. 2 is an enlarged perspective view of that portion of Fig. 1 enclosed by the circular arrow 2;

Fig. 3 is an enlarged perspective view of that portion of Fig. 1 enclosed in the circular arrow 3;

Fig. 4 is a side view of the chair of Fig. 1, during an initial stage of the folding operation; and,

Fig. 5 is another side view of the chair in its completely folded position.

Referring to Fig. 1, the high chair is shown in unfolded operative position as comprising first and second inverted U-shaped members 10 and 11. The free ends of these U members form the four supporting legs for the chair. A third U shaped member 12 is in a generally horizontal position. These three U members are preferably formed from metallic tubing and each may be inexpensively mass produced in its own particular shape.

The remaining elements of the chair comprise a back rest 13, a seat member 14, a foot rest 15, and a tray 16. These latter four elements may be formed from metal, wood, plastic or any other suitable material. As in the case of the U shaped members, each may be inexpensively mass produced in its own form. In accordance with the invention, these seven basic elements are coupled together to form a reliable, simple, and inexpensive folding high chair.

As will be clear from Fig. 1, the second inverted U-shaped member 11 is made shorter and narrower than the first member 10 whereby it may be nestled between the legs of the first member. As shown, the respective legs of the members 10 and 11 are pivoted intermediate their ends in scissors fashion as at 17 and 18. The central U shaped portion of the third U member 12 is arranged to encircle the rear of the back rest 13 and is pivoted thereto by means of small metal strips 19 and 20 encircling the central portion of the U member 12 and fixedly secured to the back rest. This pivoted connection is spaced above the lower edge of the back rest 13 whereby the central U portion serves to support the back rest.

The free ends of the U member 12 extend forward above the seat 14 to form arm rests terminating in downwardly turned ends adapted to rest on the top front edge corners of the seat 14. The tray 16 may be slidably secured to these arm rest portions by means of small metal bands 21 and 22 which encircle portions of the arm rests and have their ends fixedly secured to the underside of the tray. The downwardly turned end portions of the arm rests are adapted to be held against the top of the seat by temporary screw means.

A first coupling means is provided for pivotally connecting the front edge of the seat 14, and upper edge of the foot rest 15 to the central portion of the second inverted U-shaped member 11. A second coupling means similarly pivotally connects the rear edge of the seat 14 and lower edge of the back rest 13 to the central portion of the first inverted U shaped member 10. The first coupling means, as well as the temporary secur-

ing means, are shown in greater detail in the enlarged view of Fig. 2.

As shown in Fig. 2, the downwardly turned end portions of the U shaped member **12** are adapted to threadedly receive the ends of cooperating knurled screw members **23** and **24**, passing up respectively through suitable bores in the front edge corners of the seat **14**. These knurled screws may be manually operated to securely lock the arm rests to the seat, yet be easily unthreaded by hand to release the arms when it is desired to fold the chair, as will become clearer as the description proceeds.

The first coupling means includes a plate member **26** secured under the front edge of the seat **14** and provided with forward corner tabs **27** and **28** encircling the end portions of a pivot pin **29**. A similar plate member **30** is fixedly secured to the upper edge of the foot rest **15** and provided with forward corner tab elements **31** and **32** also encircling portions of the pivot pin **29**. The plate member **26** on the underside of the seat **14** has its center forward edge curved downwardly and rearwardly to form a hook **33** adapted to receive the central U shaped portion of the second inverted U shaped member **11**. In order to secure this portion within the hook **33**, portions of the plate member **30** on the upper edge of the foot rest are bent down to form locking hooks **34** and **35**. These hooks are adapted to engage and secure the central portion of the second inverted U shaped member **11** within the hook **33** when the foot rest is swung downwardly in the direction of the arrow into its unfolded operative position. In Fig. 2 the foot rest is shown swung slightly outwardly to illustrate the locking hooks clearly.

It will be evident that with the knurled screws **23** and **24** tightened to hold the arm rests securely to the seat, and with the foot rest swung down into proper position, the chair will be securely locked in unfolded position and cannot be inadvertently collapsed. An infant's feet resting on the foot rest in addition to gravity will insure that the foot rest remains in its operative position so that there will be no possibility of the central portion of the second inverted U shaped member **11** coming out of the hook **33**.

In Fig. 3, the second coupling means pivotally securing the rear edge of the seat **14**, the upper portions of the first U shaped member **10**, and the lower edge of the back rest **13**, are shown in greater detail. Rigidly attached to the lower corner portions of the back rest are strips **36** and **37** having their free ends encircling the end portions of a pivot pin **38**. A journalling means **39** rigidly secured along one edge to the underside of the rear edge portion of the seat **14**, has its other edge designed to journal the pivot pin **38**. Portions of this edge are cut away to accommodate the strips **36** and **37** and to define outer corners **40** and **41**, and a central portion **42** journalling the pivot pin.

By the above described arrangement, it will be apparent that once the arm rest securing means in the form of the knurled knobs **23** and **24** are unlocked, the back rest **13**, together with the arm rests, may move forward, the lower edge of the back rest pivoting about the pivot pin **38**. Additionally, once the second U shaped member **11** is unlocked from under the front edge portion of the seat **14** as described previously, the seat may also pivot about the pivot pin **38** independently of the motion of the back rest.

The operation of the folding high chair will be evident from the above description. When it is desired to fold up the chair from the operative position shown in Fig. 1 to a compact position for storing purposes, the tray member **16** is first moved forward on the arm rests as indicated by the arrow in Fig. 4 and the knurled knobs **23** and **24** unlocked from the arm rests. The leg rest **15** is then swung outwardly and upwardly to separate the central upper portion of the second U shaped member **11** from the hook **33** as also indicated by arrows in Fig. 4.

The upper portion of the second U shaped member **11** is then scissored about the pivot points **17** and **18** with respect to the first U shaped member **10** to pass through the first U shaped member to a relative position as indicated in Fig. 5.

With the second U shaped member **11** in the above described position, the seat **14** and leg rest **15** are swung downwardly about the pivot pin **38** along with the back rest **13** and associated arm rests and tray so that all of these elements and members assume the relative positions clearly shown in Fig. 5. By proper dimensioning of the first and second U shaped leg members, the folded structure as shown will stand by itself and the upper central portion of the first U shaped member **10** will serve as a convenient carrying handle.

To assemble the chair to operative position, a reverse procedure is followed, the backrest **13** and associated arm rests and tray **16** along with the seat **14** and leg rest all being swung upwardly about the pivot pin **38** a sufficient distance to permit the second U shaped member **11** to be swung through the first U shaped member and scissored open to the position shown in Fig. 4. The upper central portion of the second U shaped member **11** is then fitted into the hook **33** and the leg rest **15** swung downwardly to lock the member in position. The downwardly turned ends of the arm rests defined by the third U shaped member **12** are then secured by the knurled knobs **23** and **24** to the front corners of the seat **14** thereby securing the back rest in a stable position with respect to the seat.

From the above description, it will be seen that the present invention provides a simple, safe, and economical folding high chair, comprising only seven basic elements which may be economically manufactured.

What is claimed is:

1. A folding high chair comprising, in unfolded operative position: A first inverted U-shaped member; a second inverted U-shaped member shorter and narrower than said first member; means pivoting together the respective legs of said first and second U-shaped members in scissors fashion whereby said second member may be scissored through said first member; a seat member; a foot rest member; first coupling means pivoting the front edge of said seat and the upper edge of said foot rest members together and to the central portion of said second inverted U-shaped member; a back rest member; second coupling means pivoting the rear edge of said seat and the lower edge of said back rest member together and to the upper portion of said first inverted U-shaped member; and a third horizontally disposed U-shaped member having its central U-portion encircling the rear of said back rest and pivoted thereto at a point spaced above said lower edge of the back rest, the free ends of said third U-shaped member extending forward to form arm rests for said seat and terminating in downwardly turned ends adapted to rest on the front edge corners of said seat.

2. A folding high chair according to claim 1, in which said first coupling means includes a pivot pin; a plate member secured under the front edge of said seat and having forward corner tabs encircling respectively the end portions of said pivot pin; a central front portion of said plate member being curved downwardly and rearwardly into a hook adapted to receive the central portion of said second inverted U-shaped member; tab elements secured to the upper edge of said foot rest and encircling portions of said pivot pin; and locking hooks secured to said upper edge portion of the foot rest adapted to engage and secure said central portion of said second inverted U-shaped member within said hook when said foot rest is swung downwardly about said pivot pin to its operative position.

3. A folding chair according to claim 1, in which said second coupling means includes a pivot pin secured between the upper leg portions of said first inverted U-shaped member; strip means secured to said lower edge

of the back rest and encircling portions of said pivot pin; and journal means secured to said rear edge of the seat member and encircling other portions of said pivot pin.

4. A folding chair according to claim 2, in which said second coupling means includes a pivot pin secured between the upper leg portions of said first inverted U-shaped member; strip means secured to said lower edge of the back rest and encircling portions of said pivot pin; and journal means secured to said rear edge of the seat member and encircling other portions of said pivot pin.

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