

United States Patent

Harty

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[54] **CHAIR CONSTRUCTION**

[72] Inventor: M. Fillmore Harty, Bloomfield Hills, Mich.

[73] Assignee: The Shaw-Walker Company, Muskegon, Mich.

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[52] U.S. Cl.297/248, 297/239, 297/DIG. 2

[51] Int. Cl.A47c 15/00, A47c 3/04

[58] Field of Search297/248-249, 239; 24/81 CC; 108/64

[56] **References Cited**

UNITED STATES PATENTS

De. 202,265	9/1965	Creist.....	297/DIG. 2
3,127,221	3/1964	Bennett.....	297/DIG. 2
3,313,571	4/1967	Ferrara.....	297/DIG. 2
1,408,114	2/1922	Mathieu.....	297/239
1,664,356	3/1928	Dellert.....	297/239

2,628,384	2/1953	Shomber.....	297/248 X
2,699,814	1/1955	Kahn.....	297/239
2,936,826	5/1960	Reineman.....	297/239 UX
3,207,551	9/1965	Axtell.....	297/248
3,459,449	8/1969	Klausen.....	297/239

FOREIGN PATENTS OR APPLICATIONS

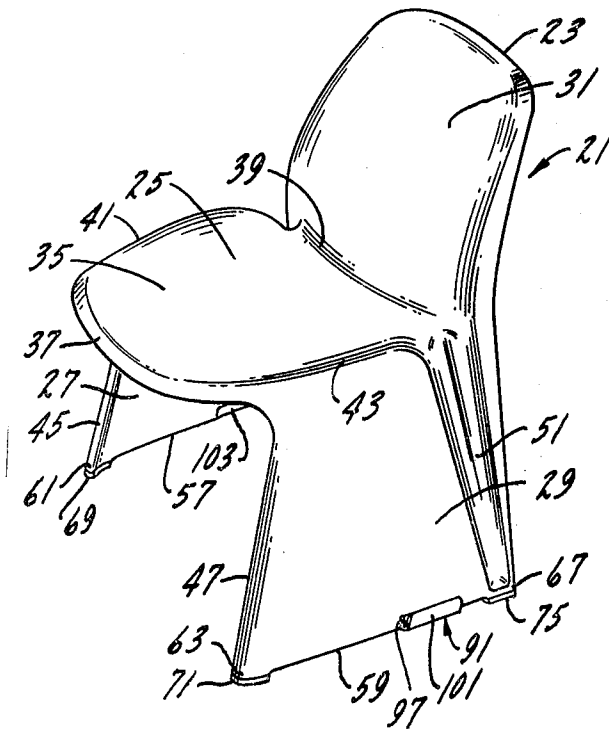
103,697	4/1964	Norway.....	297/248
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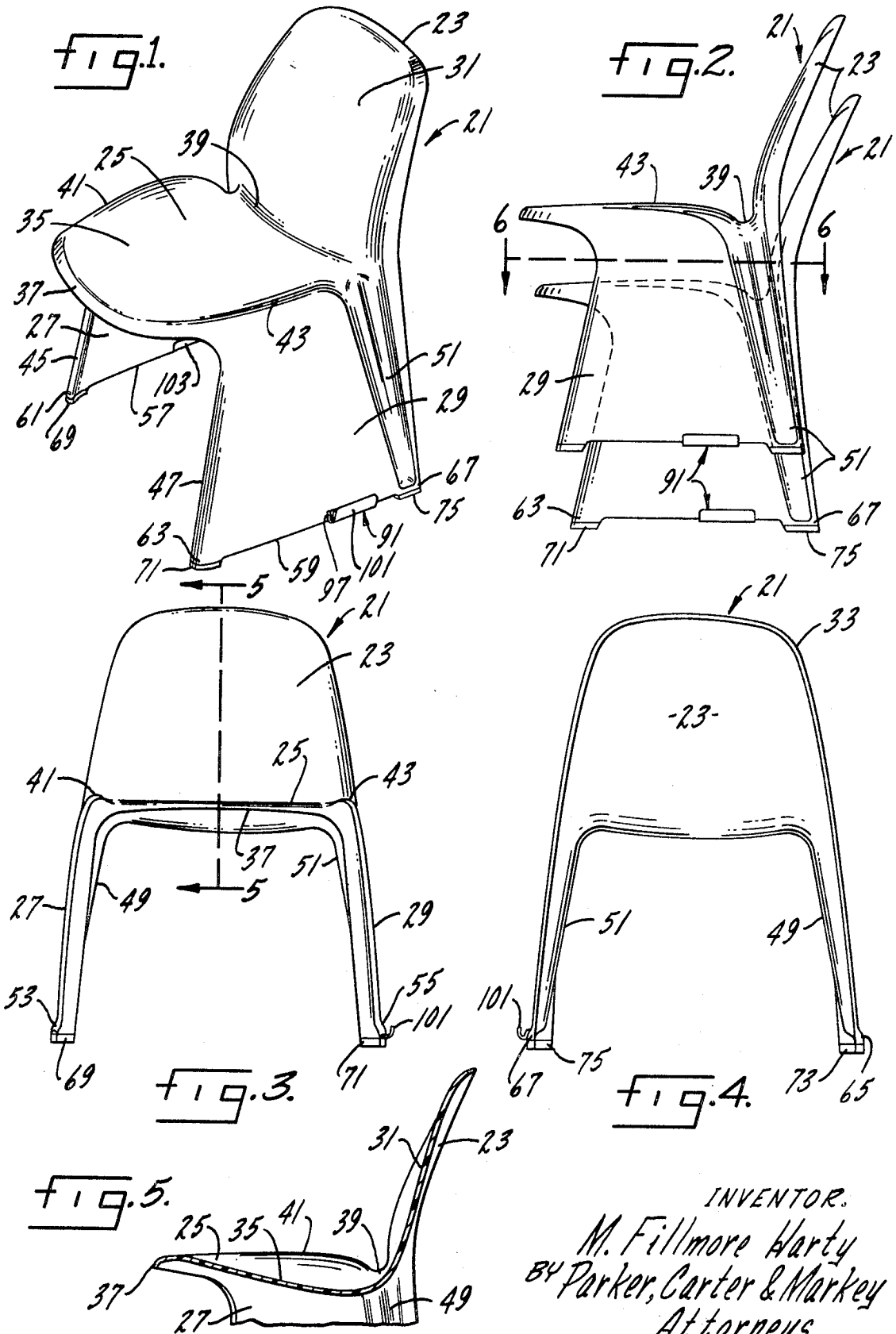
Primary Examiner—Paul R. Gilliam
Attorney—Parker, Carter and Markey

[57] **ABSTRACT**

A molded one-piece chair having a back, a seat and sides with the back extending upwardly and rearwardly from the seat and the sides depending from the back and the seat and being inclined outwardly from the seat. An outwardly and rearwardly extending concave convolution is formed in each side of the chair for strength and to assist in stacking one chair on top of another. A trough is located between the seat and the back of the chair and blends into the convolutions for strengthening the chair. Connecting means are provided for joining similar chairs side by side in a row.

10 Claims, 12 Drawing Figures





INVENTOR.
M. Fillmore Harty
BY Parker, Carter & Markey
Attorneys.

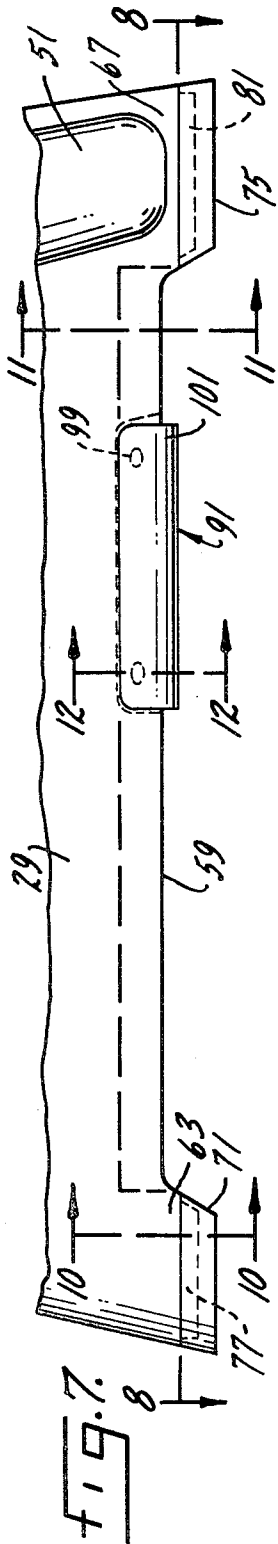


FIG. 7.

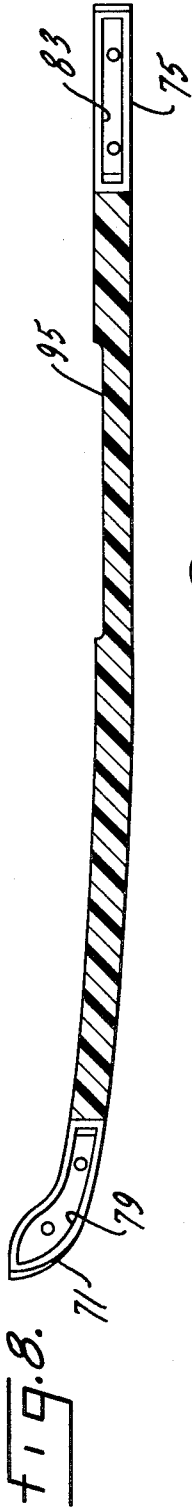


FIG. 8.

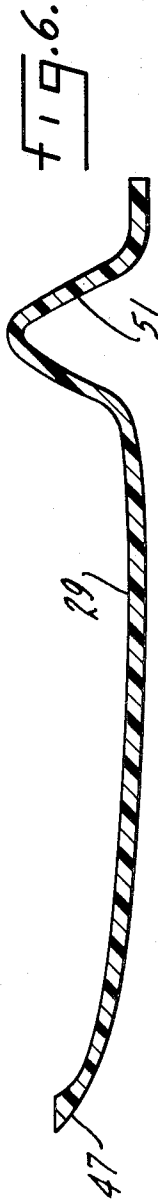


FIG. 6.

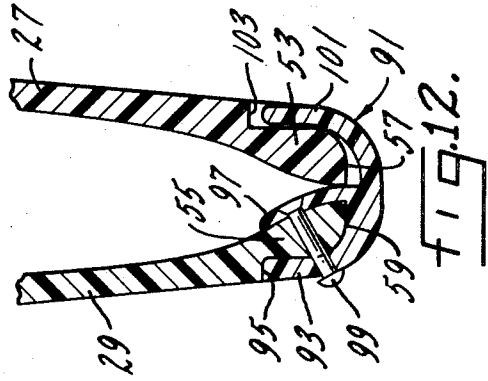


FIG. 12.

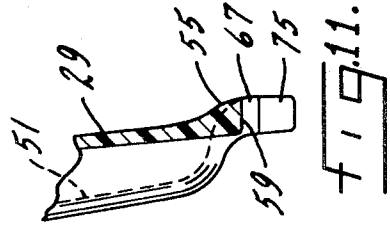


FIG. 11.

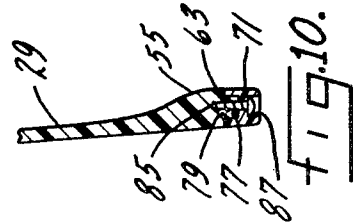


FIG. 10.

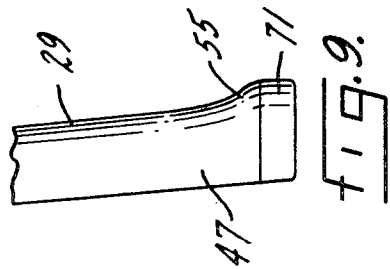


FIG. 9.

INVENTOR.
 M. Fillmore Harty
 BY Parker, Carter & Markey
 Attorneys.

CHAIR CONSTRUCTION

SUMMARY OF THE INVENTION

This invention is concerned with a molded one-piece chair and more particularly with such a chair which can be stacked and removably connected side by side to similar chairs to form a row.

An object of this invention is a molded one-piece chair that may be readily stacked on similar chairs to conserve storage space.

Another object is a molded one-piece chair having means to permit similar chairs to be removably connected side by side in a row.

Another object is a one-piece molded chair that is exceptionally strong yet light in weight.

Another object is a molded chair having guides to facilitate stacking.

Another object is a connecting means which permits connection of chairs side by side on an uneven floor.

Other objects may be found in the following specification, claims and drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is illustrated more or less diagrammatically in the following drawings wherein:

FIG. 1 is a perspective view of a chair of this invention;

FIG. 2 is a side elevational view of a pair of stacked chairs;

FIG. 3 is a front elevational view of the chair of FIG. 1;

FIG. 4 is a rear elevational view of the chair;

FIG. 5 is a partial cross-sectional view taken along line 5—5 of FIG. 3;

FIG. 6 is a cross-sectional view taken along line 6—6 of FIG. 2 with background parts omitted for clarity;

FIG. 7 is an enlarged partial view of the bottom portion of a side of the chair;

FIG. 8 is a view taken along line 8—8 of FIG. 7 with some parts omitted for clarity;

FIG. 9 is an enlarged partial front elevational view of one side of the chair;

FIG. 10 is a partial cross-sectional view taken along line 10—10 of FIG. 7;

FIG. 11 is a partial cross-sectional view taken along line 11—11 of FIG. 7; and

FIG. 12 is a partial cross-sectional view taken along line 12—12 of FIG. 7 with a portion of the side of a similar chair shown seated in the connector assembly.

DESCRIPTION OF THE PREFERRED EMBODIMENT

A chair 21 embodying the novel features of this invention is shown in perspective in FIG. 1 of the drawings. This chair includes a back 23, a seat 25 and sides 27 and 29. This chair is molded integrally of a material such as nylon with the chair being of generally uniform thickness as shown most clearly in FIGS. 5 and 6. The back 23 has a generally concave front surface 31 and is bounded on the top and sides by a turned edge 33 (FIG. 4). The turned edge 33 continues and merges into the sides 27 and 29 of the chair. The seat 25 has a concave upper surface 35 and is bounded on the front by a turned down edge 37. The seat is separated from the back by a generally concave trough 39 which merges with the back and the seat. The seat is bounded on its sides by ridges 41 and 43 which blend respectively into the sides 27 and 29 of the chair. The ridges also blend into the front edge 37 of the chair.

The sides 27 and 29 of the chair are generally flat as shown by the cross section of the side 29 in FIG. 6. However, the front section of each side is turned inwardly at 45 and 47 respectively. A convolution is formed in each side of the chair and is indicated by the numeral 49 in side 27 and the numeral 51 in side 29. The convolutions extend generally vertically and rearwardly from the seat 35. The upper portions of the convolutions merge with the trough 39 which is located between the seats. The convolutions are tapered, reducing in width from the seat to the bottom portions thereof. As can be seen

the drawings and especially in FIG. 6, the convolutions each have a concave outwardly facing surface and a convex inwardly facing surface. It should also be noted that the ridges 41 and 43 on the seat merge respectively with the convolutions 49 and 51.

An outwardly extending flange is provided along the lower edge of each side of the chair with the flange on side 27 indicated as 53 and the flange on side 29 indicated by the numeral 55 (FIG. 3). The lower portions of sides 27 and 29 are notched respectively at 57 and 59 to provide front feet 61, 63 and rear feet 65, 67 for the sides 27 and 29, respectively. Glides are provided for each foot with curved glides 69 and 71 provided for the front feet and generally straight glides 73, 75 provided for the rear feet. Each foot is provided with a projecting boss which fits into a complementary recess formed in its glide. For example, as shown in FIG. 7, a boss 77 is formed as part of the foot 63 and extends into a recess or cutaway portion 79 in the glide 71. Projecting boss 81 on foot 67 extends into recess 83 in the glide 75. The glides are held to the feet by means of threaded fasteners such as the screw 85 which connects glide 71 to foot 63 as shown in FIG. 10. The glide may be formed with a recess 87 so that the head of the screw will not contact the floor.

The means for removably connecting one chair 21 to a similar chair includes an elongated member 91 having a generally W-shaped cross section as shown most clearly in FIG. 12. One leg 93 of the W fits into a pocket 95 formed in the inside surface of the side 29 of the chair. The center leg 97 of the W is held against the outer surface of the side 29 by means of a rivet 99 which extends through the legs 93 and 97 of the W and through the flange 55 of the side 29. A third leg 101 of the W forms a receptacle with the middle leg 97 and this receptacle receives the outwardly turned flange 53 of a side 27 of a similar chair in the manner shown in FIG. 12. A pocket 103 is formed in the inside surface of the side 27 for receiving the leg 101 of the connecting member 91 to restrain the connected chairs against side-by-side forward and aft movement relative to one another. The height of the pocket is greater than that of the leg 101 to allow a connection to be made when the chairs are placed on uneven floors.

The use, operation and function of this invention are as follows:

A chair of this invention may be molded in essentially one piece from a plastic material such as nylon. The chair may be used individually or through means of connecting members 91 may be removably joined to other similar chairs to form a row.

The chair is exceptionally strong and sturdy although it is light in weight. One of the features contributing to its strength and stability is the single piece sides 27 and 29 which are formed integral with the seat 25 and the back 23. The sides which extend outwardly, forwardly and rearwardly of the chair give stability to the chair as well as strength. The load-carrying capacity of the chair is enhanced by the curved front portions 45 and 47 of the sides and by the convolutions 49 and 51. The seat is strengthened by the turned down front edge 37 and the upstanding side ridges 41 and 43. The back 23 is strengthened by its turned edge 33 and its concave shape. The trough 39 provides a strength member connecting the seat and back of the chair. Through the use of convolutions, turned in portions, downturned edges, ridges and the like, a strong and stable chair is obtained even through it is generally of uniform thickness throughout.

Stacking of the chairs one on top of the other as shown in FIG. 2 is facilitated by the outward slope of the sides 27 and 29 and the rearward slope of the back 23. Additionally, the convolutions 49 and 51 act as a guiding surface to align the chairs during stacking.

The connecting of the chairs side by side in rows is accomplished by placing the bottom flange 53 of a side 27 of a chair into the receptacle formed in the W-shaped connector 91 fastened to the side 29 of the chair. One of the legs of the W-shaped connector member, namely leg 101, fits into a pocket 103 formed in the inside of the side 27 to prevent the forward

and rearward movement of the connected chairs relative to one another. Connection and disconnection of the chairs is readily accomplished by lowering and raising one chair into contact with the connector of an adjoining chair.

Whereas one form of the invention has been shown and described, it should be understood that many modifications and changes will become apparent to those skilled in the art. Therefore, the scope of the invention should not necessarily be limited to the embodiment shown herein.

I claim:

1. A molded, one-piece chair, having a back, a seat and sides with said back extending upwardly and rearwardly from said seat and said sides depending from said back and from the side edges of said seat and being inclined outwardly from said seat,

a generally vertically extending convolution formed in each side of said chair with each convolution extending downwardly and rearwardly from said seat,

each convolution being located adjacent the rear of its side and having a generally concave surface facing outwardly and a generally convex surface facing inwardly of said chair, and

a trough formed between said seat and said back with said trough connecting with and blending into said vertically extending convolutions to form a strengthening member for the chair.

2. The chair of claim 1 further characterized in that each convolution tapers downwardly from said seat.

3. The chair of claim 1 further characterized in that an out-

wardly extending flange is formed along the lower portion of each side of said chair.

4. The chair of claim 1 further characterized in that said seat has a front portion which extends forward of said sides and which is rolled downwardly to form a support flange.

5. The chair of claim 1 further characterized in that said seat has a concave upper surface and said back has a concave front surface.

6. The chair of claim 1 further characterized in that each of said sides is formed inwardly at the front of said chair.

7. The chair of claim 1 further characterized in that means are provided on the chair to removably connect said chair to similar chairs in a side-by-side relationship.

8. The chair of claim 1 further characterized in that said removable connection means lock said chairs against lateral movement relative to one another while permitting vertical movement of said chairs into and out of locking engagement with one another.

9. The chair of claim 8 further characterized in that said removable connection means include an upright opening receptacle located on one of the sides of the chair and adapted to receive the opposite side of a similar chair in interconnecting relationship.

10. The chair of claim 9 further characterized in that means are provided on the opposite side of said chair to receive said upwardly opening receptacle to prevent forward and rearward movement of one chair relative to a connected chair.

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