March 7, 1961 D. W. GILL 2,973,804

FOLDABLE HIGH CHAIR

Filed May 20, 1959 2 Sheets-Sheet 1

Fig. 1

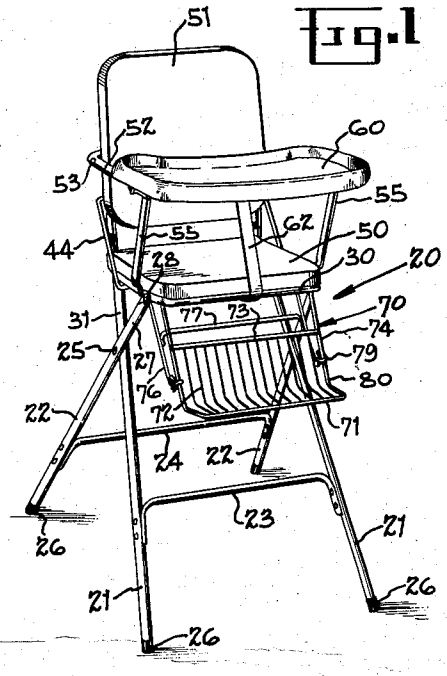
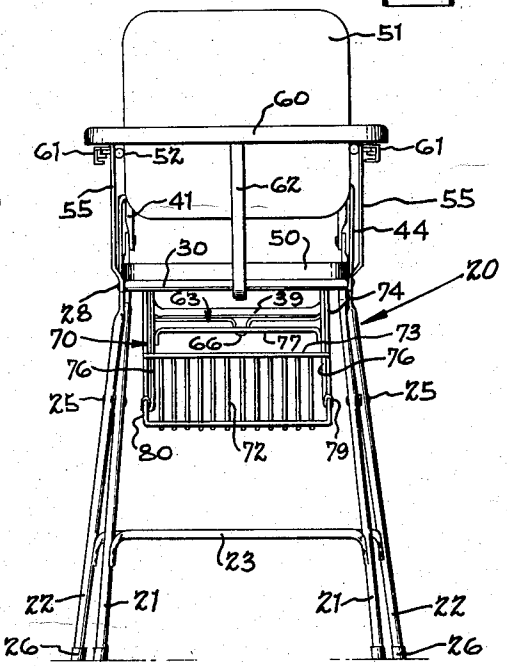


Fig. 2



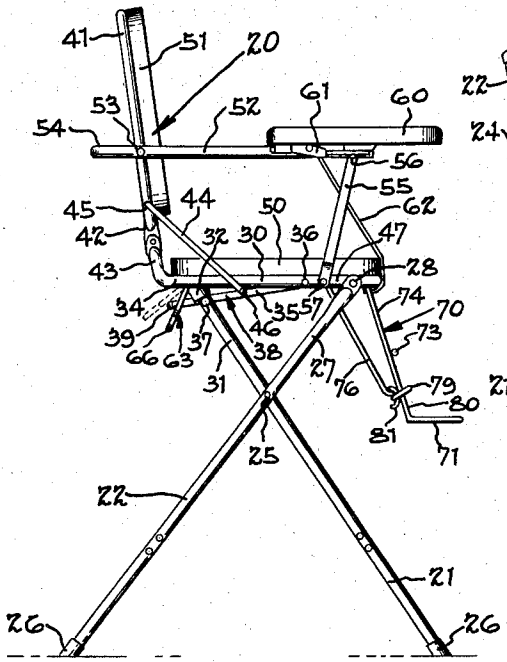


Fig. 3

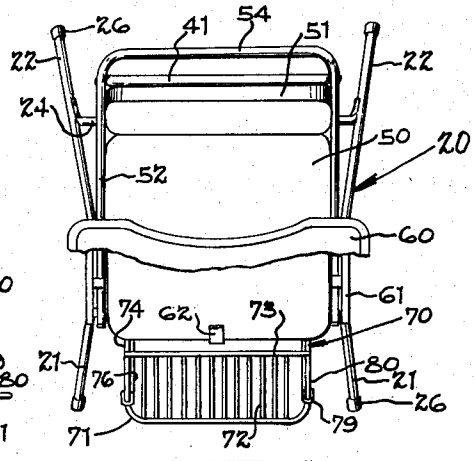


Fig. 4

INVENTOR.
Donald W. Gill.
BY
Wood, Herron & Evans.
ATTORNEYS.

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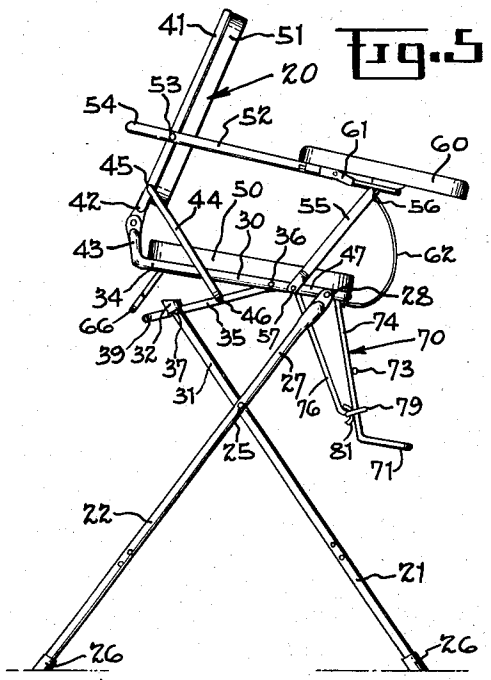


Fig. 5

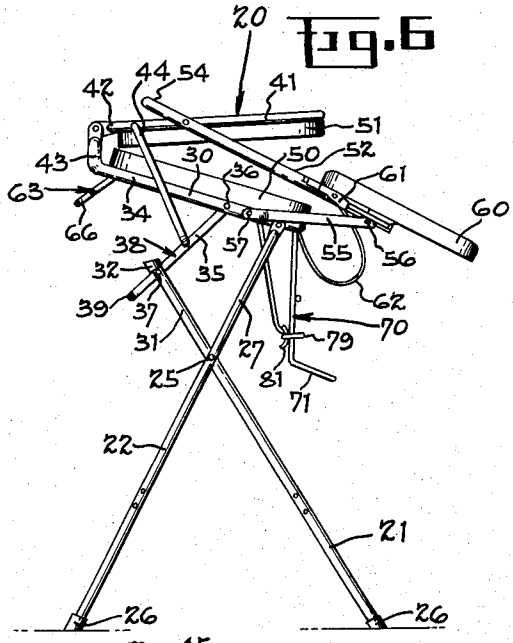


Fig. 6

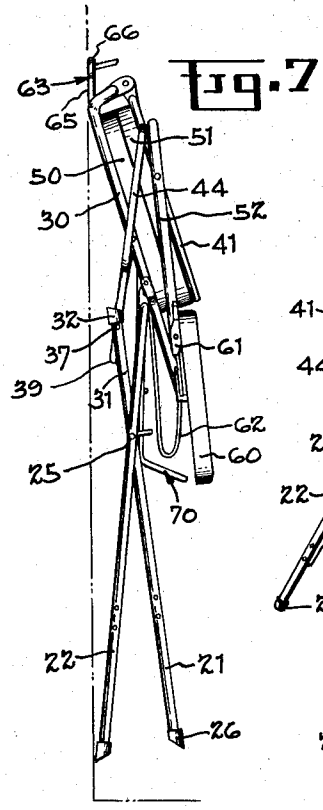


Fig. 7

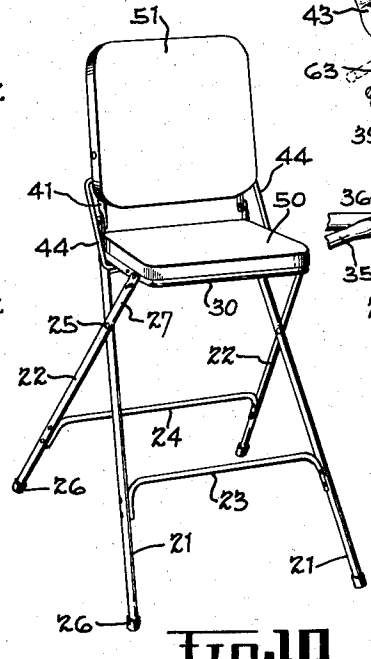


Fig. 10

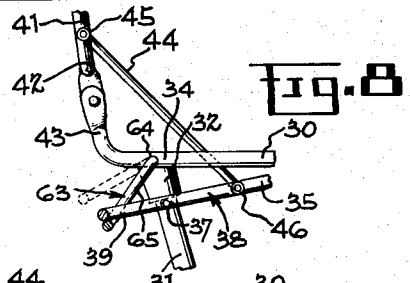


Fig. 8

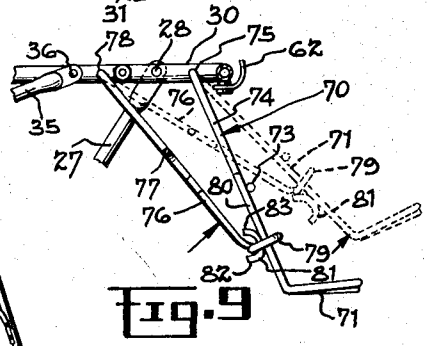


Fig. 9

INVENTOR.
Donald W. Gill.
BY
Wood, Herron & Evans.
ATTORNEYS.

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FOLDABLE HIGH CHAIR

Donald W. Gill, Cincinnati, Ohio, assignor to The Frank F. Taylor Company, Cincinnati, Ohio, a corporation of Ohio

Filed May 20, 1959, Ser. No. 814,447

5 Claims. (Cl. 155—147)

This invention relates to a high chair and more particularly to a high chair which is foldable to a size in which it can conveniently be stored, and which is readily convertible to a utility chair by the removal of the high chair accessories.

High chairs of recent years have fallen into disuse for several reasons. Modern kitchens are comparatively small and many known high chairs take up a great deal of space even though they are used only for a short period of time during the day. Further, the high chair is used only a short period during the life of the child and thereafter takes up much storage space while the arrival of the second child is awaited.

It has been an objective of the invention to provide a high chair which is foldable so as to occupy only a small space in the kitchen or closet when not in use.

It has been another objective of the invention to provide a high chair which is foldable and which has removable arms, tray and foot rest, none of which function in the supporting or folding of a high chair. By providing for the removability of these accessories, and by providing full support for the chair in the absence of these accessories it is possible to convert the high chair to an all purpose utility chair.

The high chair with its accessories removed is not only a valuable utility chair but also solves the difficult problem of the child who has graduated from his high chair but is still too small for convenient seating at the table. Because the height of the seat of the chair is several inches above that of a normal adult table chair, the child who has out grown his high chair can be conveniently positioned at a proper height at the dinner table on the utility chair formed by the removal of the high chair accessories.

It has been another objective of the invention to provide a support for a high chair comprising a quadrangle linkage including the legs and seat which fully support the chair in its erect position. By providing additionally a back pivoted to the seat and a link between the back and the quadrangle support, the back is supported against the collapse on the one hand, and the supporting quadrangle can be conveniently folded flat by pushing on the back of the chair. In this manner complete support of the chair and back is provided without relying on any part of the arm rest or other high chair accessory structure.

It has been another objective of the invention to provide a U-shaped locking member pivoted to the seat and engageable with the under surface of a seat link which forms a part of the supporting quadrangle. When so engaged, the locking member prevents the separation of the seat from its supporting quadrangle and thereby precludes inadvertent collapse of the high chair.

Because of the manner in which the high chair folds to a collapsed position, the back of the seat to which the locking member is attached is in an uppermost position. Taking advantage of this fact, it has been another objective of this invention to provide a recessed portion on the U-shaped locking member which serves as a hook by which the high chair may conveniently be hung in a closet or the like. Additionally, the recessed portion serves as a short handle by which the locking member may be conveniently manipulated.

It has been another objective of the invention to construct the seat portion of the high chair in part by a U-shaped frame member which is pivoted within the upper forward extremities of the legs. The foot rest for the high chair is pivoted within the U-shaped seat frame member in which position the foot rest will not obstruct the folding operation of the high chair.

It has been another objective of the invention to provide a foot rest and brace structure with stop means designed to permit the adjustment of the foot rest between at least two angular positions merely by lifting either the foot rest or the brace.

These and other objectives of the invention will become more readily apparent from the following detailed description taken in conjunction with the accompanying drawings in which:

Fig. 1 is a perspective view of the high chair;

Fig. 2 is a front elevational view thereof;

Fig. 3 is a side elevational view thereof;

Fig. 4 is a top plan view thereof;

Fig. 5 is a side elevational view of a high chair in its intermediate stage of folding;

Fig. 6 is a side elevational view of a further intermediate stage of folding;

Fig. 7 is a side elevational view of the high chair fully collapsed;

Fig. 8 is a fragmentary elevational view of the bracing and locking structure.

Fig. 9 is a fragmentary elevational view of the foot rest structure; and

Fig. 10 is a perspective view showing the high chair with the high chair accessories removed.

The high chair is perfectly symmetrical about a vertical plane passing through the seat and back of the high chair. Like numbers will be used to designate similar parts on either side of the plane of symmetry. The high chair indicated at **20** is supported on forward legs **21** and rearward legs **22**, both forward and rearward legs being braced by U-shaped members **23** and **24** respectively which are riveted to respective legs. The forward and rearward legs at each side of the chair are crossed and pivoted about a pin **25** intermediate the ends of the legs. Plastic feet **26** are fixed to the bottom ends of the legs to prevent scuffing of the floor and reduce inadvertent sliding of the chair. The forward ends **27** of the legs **22** are pivoted by pins **28** to the outside of a U-shaped seat frame member **30**. The upper ends **31** of the forward legs are provided with plastic pads **32** which receive and support the rearward ends **34** of the U-shaped seat frame member.

It will be appreciated that since the leg portions **27** are outside of the leg portions **31**, the leg portions **27** can be pivoted to the outside of the U-shaped frame with the leg portions **31** disposed immediately underneath the U-shaped frame without any offsetting of the leg portions. It will also be appreciated that by pivoting the legs together at a point about two-thirds the distance from the lower ends of the legs, a wide base is provided which, as can best be seen from Fig. 3, extends well beyond the limits of the seat of the high chair thus providing a very stable high chair. It can also be seen from the front elevational view of Fig. 2 that the legs diverge toward the floor so that the engagement of the legs with the floor is also well outside the lateral confines of the seat.

To hold the legs in the position shown in Fig. 3, a seat link **35** is pivotally mounted at each side of the seat be-

tween the U-shaped frame **30** at **36** and the upper end of leg portion **31** at **37**. The seat links **35** are formed by a U-shaped member **38**, the bight portion **39** of which projects rearwardly beyond the leg portion **31** to lock the chair in its erect position as will be explained below.

A U-shaped back frame member **41** is pivoted at its ends **42** to upwardly projecting ends **43** of the seat frame member **30**. A back link or connecting link **44** is pivotally connected at one end **45** to the back frame **41** and at the other end **46** to the seat link **35** intermediate the seat link pivot points **36** and **37**.

The elements with their pivotal connections just described comprise a full support for the high chair. It will be observed that the seat is in part supported by a quadrangle formed between leg portions **27** and **31**, seat link **35** and a short length **47** of the seat frame between the seat link pivot **36** and the pin **28** by which the seat frame **30** is connected to the leg **22**.

The seat and back frames **30** and **41** are each covered by a pad **50** and **51** respectively which preferably are composed of a foam rubber or plastic covered with a washable plastic fabric.

The arm rest comprises a horizontal U-shaped frame member **52** which is pivoted at its rearward end to the back frame **41** as at **53**. A substantial portion **54** of the U-shaped member **52** projects rearwardly of the frame **41** so as to permit the full collapse of the high chair. The arms are supported at their forward ends by braces **55** pivoted at the upper ends **56** thereof and the lower ends **57** thereof to the seat frame **30**. Preferably the pivotal supports at **53** and **57** are removable screws which will permit the convenient removal of the complete arm rest and tray structure.

A tray **60** is slidably mounted on the arm rest frame **52** and is lockable in a plurality of positions by means indicated at **61**. The means **61** might take one of a number of different forms although the preferable adjustable lock is of the type shown in Patent No. 2,440,224. A strap **62** is provided with snaps at each end by which it can conveniently be fixed to corresponding snap members on the tray and seat respectively.

The high chair may be locked in the position shown in Figs. 1 to 4 by means of a lock **63** which is best illustrated in Fig. 8. The lock **63** is a generally U-shaped member pivoted at its ends **64** to the end portion of seat frame **30**. The legs **65** of the U-shaped lock **63** are of sufficient length to permit the bight portion of the lock **63** to slide over the rearwardly projecting portion **39** of the seat link. In this position, the bight portion in the lock engages the under surface of the rearward projection **39** and effectively prevents the separation of the seat frame **30** from the leg pads **32**. As best shown in Fig. 2, the lock **63** has a depending recessed portion **66** which serves as a handle by which the lock can conveniently be manipulated. Additionally, the recessed portion **66** may function as a hanger for supporting the high chair in its collapsed position on a hook on the wall of a closet or the like as illustrated in Fig. 7.

The high chair is provided with a foot rest structure **70** pivoted within the confines of the seat frame **30**. The foot rest structure is best illustrated in Figs. 1 and 9. In its position within the confines **30** it does not obstruct the collapsing operation of the legs which are outside of the leg portions **27**. The foot rest comprises a foot rest proper **71** which is formed principally by a plurality of vertical rods **72** bent to a generally L-shaped configuration and supported at their upper ends by a transverse rod **73**. A U-shaped rod **74** is pivoted at its upper ends to the seat frame **30** as at **75** and its bight portion is connected to the lower ends of the vertical rods **72**. A brace **76** formed of two generally vertical rods joined together by a transverse rod **77** is pivoted at its upper ends to the seat frame **30** as at **78**. The lower end of each vertical rod is provided with a ring **79** which surrounds the respective leg **80** of the U-shaped member **74**.

A stop **81** is fixed to each leg **80** and provides a first projection **82** generally perpendicular to the leg **80** and a second projection **83** which is inclined slightly to the leg **80**. The projection **82** extends a sufficient distance from the leg **80** to prevent the ring **79** passing over the projection **82**. The inclined second projection **83** however lies close enough to the leg **80** to permit the ring **79** to pass over the projection **83**.

By observing the arrows in Fig. 9 it can be seen that if the foot rest is to be elevated from the full line position to the broken line position, a slight lifting pressure against the brace **76** will cause both the brace and foot rest proper to pivot counterclockwise with the ring sliding over the projection **83** and thereafter bearing against the leg **80**. When lifting pressure is removed, the ring **79** will slide down along leg **80** into engagement with the projection **83** thereby placing the foot rest in the broken line position. On the other hand, if the foot rest is to be pivoted from the broken line position to the solid line position, slight lifting pressure is applied to the foot rest proper as indicated by the arrow. This pressure will lift the foot rest and permit the ring **79** to drop, by gravity, over the projection **83**. As the lifting pressure is removed, the ring **79** will slide along the upper surface of the leg **80** until it engages the projection **82**.

To illustrate the collapsing or folding operation of the high chair, let it be assumed that the high chair occupies the erect position of Figs. 1 to 4. The first step in collapsing is to lift up on the handle **66** of the lock **63** so as to free it from the projecting portion **39** of the seat link **38**. Because the lock **63** must be frictionally forced over the end portion **39** to apply the lock, when the lock is pivoted upwardly and then released, it will rest on top of the end portion **39** and in this position will not interfere with the collapsing of the high chair.

The high chair may thereafter be fully collapsed merely by pushing on the top of the back. Pushing on the top of the back tends to pivot the back with respect to the seat so that it will be flat against the seat as shown in Fig. 7. In pushing the back pivotally toward the seat, the high chair tends to be tilted forward taking the weight off the rear leg **22** so that the legs are free to move together. The pivoting of the back toward the seat also pushes the back link **44** downwardly. When the back link **44** is pushed downwardly it pushes on the seat link **38**. The downward force on the seat link **38** tends to collapse the quadrangle formed between the upper leg portions **27** and **31**, the seat link **38** and the portion **47** of the seat frame between the pivot points **28** and **36**. The intermediate stages of collapse are illustrated in Figs. 5 and 6, the final stage of collapse being shown in Fig. 7. After collapse the lock **63** may be grasped to carry the high chair about and perhaps to hang the high chair on a hook as illustrated in Fig. 7.

When the child has outgrown the high chair, the foot rest may be removed merely by pressing the vertical brace rods together to bring their upper ends **78** out of their pivot holes in seat frame **30** and pressing the foot rest rods **74** together to bring their upper ends **75** out of their pivot holes in seat frame **30**.

The arm rest may be removed from the high chair merely by removing the four screws by which it is pivotally attached to the seat and back frames. The tray structure is removed by unsnapping the strap **62** from the seat frame **30**. When these high chair accessories are removed, the chair is as illustrated in Fig. 10 for use by the child to be seated up at the table or for use as a utility chair around the house. In the case of a small child seated at the dinner table, it may be found desirable to leave the arm rests on the high chair to avoid the child's falling sidewise off the chair. The particular construction of the arm rests and adjustable tray fixture permits the removal only of the tray so that the chair can be used with arm rests.

While there has been disclosed in the above descrip-

tion, what is deemed to be the most practical and efficient embodiment of the invention, it should be well understood that the invention is not limited to such embodiment as there might be changes made in the arrangement, disposition and form of the parts without departing from the principle of the present invention as comprehended within the scope of the accompanying claims.

I claim:

1. A foldable high chair having removable arm rests comprising, a pair of legs at each side of said high chair, each pair of said legs being crossed and pivoted to each other intermediate the ends thereof, a seat pivoted to the upper forward extremities of said legs, a back rest pivoted at its lower end to the rear end of said seat, at least one seat link pivotally connected at its forward end to said seat intermediate the front and rear ends thereof and at its rearward end to the upper rearward end of said legs, and at least one back link connected at its upper end to said back above the pivot axis of said back, and at its lower end to said seat link intermediate the ends thereof.

2. In a foldable high chair having a seat and a back pivoted to said seat, a supporting structure at each side of said chair comprising, a pair of legs crossed and pivoted to each other intermediate the ends thereof, said seat being pivoted to the upper forward extremity of said legs, a seat link pivoted at an end thereof to the central portion of said seat and at the other end thereof to the upper rearward extremity of said legs, said seat link forming a quadrangle with the upper portion of said legs and the portion of said seat between said seat link and forward extremity of said legs, and a back link pivotally connected between said back and said seat link to support said back and to collapse said quadrangle when said back is pivoted forward against said seat.

3. A foldable high chair having removable arm rests comprising, a pair of legs at each side of said high chair, each pair of said legs being crossed and pivoted to each other intermediate the ends thereof, a seat pivoted to the upper forward extremities of said legs, a back rest pivoted at its lower end to the rear end of said seat, at least one seat link pivotally connected at its forward end to said seat intermediate the front and rear ends thereof and at its rearward end portion to the upper rearward end of said legs, at least one back link connected at its upper end to said back above the pivot axis of said back, and at its lower end to said seat link intermediate the ends thereof, said seat link having a projection extending rearwardly of said legs, and a chair lock pivotally mounted at one end on said seat and engageable at the other end with the underside of said seat link projection to prevent separation of said seat with respect to said legs.

4. A foldable high chair having removable arm rests comprising, a pair of legs at each side of said high chair, each pair of said legs being crossed and pivoted to each other intermediate the ends thereof, a seat pivoted to the upper forward extremities of said legs, a back rest pivoted at its lower end to the rear end of said seat, at least one seat link pivotally connected at its forward end to said seat intermediate the front and rear ends thereof and at its rearward end portion to the upper rearward end of said legs, at least one back link connected at its upper end to said back above the pivot axis of said back, and at its lower end to said seat link intermediate the ends thereof, said seat link having a projection extending rearwardly of said legs, and a U-shaped chair lock pivotally mounted at its ends at the rear of said seat, the bight portion of said chair lock being engageable with the under side of said seat link projection to prevent separation of said seat with respect to said legs, the bight portion of said lock having a centrally recessed portion forming an operating handle and a hanger for said chair.

5. A foldable high chair having removable arm rests comprising, a pair of legs at each side of said high chair, each pair of said legs being crossed and pivoted to each other intermediate the ends thereof, a seat pivoted to the upper forward extremities of said legs, a back rest pivoted at its lower end to the rear end of said seat, at least one seat link pivotally connected at its forward end to said seat intermediate the front and rear ends thereof and at its rearward end to the upper rearward end of said legs, at least one back link connected at its upper end to said back above the pivot axis of said back, and at its lower end to said seat link intermediate the ends thereof, arm rests for said chair, and removable means pivotally mounting said arm rests on said chair, said arm rests being removable without affecting the support or foldability of said chair.

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