March 4, 1958 B. F. HAMILTON 2,825,394

CHAIR-BACK MOUNTING

Filed April 6, 1953

Fig. 1.

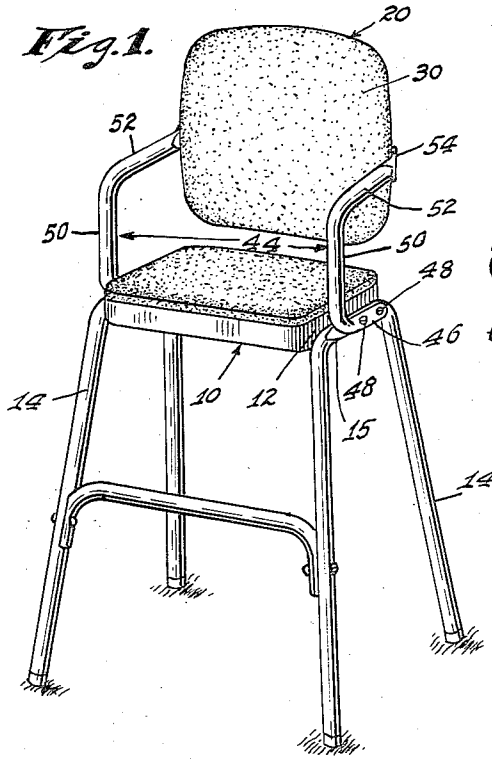


Fig. 3.

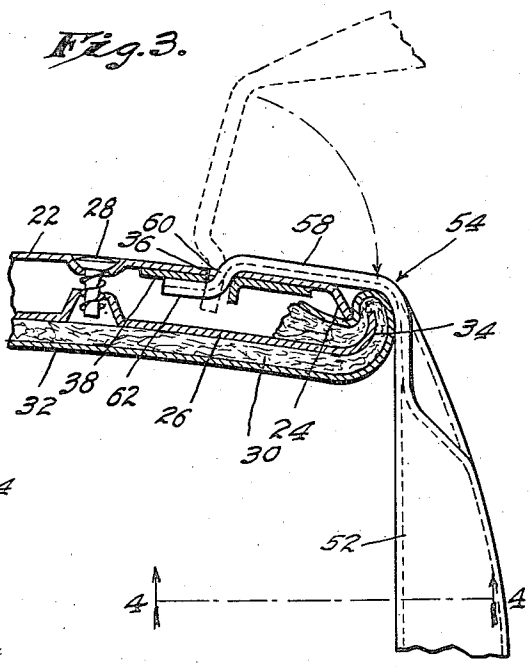


Fig. 2.

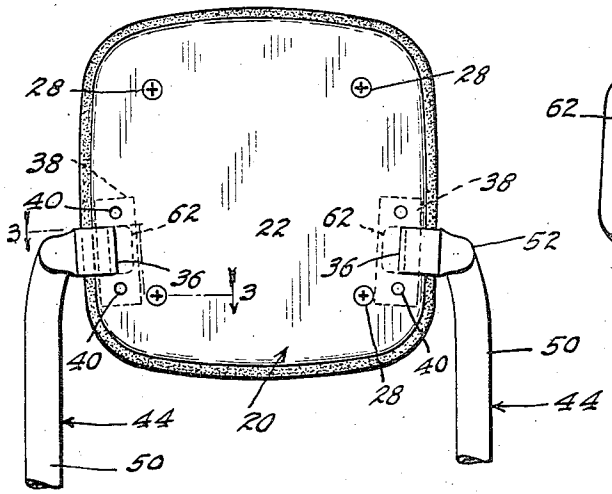
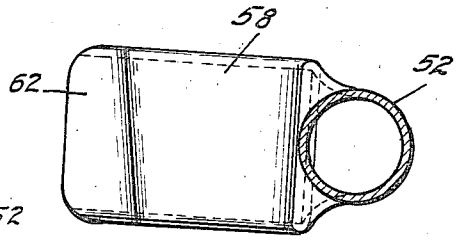


Fig. 4.



INVENTOR.
BERTIS F. HAMILTON,
BY
ATTORNEYS.

United States Patent Office 2,825,394 Patented Mar. 4, 1958

2,825,394

CHAIR-BACK MOUNTING

Bertis F. Hamilton, Columbus, Ind.; William S. Hamilton, executor of said Bertis F. Hamilton, deceased, assignor to Hamilton Manufacturing Corporation, Columbus, Ind., a corporation of Indiana

Application April 6, 1953, Serial No. 346,919

2 Claims. (Cl. 155—196)

This invention relates to a chair or like article of furniture, and more particularly to an improved means for rigidly supporting a chair-back from a chair-seat.

It is an object of this invention to produce a mounting for a back of a chair which will be sturdy and rigid in use, which is attractive in appearance, and which requires no visible fastening means. Another object is to produce a mounting by which a back may be readily assembled in a chair by a non-skilled buyer after delivery of the chair in a knock-down condition. A further object is to provide a back which is adapted for mounting by means extending into back-holding engagement interiorly of an assembled back-frame and cushion without disassembly thereof. A still further object is to produce a mounting which will be capable of supporting the back from the chair-arms alone and which will be especially adapted for construction from economical sheet-metal and tubular-metal stock. These and other objects will become apparent as the description is understood.

In carrying out my invention in its preferred form, I support the back entirely from the rear ends of chair-arms. Conveniently, the back includes a sheet-metal back-pan having a forwardly projecting peripheral flange which engages a rigid pad-support and holds it spaced from the pan against the force exerted by screws or other means holding the pan and pad-support in assembled condition. Near each side, the pan is provided with a vertical slot the edges of which are desirably reinforced. The rear ends of the chair arms are formed to extend inwardly across the rear surface of the back pan to the slots and forwardly through the slots and terminate in short lips which extend inwardly of the back along the front face of the back pan. Conveniently, each arm is formed of metal tubing bent to provide a lower horizontal portion adapted to extend forwardly along and be secured to one side of the seat, an upwardly extending intermediate portion, and an upper horizontal portion the rear end of which is collapsed for engagement with and connection to the back-pan. In assembling the chair, the lips on the ends of the arms are inserted through the slots before the arms are attached to the chair-seat, and the arms are then swung toward each other and secured to the chair-seat. The arrangement is desirably such that the lips, by engaging the front surface of the back-pan slightly before the arms have been swung to final positions, will introduce stresses in the metal of the arms and back-pan as the arms are drawn into final position by the means which secures them to the seat.

The accompanying drawing illustrates my invention:

Fig. 1 is an isometric view of a chair embodying my preferred back-mount construction;

Fig. 2 is a rear elevation of the chair-back;

Fig. 3 is a horizontal section taken on the line 3—3 of Fig. 2; and

Fig. 4 is a vertical section of the upper portion of the chair-arm, taken on the lines 4—4 of Fig. 3.

The chair illustrated comprises a seat 10, conveniently in the form of a sheet-metal stamping, having a depending peripheral flange 12 to which are secured the chair-supporting legs 14. In the preferred construction, the legs 14 are end portions of tubular leg-forming members of inverted U-shape having intermediate, horizontal portions 15 extending along the flange 12 of the sides of the seat.

Carried by the chair in a manner yet to be described is a chair back 20, desirably comprising a sheet-metal back-pan 22 transversely extending across the rear of the back and having a forwardly-projecting peripheral flange 24. Such flange 24 both stiffens the back-pan 22 and provides spacer means against which is clamped a rigid pad-support 26, in spaced relation to said back-pan. Means such as screws 28 extending between the back-pan 22 and the pad-support 26 hold them assembled, with a layer of padding 30 forwardly overlying the pad-support 26 and tucked in peripherally between the support 26 and the pan-flange 24 which it embraces.

Desirably, the padding 30 is outwardly faced with a sheet of flexible material, such as the plastic sheet 32. Desirably also, the pad-support 26 has a rearwardly-directed peripheral flange 34 which annularly overlies the forward portion of the pan-flange 24, the pad-support flange 26 being of a radius larger than that of the back-pan flange 24 an amount somewhat less than the normal thickness of the sheet of padding 30 tucked between them, the snug fit thereby obtained as the flanges 24—34 are telescoped by tightening the screws 28 adding to appearance and rigidity of the assembly, and tautness of the padding 30 and facing 32.

Near each side of the back-pan 22, it is provided with a vertically elongated slot 36, the edges of which are desirably stiffened by a stiffener plate 38 secured as by spot-welds or rivets 40 to the front surface of the back-pan 22. I contemplate that the above-described assembly of padding 30, plastic sheet 32, pad-support 26, and back-pan 22, with the latter's stiffening-plate 38, be done by the manufacturer; for mounting means yet to be described permit the chair-arms 44 to rigidly support the back by extending interiorly into and in tight back-holding engagement with such above-described back-assembly without disassembly thereof.

Such chair arms 44 are desirably formed of metal tubing, each being of a generally C-shape. The lower stretch 46 of each arm 44 extends fore-and-aft along the seat sidewall 12, or more specifically in the embodiment shown along the horizontal intermediate stretch 15 of the leg-forming member, to be secured thereto by screws 48. In such an arrangement, the tubing of the arm-stretch 46 may be collapsed and formed in cross-section to fit against the leg member. The intermediate, vertical stretch 50 of the chair arm rises to an elevation at which a chair arm-rest is normally carried, and at such elevation is turned rearwardly to form an upper rearwardly-extending horizontal stretch 52 which serves as an arm-rest for a chair occupant.

At the rear of the upper stretch 52, the metal tubing is collapsed, and is bent horizontally inwardly of the upper stretch 52 to provide a laterally extending tongue 54; and by means now to be described, the tongues 54 inwardly extending from the right-hand and left-hand chair arms 44 in a general co-axial fashion are adapted to engage the chair-back 22 to firmly hold the back in its position on the chair.

The flattened portion of tongue 54 immediately adjacent the rear of the chair arm stretch 52, such tongue portion identified herein as a first portion 58, is of a length at least as great as the distance of the back 20 outwardly of the back-pan slot 36. Inwardly of the first portion 58, the tongue is extended forwardly to form a second portion 60 for passing through the back-pan slot 36, and at the forward end of such second portion 60

the tongue is bent to form a third tongue-portion or lip **62** generally parallel to the tongue first-portion **58**.

In assembling such a chair, the lips **62** are inserted through the slots **36** of the back-pan (see broken-line showing of Fig. 3) before the arms are attached to the chair seat, and the arms **44** are then swung toward each other. The collapsed rear-end portion of each of the arms is desirably so formed and so disposed relative to the lower arm-stretch **46** that the lips **62** will engage the front face of the reinforced back-pan slightly before the arms have been swung inwardly to their ultimate position as determined by engagement of the arm-stretches **46** with the the intermediate stretch **15** of the leg-forming member. As a result, when the screws **48** are tightened, lost-motion in the connection between the arms and back will be taken up, the interengaging portions will be elastically stressed, and a firm support for the back provided.

It will be noted that the tubular members hereinbefore called arms perform the double function of supporting the back and of providing rests for the arms of a chair-occupant. To increase the effectiveness of the screws **48** in resisting forces imposed on the back and in drawing those tubular members inwardly against the elastic stresses previously referred to, it would be desirable for the lower stretches **46** to extend well forwardly along the sides of the seat. By forming them to extend as far forwardly as they do it is possible to provide at each side of the chair a single, low-cost member which, in addition to supporting the back, will also serve as an arm for the chair.

Although I have described a specific embodiment of my invention I intend to cover all changes and modifications of the example herein chosen for purposes of disclosure which do not constitute departures from the spirit and scope of the appended claims.

I claim as my invention:

1. In a chair having a base including a seat, a back, and arm members, each of said members being of a general U-shape to provide upper and lower horizontal portions and an intermediate portion, means for clamping the lower horizontal portions to said base at opposite sides of said seat with the intermediate portions projecting upwardly from the forward ends of the lower horizontal portions and the upper horizontal portions projecting rearwardly, said back including a rigid sheet-metal pan having a vertically extending slot spaced inwardly from each of its sides, the rear ends of said upper horizontal stretches being bent to provide tongues having body portions extending toward each other along the rear face of said back pan, the inner ends of said tongues having forwardly offset extensions projecting through said slots and engaging the front face of said back pan, said arm members being swingable forwardly and toward each other about said slots as axes, said tongue bodies and extensions serving by their engagement respectively with the rear and front faces of said back pan to limit said inward swinging of the arm members to positions where the distance between them is greater than the width of said base, said clamping means acting to force the arm members inwardly beyond such positions to introduce elastic strains into the interengaging portions of the back pan and arm members.

2. A chair as set forth in claim 1 with the addition that said back includes a pad support overlying the front face of the back pan and secured thereto, said paid support being spaced from the back pan in the vicinity of said slot to permit insertion of the extensions into the slots.

References Cited in the file of this patent

UNITED STATES PATENTS

D. 166,035	Hamilton	Feb. 26, 1952
1,015,615	Cordley	Jan. 23, 1912
2,306,879	Hamilton et al.	Dec. 29, 1942
2,457,294	Wood	Dec. 28, 1948
2,572,591	Booth	Oct. 23, 1951
2,631,655	Jannello	Mar. 17, 1953