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3,013,839

CHAIR ARM CONSTRUCTION

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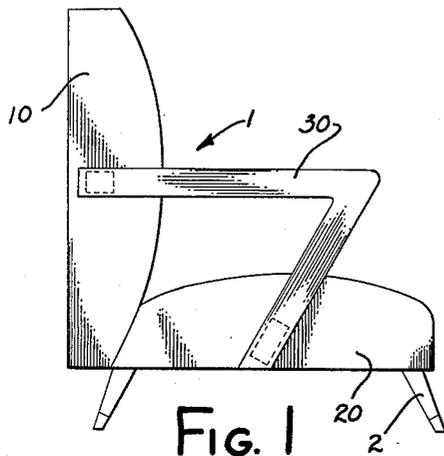


FIG. 1

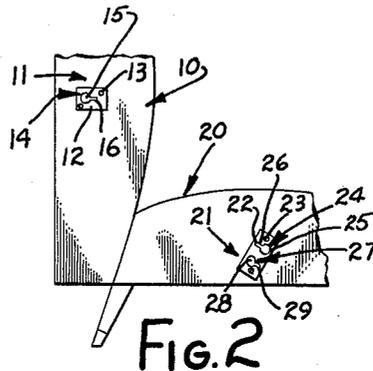


FIG. 2

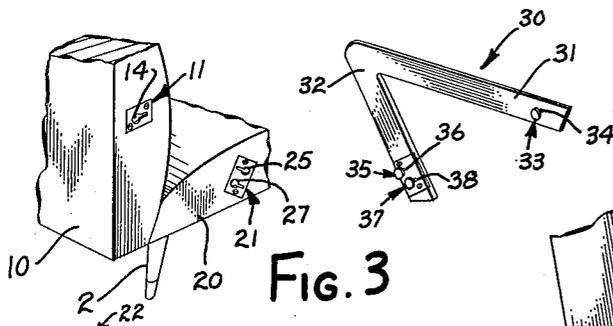


FIG. 3

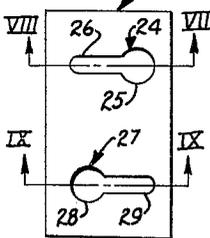


FIG. 7

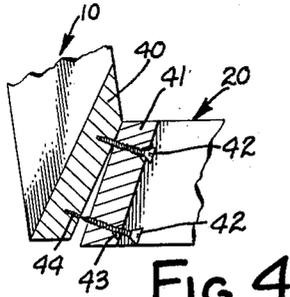


FIG. 4

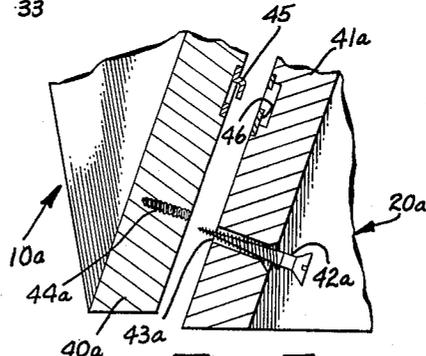


FIG. 5

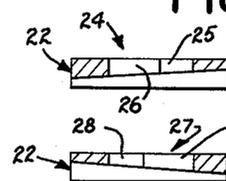


FIG. 8

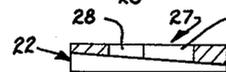


FIG. 9

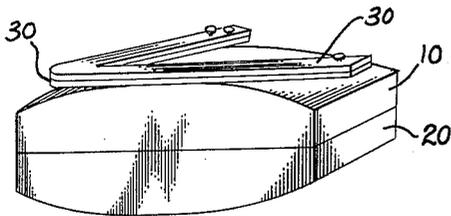


FIG. 6

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ATTORNEYS

1

3,013,839

CHAIR ARM CONSTRUCTION

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This invention relates to a chair arm construction. More particularly this invention relates to a readily dismantled chair construction having detachable arms, adapted to be shipped to the point of use in knocked down condition and readily assembled at the point of use.

The cost of manufacturing upholstered chairs has risen greatly in the past few years. In many areas, due to great rises in cost of labor and materials, manufacturers can no longer afford to ship their upholstered furniture for a greater distance than a radius of 250 miles. This is especially true with respect to the larger cities. In the case of low priced furniture, the cost of freight has become so great that furniture shipped in assembled condition cannot compete with furniture shipped in "knocked down" or dismantled form. Consequently, the average market of the present manufacturer is limited to a few hundred miles from the point of manufacture.

Various attempts have been made to ship furniture in knocked down condition. However, it has always been a serious problem to provide an arm structure for a chair which can be properly attached by the purchaser while at the same time requiring a minimum number of tools and simple mechanisms. Further, it has been a problem to provide such an arm structure which is simple enough to be practically foolproof. It is almost a necessity to effect complete concealment of the attachment means so that the assembled chair is pleasing in appearance. Still further, the attached arm must be completely rigid and not give the impression of inexpensive, poorly built furniture.

It is therefore an object of this invention to provide a readily dismantled chair construction having detachable arms and adapted to be shipped in knocked down condition. The cost of shipping such a chair will be greatly reduced and allow a manufacturer to expand the market in which he may ship his goods. This invention provides a simple, inexpensive furniture construction. The arm structure for the chair may be properly attached by the purchaser, the steps necessary to assemble the entire unit being very simple and requiring only a screw driver during assembly. The arm, when attached to the assembled chair construction, is practically foolproof in operation. When attached, the arm is completely rigid and does not give the impression of inexpensive or poorly built furniture. Further, the assembled chair construction is such that each and every one of the attachment means is completely concealed.

Other objects of this invention will become obvious to those skilled in the art of furniture and chairs upon reading the following specification in conjunction with the accompanying drawings wherein:

FIG. 1 is a side view of the assembled furniture construction comprising this invention.

FIG. 2 is a side view of the chair construction shown in FIG. 1, the arm members being removed therefrom.

FIG. 3 is a perspective, exploded view of the chair construction shown in FIG. 2 together with an arm member adapted to be mounted thereon.

FIG. 4 is a fragmentary view showing the manner in which the back structure of the chair construction is secured to the seat structure.

FIG. 5 is a fragmentary view similar to FIG. 4, showing a modification thereof.

2

FIG. 6 is a perspective view showing the chair construction of FIG. 1 in knocked down condition.

FIG. 7 is a plan view of the receiving means comprising a part of this invention.

FIG. 8 is a cross-sectional view taken along the plane VII—VII of FIG. 7.

FIG. 9 is a cross-sectional view taken along the plane IX—IX of FIG. 7.

Briefly, this invention relates to a chair construction having detachable arms, including a pair of arm members with at least two button-like members extending from one side of each of said arm members. One button-like member extends from the side of each of said arm members near the extremities thereof. A seat and back structure, characterized by easy detachment one from the other, are provided with means on each side of both the seat structure and the back structure for receiving the button-like members.

Turning more specifically to the drawings, the reference numeral 1 designates the chair construction comprising this invention (FIG. 1). The chair construction 1 includes a back structure 10, a seat structure 20 and the arm members 30. Legs 2 are secured to the bottom of the seat structure 20, these legs being of the type having a threaded member at the upper end thereof adapted to be inserted into threaded openings in the bottom of the seat structure (not shown).

Each arm member 30 is generally L-shaped (FIG. 3), including a horizontal leg 31 and a generally vertical leg 32. Extending from a side of the leg 31 generally near its free end is the button-like member 33. The button-like member 33 includes a stem portion 34, spacing it from the side of the leg 31. The button-like member 33 has a greater cross sectional area than the stem portion 34. A pair of button-like members 35 and 37, including stem portions 36 and 38 respectively, extend from the same side of leg 32 of arm member 30 generally near its free end. The structure of button-like members 35 and 37 are the same as the structure of button-like member 33 just described.

On each side of the back structure 10 (FIGS. 2 and 3), a means 11 is provided to receive the button-like member 33 on leg 31 of the arm member 30. Means 11 include the plate 12 secured to the side of the back structure 10 by suitable means such as screws 13, providing a key-shaped recess 14 in the side of the back structure. Key-shaped recess 14 includes a head portion 15 and a tail portion 16 positioned generally parallel to the floor and towards the front of the chair construction.

A means 21 is provided on each side of the seat structure 20 for receiving the button-like members 35 and 37 extending from leg 32 of each arm member 30. The means 21 includes a plate 22 secured to the side of the seat structure 20 by suitable means such as screws 23. The plate 22 provides a pair of key-shaped recesses 24 and 27, each key-shaped recess respectively including the head portions 25 and 28 together with the tail portions 26 and 29 (FIG. 7). As will be noted from FIGS. 8 and 9, the key-shaped recesses 24 and 27 are tapered, the purpose of which will be described hereinafter.

The lower structural element 40 of the back structure 10 is secured to the rear structural element 41 of the seat structure 20 by means of the bolts or screws 42 (FIG. 4). It will be noted that the structural elements 40 and 41 are shaped and positioned to lie flush against each other, automatically positioning the back structure 10 in relation to the seat structure 20. Preformed openings 43 adapted to receive the screws 42 are provided in the rear element 41 of the seat structure 20. Corresponding openings 44 are provided to be aligned with the openings 43 to receive the ends of the screws 42. It will be noted that this construction is characterized by the seat and

3

back structures being readily detachable one from the other, the heads of screws 42 being accessible through the bottom of the seat structure 20.

A slight modification of the structure for securing the back structure 10 to the seat structure 20 is shown in FIG. 5. In this modification, hooks 45 are provided in the lower structural element 40a of the back structure 10. A recessed hook-receiving means 46 is correspondingly positioned in the rear structural element 41a of the seat structure 20a. It will be noted that the hooks 45 may be hung in the hook-receiving means 46. Screws 42a extend through openings 43a in the rear structural element 41 of the seat structure 20a and into the openings 44a in the lower structural element 40a of the back structure 10a, the screws and openings being similar to the screws 42 and openings 43 and 44 described hereinbefore.

Assembly and operation

FIG. 6 illustrates the chair construction of this invention in knocked down condition. The seat structure 20 and the back structure 10 are positioned in bottom to back relationship, the legs 2 being placed between the seat and back structures. The arm members 30 are positioned on top, the entire knocked down unit comprising a small amount of space compared to the assembled construction shown in FIG. 1. Thus, the manufacturer's shipping costs are greatly reduced, enabling him to ship his product throughout a much greater marketing area.

Upon reaching the final destination, the chair construction 1 is assembled as follows. The rear structural element 41 of the seat structure 20 is positioned against the lower structural element 40 of the back structure 10. Screws 42 are inserted in the upper openings 43 of structural element 41 and into the openings 44 in the structural element 40. It will be noted that by merely inserting screws 42 into these upper openings, a certain amount of relative movement between the back structure 10 and the seat structure 20 is permitted as shown in FIG. 4.

An arm member 30 is then mounted on each side of the back and seat structure as follows. Button-like members 35 and 37 on legs 32 of arm members 30 are inserted respectively into the head portions 25 and 28 of key-shaped recesses 24 and 27 provided in the seat structure 20. The arm member 30 is then rotated towards the back structure 10 to be locked in place. Button-like members 33 are inserted through the head portions 15 of the key-shaped recesses 14 provided in the back structure 10. The respective stem portions of these button-shaped members will slide into the respective tail portions of the recesses provided in the back structure 10 and seat structure 20. The arm members 30 are thus affixed to the back and seat structures.

Since key-shaped recesses 24 and 27 are tapered as shown in FIGS. 8 and 9, the button-like members 35 and 37 are drawn into the plate 22 which both draws the arm close to the body of the chair and creates a wedging action upon rotation which assures an excellent connection. The key-shaped recesses 14 in the back structure 10 are also preferably tapered to provide this wedging action at the connection of the arms to the back structure.

Screws 42 are then inserted through openings 44 and into openings 43 in the bottoms of the structural elements 41 and 40 respectively. It will be noted that by securing these screws in this manner, the back structure 10 is rotated rearwardly with respect to the seat structure 20. This completes the locking of the arm members 30 to the chair construction, since they will be distended and held under tension when the back frame 10 is rotated rearwardly. This provides an extremely rigid lock between the arm members and the seat construction 1. The legs 2 may then be secured to the bottom of the seat structure.

The modification of this chair construction shown in

4

FIG. 5 is assembled in much the same manner, the hooks 45 being inserted into the hook-receiving means 46, the arm members 30 being affixed to the side of the back structure 10 and the seat structure 20 as described hereinbefore, and the screws 42a then being inserted through the openings 43a and into the openings 44a providing the final tightening of the back structure to the seat structure and again rotating the back structure rearwardly to distend the arm members 30 and rigidly lock them in position.

It will be noted that this invention provides a readily dismantled chair construction adapted to be shipped in knocked down condition, thereby greatly reducing the manufacturer's cost of shipment. A simple, inexpensive structure has been provided which can very quickly and simply be assembled at its point of destination, a screw driver being the only tool necessary during the assembling operation. Even though the means of attachment is simple, the arm structures are mounted in a manner so as to be practically foolproof. The arms, when so attached, are completely rigid and do not give the impression of inexpensive or poorly built furniture. This furniture construction is pleasing in appearance since there is complete concealment of all of the attachment means. The arms lie flush with the sides of the chair construction. Further, it may be disassembled as quickly as it was assembled.

While only certain embodiments of this invention have been shown and described, it is possible that certain other embodiments may be utilized without departing from the spirit and scope of this invention. Such embodiments are to be included within the spirit and scope of the invention unless the following claims specifically state otherwise.

I claim:

1. A readily dismantled chair having detachable arms, comprising a pair of generally L-shaped arm members, at least three button-like members extending from the inner side of each of said arm members, each button-like member including a stem portion spacing said button-like member from said arm members, said button-like members having a greater cross sectional area than said stems, one of said button-like members extending from said side of said L-shaped arm member near the end of one leg thereof and a pair of said button-like members extending from said side of said L-shaped arm member near the end of the other leg thereof, a seat and back structure, said seat and back structure being easily detachable from one another, means on each side of both said seat structure and said back structure for receiving said button-like members, said means on one of said seat and back structures including at each side thereof a key-shaped recess, the head of said key-shaped recess receiving said one button-like member and the tail of said key-shaped recess receiving the stem thereof, and said means on the other of said seat and back structures including at each side thereof a pair of key-shaped recesses having tails pointing in generally opposite directions, the heads of said key-shaped recesses receiving said pair of button-like members and the tails of said key-shaped recesses receiving said stems thereof.

2. A readily dismantled chair having detachable arms as recited in claim 1, said seat and back structure secured together by means of detachable fastening members extending through preformed openings in the rear of said seat structure and into preformed openings near the bottom of said back structure, said fastening members being accessible from the bottom of said seat structure.

3. A readily dismantled chair having detachable arms as recited in claim 1, said seat and back structure secured together by means of hooks extending from near the bottom of said back structure into recessed hook-receiving means in the rear of said seat structure and detachable fastening members extending through preformed openings below said hook-receiving means into preformed opening

below said hooks, the heads of said fastening members accessible from the bottom of said seat structure.

4. A readily dismantled chair having detachable arms, comprising a pair of generally L-shaped arm members, at least three button-like members extending from the inner side of each of said arm members, each button-like member including a stem portion spacing said button-like member from said arm members, said button-like members having a greater cross sectional area than said stems, one of said button-like members extending from said side of said L-shaped arm member near the end of one leg thereof and a pair of said button-like members extending from said side of said L-shaped arm member near the end of the other leg thereof, a seat and back structure, said seat and back structure being easily detachable from one another, means on each side of both said seat structure and said back structure for receiving said button-like members, said means on one of said seat and back structures including at each side thereof a key-shaped recess, the head of said key-shaped recess receiving said stem thereof, said means on the other of said seat and back structure including at each side thereof a pair of key-shaped recesses having tails pointing in generally opposite directions, the heads of said key-shaped recesses receiving said pair of button-like members and the tails of said key-shaped recesses receiving said stems thereof, and said means on said seat and back structures positioned such that said legs of said L-shaped arm members are locked in place when said seat and back structures are secured together.

5. A readily dismantled chair having detachable arms as recited in claim 4, said seat and back structure secured together by means of screws extending through preformed openings in the rear of said seat structure and into preformed openings near the bottom of said back structure, the heads of said screws being accessible from the bottom of said seat structure.

6. A readily dismantled chair having detachable arms as recited in claim 4, said seat and back structure secured together by means of hooks extending from near the bottom of said back structure into recessed hook-receiving means in the rear of said seat structure and screws extending through preformed openings below said hook-receiving means into preformed openings below said hooks, the heads of said screws accessible from the bottom of said seat structure.

7. A readily dismantled chair comprising a back, a seat, and an arm, said arm having means thereon cooperating with complementary means on said back and seat to interlock said arm, back and seat, said complementary means on at least one of said back or seat requiring a rotational motion of said arm to interlock said arm therewith, holding means on the other of said back and seat for engaging said arm and holding it against rotational

movement, and tightenable joining means for rigidly joining said back and said seat, said holding means being locked against disengagement when said chair is assembled and said joining means are tightened.

8. A readily dismantled chair comprising a back, a seat, and an arm, said arm having button means thereon cooperating with key-shaped slot means on said back and seat to interlock said arm, back and seat, said slot means on at least one of said back or seat comprising a pair of slots disposed in opposite directions so as to require a rotational motion of said arm to disengage it from said slots, holding means on the other of said back and seat for engaging said arm and holding it against rotational movement, and tightenable joining means for rigidly joining said back and said seat, said holding means being locked against disengagement when said chair is assembled and said joining means are tightened.

9. A readily dismantled chair comprising a back, a seat, and an arm, said arm having button means thereon cooperating with key-shaped slot means on said back and seat to interlock said arm, back and seat, said slot means on at least one of said back or seat comprising a pair of slots disposed in opposite directions so as to require a rotational motion of said arm to disengage it from said slots, means on said slots for wedging said button means therein, holding means on the other of said back and seat for engaging said arm and holding it against rotational movement, and tightenable joining means for rigidly joining said back and said seat, said holding means being locked against disengagement when said chair is assembled and said joining means are tightened.

10. A readily dismantled chair including a back, a seat, and an arm, said arm having means thereon cooperating with complementary means on said back and seat to interlock said arm, back and seat, said complementary means on at least one of said back or seat requiring a rotational motion of said arm to interlock said arm therewith, holding means on the other of said back and seat for engaging said arm and holding it against rotational movement, and said holding means being locked against disengagement from said arm when assembled, thereby securing said arm to said back and seat.

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