May 27, 1969 D. L. ROWLAND 3,446,530

NESTED ARMCHAIR

Filed Oct. 16, 1967 Sheet 1 of 3

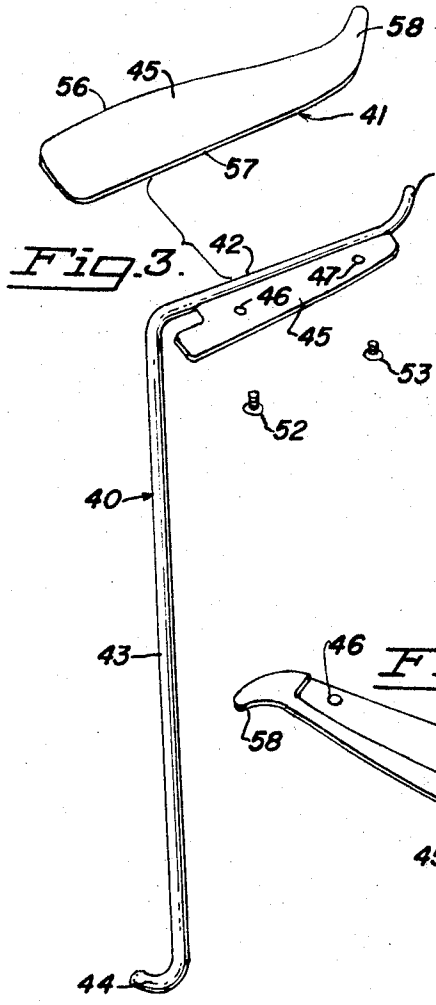

Fig. 3.

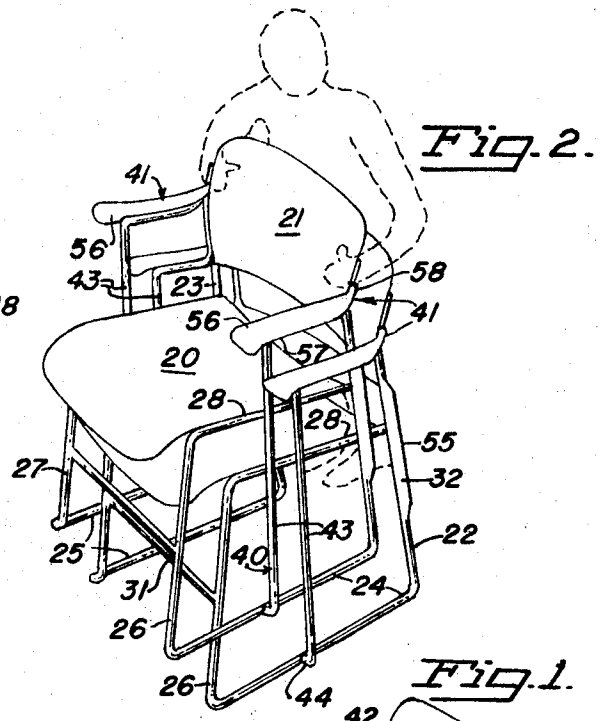

Fig. 2.

Fig. 4.

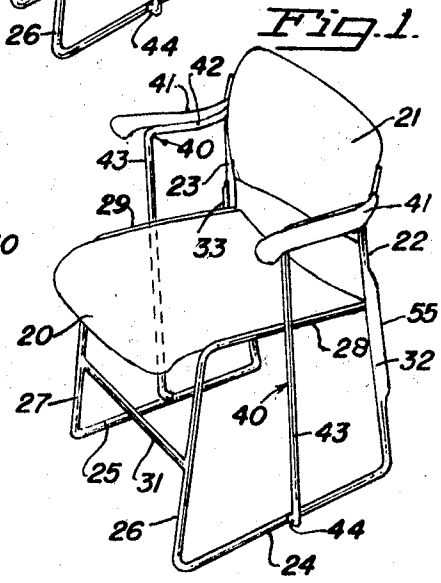

Fig. 1.

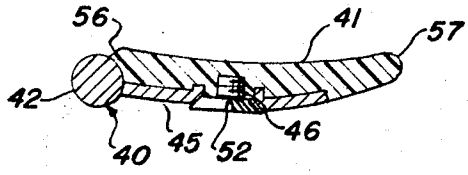

Fig. 5.

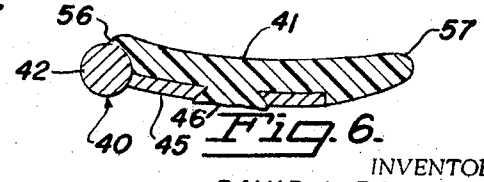

Fig. 6.

INVENTOR.
DAVID L. ROWLAND

BY

Owen, Wickersham & Erickson
ATTORNEYS

May 27, 1969 D. L. ROWLAND 3,446,530

NESTED ARMCHAIR

Filed Oct. 16, 1967 Sheet 2 of 3

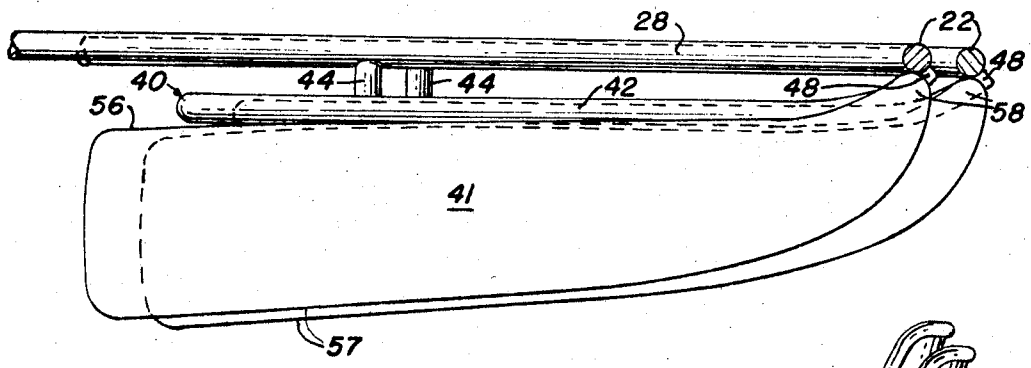

Fig. 8.

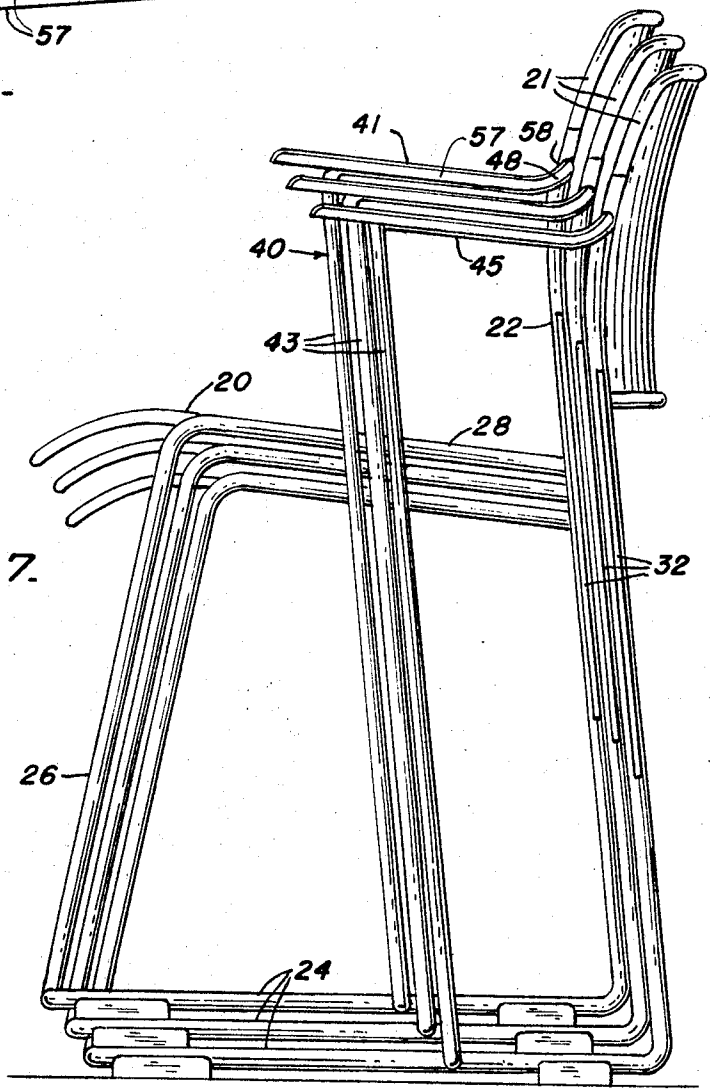

Fig. 7.

INVENTOR.
DAVID L. ROWLAND
BY
Owen, Wickersham & Erickson
ATTORNEYS

May 27, 1969 D. L. ROWLAND 3,446,530

NESTED ARMCHAIR

Filed Oct. 16, 1967 Sheet 3 of 3

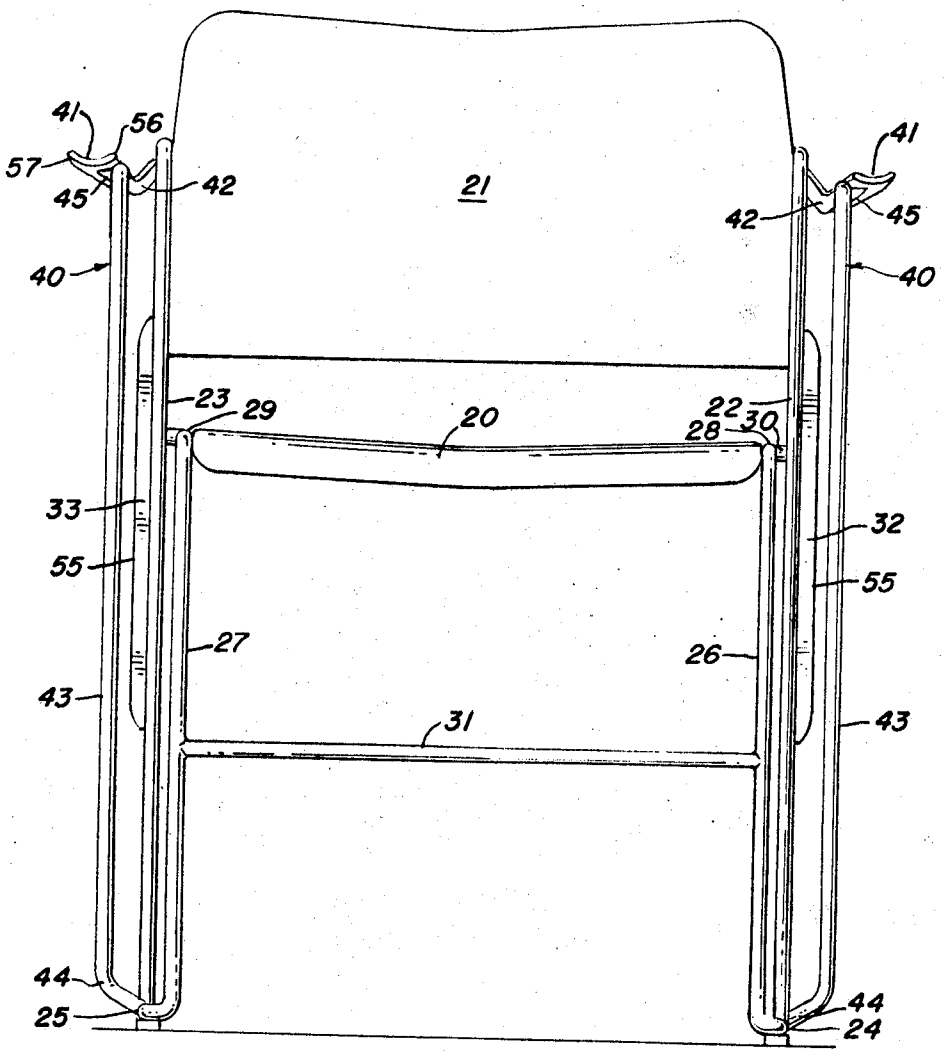

Fig. 9.

INVENTOR

DAVID L. ROWLAND

BY Owen, Wickersham & Erickson

ATTORNEYS

United States Patent Office

3,446,530
Patented May 27, 1969

3,446,530

NESTED ARMCHAIR

David L. Rowland, 49 W. 55th St.,
New York, N.Y. 10019

Filed Oct. 16, 1967, Ser. No. 675,484
Int. Cl. A47c 3/04, 7/54
U.S. Cl. 297—239 13 Claims

ABSTRACT OF THE DISCLOSURE

A compactly stacking armchair is provided of the type having a frame that has at each side of the chair a rear leg portion, a bottom rail portion, a front leg portion and a side rail portion above and inset from the bottom rail portion, the frame having at least one cross member extending across from one side to the other, and a seat and back bridging from one side to the other. The armchair is characterized by a metal arm frame on each side of the chair having a generally horizontal upper portion above and generally parallel to the side rail and outset therefrom beyond the bottom rail, extending and outset from and secured to the rear leg portion. A generally vertical portion extends from the forward end of the horizontal upper portion to ground level, a short bottom horizontal portion connects the vertical portion to the bottom rail portion, and an arm rest is supported by the generally horizontal portion of the arm frame.

This invention relates to a compactly stacking armchair.

The present invention provides for an armchair which is otherwise of the same basic construction as the very compactly stacking chairs shown in my U.S. Patents Re. 26,071, 3,275,371, 3,278,227, and Des. 202,775. Like the chairs of those inventions, the armchair is compactly stackable, and has a light, airy appearance. It is also comfortable, and it has the additional comfort of a pair of arms.

It is unusual to provide an armchair which is so compactly stackable, and the structure by which the compactly stackable chair of my above-mentioned patents can be modified to make it an armchair is unique. It is particularly desirable to have the two types of chair (armchair and armless chair) be substantially identical except for the arms, so that production costs are saved, and by this invention it is not necessary to re-design the chair in order to provide the arms. Thus, it becomes compatible with and stackable with armless chairs of the same general design and can be made by exactly the same processes by simply adding the arms and the supporting structure for the arms.

It is important in providing compactly stackable arm chairs to prevent binding between the successive chairs, for binding is liable to occur in several places, as will be explained below. This problem has been solved in a simple and practical structure, which enables full use of a regular armless chair with the addition of parts in a few simple operations to convert it into the armchair of this invention.

Other advantages and objects of the invention will appear from the following description of a preferred embodiment.

In the drawings:

FIG. 1 is a view in perspective of an armchair embodying the principles of the invention.

FIG. 2 is a view similar to FIG. 1 showing one armchair of FIG. 1 being stacked over another.

FIG. 3 is an exploded view of the arm and arm-supporting sub-assembly of the chair of FIG. 1.

FIG. 4 is a bottom view in perspective of the arm rest portion.

FIG. 5 is an enlarged view in section of the assembled arm rest, showing one means of securing the arm rest to the arm-supporting frame.

FIG. 6 is a view similar to FIG. 5 of a modified form of the invention with the arm frame secured to the arm rest in another way.

FIG. 7 is a view in side elevation of a stack of three chairs embodying the principles of the invention, showing how they are compactly stacked together.

FIG. 8 is a fragmentary top plan view partly in section showing the side portions of two stacked chairs, including the arm and arm-supporting frame.

FIG. 9 is a view in front elevation of a chair embodying the principles of the invention.

As stated earlier, the chair of this invention is basically that shown in patents, Re. 26,071, 3,275,371, 3,278,227, and Des. 202,775. Like them, there is a seat **20**, a back **21**, and a frame having a rear leg portion **22**, **23**, bottom rails **24**, **25**, front legs **26**, **27**, and side rails **28**, **29** which are joined to the rear legs **22**, **23**. There are also cross support members **30** and **31** joining the two sides of the chair, which are mirror images of each other. Each rear leg **22**, **23** has a reinforcing fin structure **32**, **33** extending out laterally and extending both above and below the level of the side rails **28**, **29**. In the preferred structure shown, the seat **20** is supported by the side rails **28**, **29**, and the back **21** is supported by the rear legs **22** and **23**.

In the present invention, there is an arm support frame **40** and an arm rest **41** which is secured to and supported by the arm support frame **40**.

The arm support frame **40** comprises a metal rod preferably of substantially the same thickness and characteristics as that from which the main frame is made, which is bent to provide a generally horizontal arm rest support portion **42**, a generally vertical pillar **43** extending down to ground level and a short crosswise extending horizontal portion **44**, which is welded to the bottom rail **24**, **25** and which serves to offset the pillar **43** and support portion **42** from the bottom rails **24**, **25**. At the rear end of the horizontal portion **42** is a curved portion **48**, extending in to the rear leg **22**, **23** and welded to it. Preferably welded to this horizontal portion is also a metal horizontal support plate **45** which may have a pair of openings **46** and **47**.

The arm rest **41** itself may be made from plastic, wood, or other suitable material and is shaped preferably as shown in the drawings. It is provided on its lower surface **50** with a recess **51** for receiving the support plate. As shown in FIG. 5, the arm rest **41** may be secured to the plate **45** by a pair of rivets **52**, **53** or screws indicated in FIG. 3 also, or, as shown in FIG. 6, the attachment may be made by heat-staking the plastic of the arm rest **41** into the openings **46** and **47**.

It is important that the vertical pillar **43** be spaced out from the seat's side rail **28**, **29**, leaving space so that stacking can be accomplished. It is advisable to have the

inner edge of this pillar **43** substantially outboard of the outer edge **55** of the fin **32, 33** to help to prevent binding in stacking.

It is also important that the inner edge **56** of the arm **41** be canted outwardly to help feed in the pillar **43** of the next chair on the stack. The space is important in preventing binding between the arm pillar **43** and the inner edge **56** of the arm **41**. The arm rest **41** may have substantially parallel edges **56, 57** for most of its length, although the edges may converge toward the rear and may turn upwardly at a rear portion **58** both as a design feature and for comfort. The outward divergence is noticeable in FIG. 8, and it will be seen there that the arm rest **41** itself may partly overlie the horizontal portion **42** of the arm support frame **40**, but as it approaches the outer edge, the canting diverts it entirely away from it.

Thus, it will be seen that when the arm rest **41** is attached to the arm rest support frame **40**, the two form a unit which is simply added to the chair already made in accordance with the procedure explained in the patents referred to. The only thing necessary to complete the armchair is to weld the end **48** to the rear leg **22** or **23** and the end of the short portion **44** to the bottom rail **24** or **25**. The two arm support frames **40** and the arm rests **41** are mirror images of each other, rather than identical, but only these two sub-assemblies are required to complete the armchair assembly.

That the chair is compactly stackable is shown in FIG. 2 as well as in FIG. 7. The lowermost chair is set in any desired position and then an upper chair is placed on it coming down and from the front. The chair is stacked with the pillar lying within the arm, and therefore the canting helps in the stacking. Also, the stacking results in the upper chair being slightly forward of the lower chair, so that in order to get a high stack, it is desirable to support the bottom chair at an angle as shown in Patent Re. 26,071, as upon a dolly, such as shown in U.S. Patent 3,338,591.

To those skilled in the art to which this invention relates, many changes in construction and widely differing embodiments and applications of the invention will suggest themselves without departing from the spirit and scope of the invention. The disclosures and the description herein are purely illustrative and are not intended to be in any sense limiting.

I claim:

1. A compactly stacking armchair of the type having a frame providing at each side of the chair a rear leg portion, a bottom rail portion, a front leg portion and a side rail portion above and inset from the bottom rail portion, said frame having at least one cross member extending across from one said side to the other, and a seat and a back bridging from one side to the other characterized by

a metal arm frame on each side of said chair having

a generally horizontal upper portion above and generally parallel to said side rail and outset therefrom beyond said bottom rail, extending and outset from and secured to said rear leg portion,

a generally vertical portion extending from the forward end of said horizontal upper portion to ground level, and

a short bottom horizontal portion connecting said vertical portion to said bottom rail portion, and

an arm rest supported by the generally horizontal portion of said arm frame.

2. The chair of claim **1** wherein said arm rest has generally parallel side edges diverging outwardly from said generally horizontal upper portion of said arm frame, considered from the rear of said chair forward, to prevent binding in a stack.

3. The chair of claim **1** wherein said vertical portion is substantially parallel to the rear leg portion that lies below said seat.

4. The chair of claim **1** wherein said arm rest comprises a metal plate portion secured to said generally horizontal upper portion and a second portion having a bottom recess mating with said plate portion and secured to said plate portion and having an upper surface that extends above said horizontal upper portion and out beyond said plate portion.

5. The chair of claim **4** wherein the rear end of said second portion is upwardly curved and tapered toward the back of the chair and terminates closely adjacent said back.

6. A compactly stacking armchair of the type having a frame providing at each side of the chair a rear leg portion, a bottom rail portion, a front leg portion and a side rail portion above and inset from the bottom rail portion, said frame having a seat and a back bridging from one side to the other, and a cross member at the rear of the seat extending across from one said side to the other, each said rear leg having a laterally outwardly extending strengthening fin extending from below said cross member to above said cross member, said armchair being characterized by

a metal arm frame on each side of said chair having

a generally horizontal upper portion above and generally parallel to said side rail and outset therefrom beyond the outer edge of said strengthening fin, extending and outset from and secured to said rear leg portion,

a generally vertical portion extending from the forward end of said horizontal upper portion to the level of said bottom rail, and

a short bottom horizontal portion connecting said vertical portion to said bottom rail portion, and

an arm rest supported by the generally horizontal portion of said arm frame.

7. The chair of claim **6** wherein said horizontal upper portion is connected to said rear leg portion by a terminal rear inturned portion.

8. The chair of claim **7** wherein said arm rest comprises a non-metallic member having a bottom recess, and there is a metal support plate secured to said horizontal upper portion outboard therefrom, said plate fitting in said recess, said arm rest having a generally flat upper surface.

9. The chair of claim **8** wherein said arm rest has generally parallel side edges diverging outwardly from said generally horizontal upper portion of said arm frame, considered from the rear of said chair forward, to prevent binding in a stack.

10. The chair of claim **8** wherein said arm rest has a rear tapered portion curving toward said back and covering said terminal rear inturned portion.

11. A sub-assembly for a compactly stacking chair, for converting said chair to an armchair, said chair being of the type having a frame providing at each side of the chair a rear leg portion, a bottom rail portion, a front leg portion and a side rail portion above and inset from the bottom rail portion, said frame having a cross member extending across from one side to the other, and a seat and a back bridging from one side to the other, said sub-assembly comprising

a metal arm frame for each side of said chair having

a generally horizontal upper portion above and generally parallel to said side rail and outset therefrom beyond said bottom rail, extending from and secured to said rear leg portion,

a generally vertical portion extending from the forward end of said horizontal upper portion to ground level, and

a short horizontal bottom portion connecting said vertical portion to said bottom rail portion, and

an arm rest supported by the generally horizontal portion of each said arm frame.

12. The chair of claim **11** wherein said arm rest has generally parallel side edges diverging outwardly from

said generally horizontal upper portion, considered from the rear of said chair forward, to prevent binding in a stack.

13. The chair of claim 11 having a metal plate secured to the outboard side of said horizontal upper portion, said arm rest being supported by said plate.

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JAMES T. McCALL, *Primary Examiner.*

U.S. Cl. X.R.

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