

Nov. 22, 1960

I. C. KEEFER
CHAIRS

2,961,037

Filed March 25, 1957

3 Sheets-Sheet 1

FIG-1

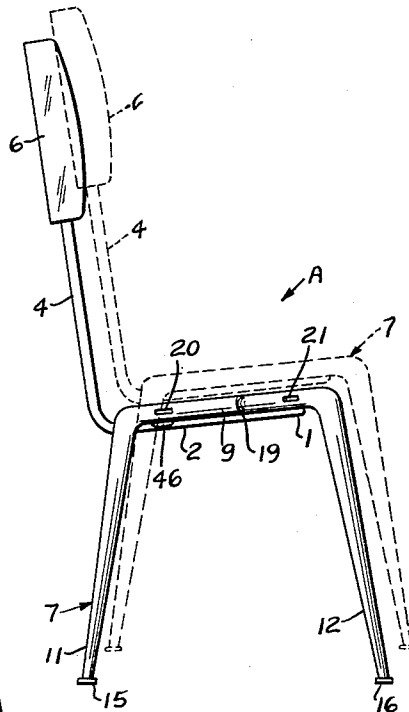
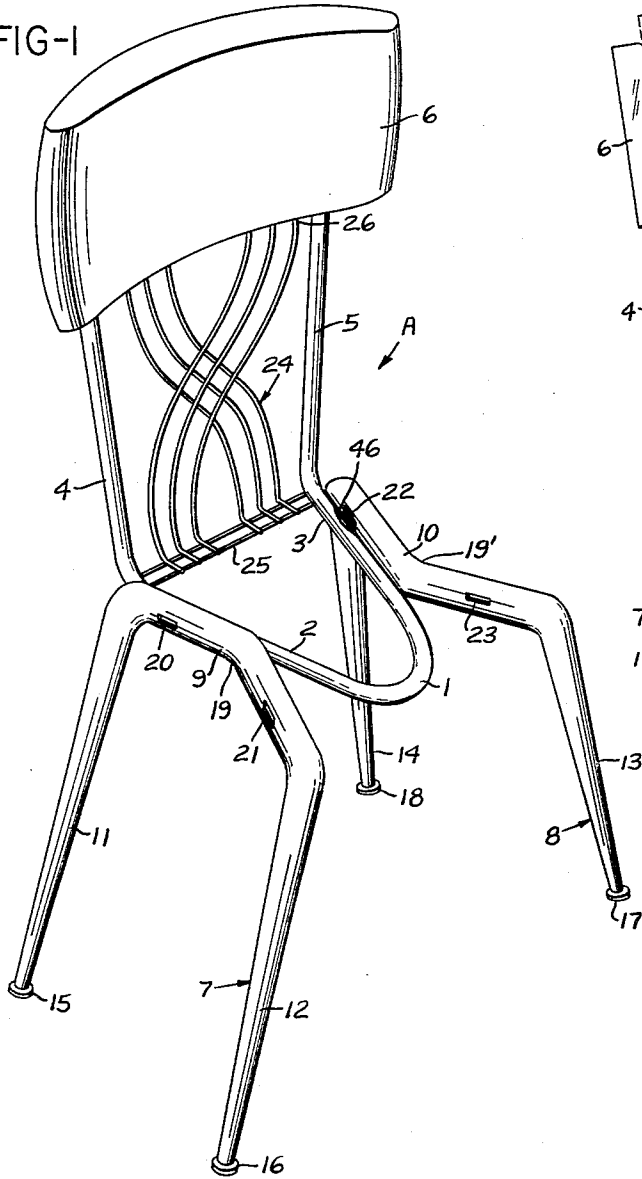
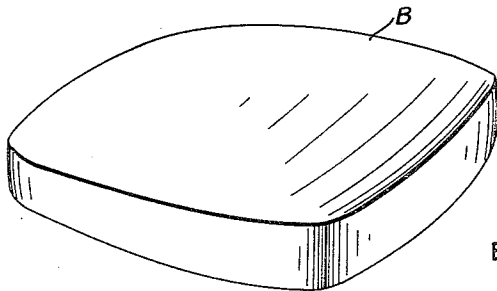


FIG-3

FIG-2



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3 Sheets-Sheet 2

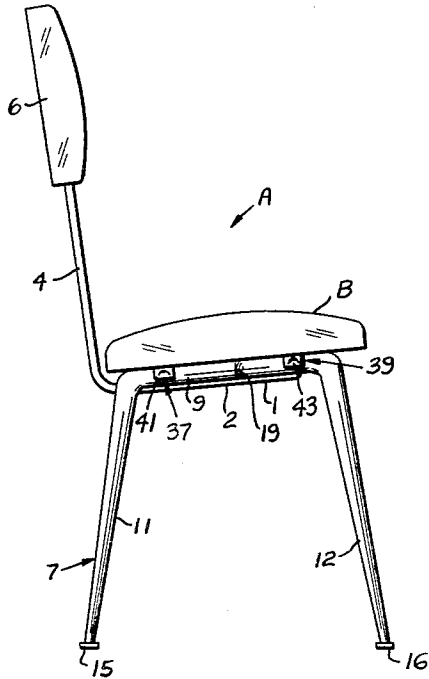


FIG-4

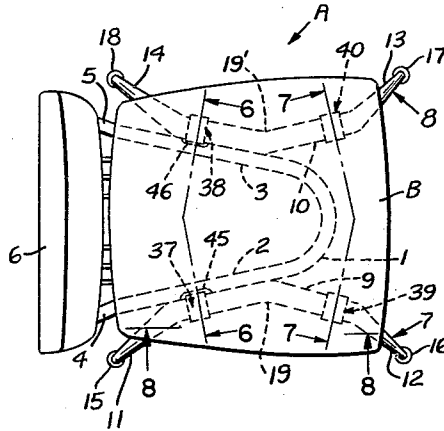


FIG-5

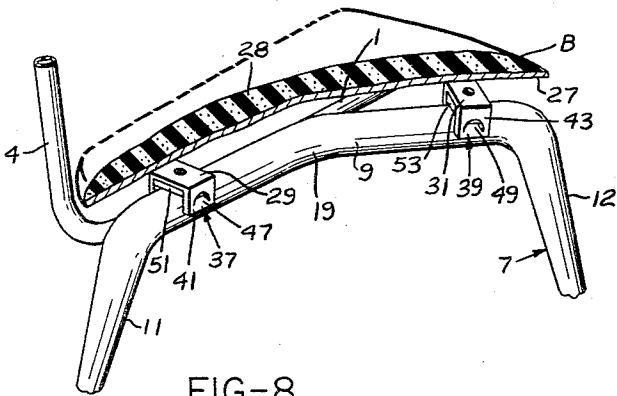


FIG-8

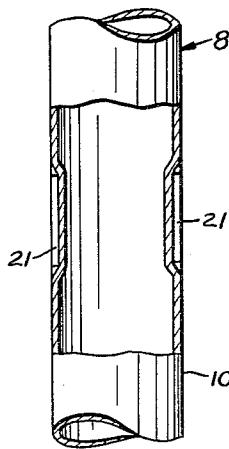


FIG-9

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3 Sheets-Sheet 3

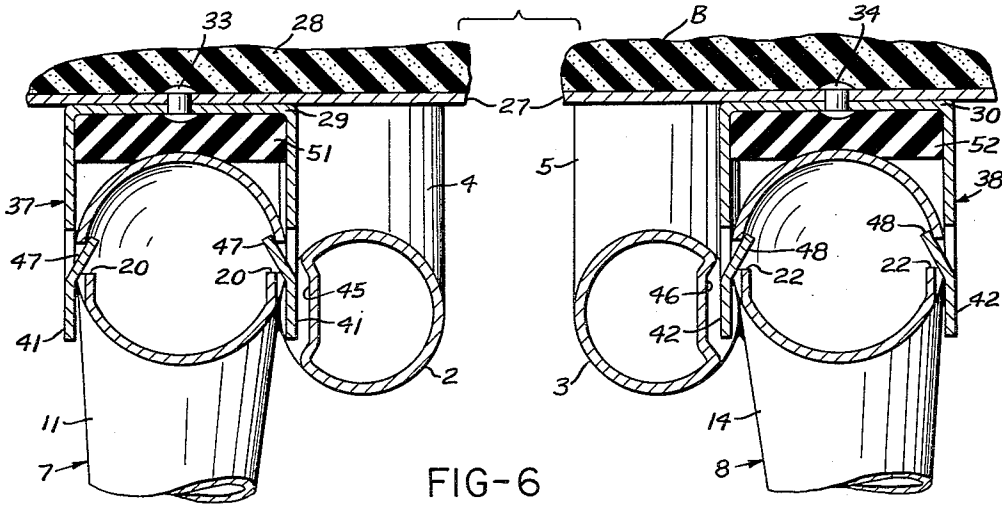


FIG-6

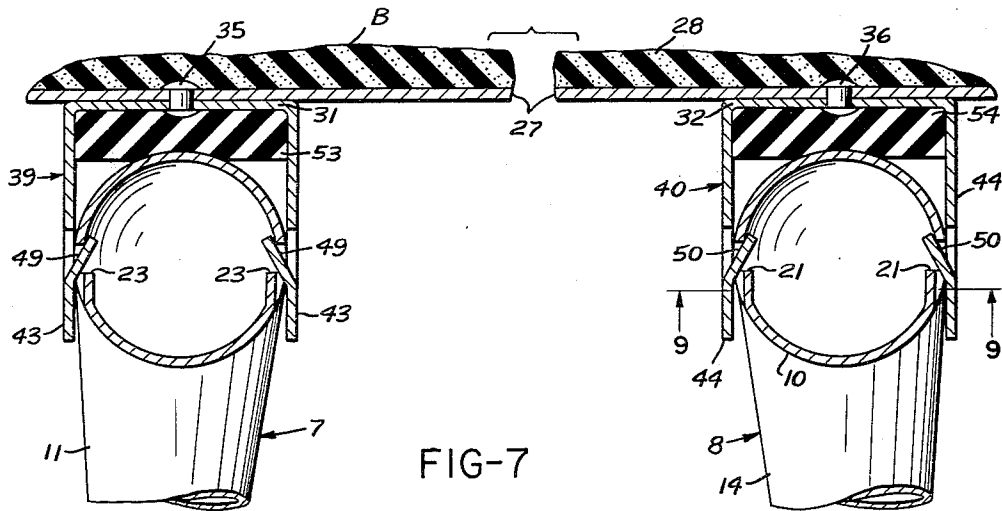


FIG-7

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2,961,037

CHAIRS

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3 Claims. (Cl. 155—196)

This invention relates to new and useful improvements in chairs.

In the manufacture and distribution of furniture the ratio between bulk and weight for shipping purposes has always been a serious problem. Some articles of furniture, such as beds, for example, can be readily shipped in so-called "knocked down" condition so that an economical tonnage can be compactly loaded into a freight car, truck or van. However, other articles of furniture, such as case goods, chairs and the like, occupy rather large volume per unit of weight and, hence, are relatively expensive to ship. Case goods, being comparatively high-priced merchandise, do not present a serious economic problem but inexpensive articles, such as dinette chairs, cannot readily bear undue shipping costs. Therefore, in order to economize on shipping costs, it is desirable to package and ship chairs in an unassembled or so-called "knock down" condition. However, it is equally important and desirable that the chairs which are so shipped, can be quickly assembled without the use of tools and without need for trained or skilled mechanics. It has been found that a substantial amount of shipping space is conserved if the chair frame is not assembled with the seat so that seat cushions can be packed in any convenient space not occupied by chair frames. Preferably the chair frames are so constructed that they may be telescopically nested one on the other, such that a stack of chair frames will fit snugly and compactly within each other and will not be likely to become damaged when so nested.

It is, therefore, one of the objects of the present invention to provide a chair wherein the chair frame and seat can be shipped as separate units but are capable of being quickly and easily assembled without tools or skilled mechanical manipulations, and, when so assembled, cannot readily be taken apart.

It is also an object of the present invention to provide a chair having a frame so constructed that a plurality of such frames may be telescopically nested one upon the other for purpose of shipment.

It is also an object of the present invention to provide a chair of the type stated in which the attachment means between the seat and frame is relatively self-adjusting so as to achieve effective engagement irrespective of minor variations or manufacturing inaccuracies in the dimensions and shape of the several components.

With the above and other objects in view, my invention resides in the novel features of form, construction, arrangement, and combination of parts presently described and pointed out in the claims.

In the accompanying drawings

Fig. 1 is a perspective view of a chair frame constructed in accordance with and embodying the present invention;

Fig. 2 is a perspective view of the seat cushion forming a part of the present invention;

Fig. 3 is a side elevational view of the chair frame and showing the manner in which the frames are stacked for purpose of shipment;

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Fig. 4 is a side elevational view of the chair showing the seat cushion and chair frame in assembled relation;

Fig. 5 is a top plan view of the chair shown in Fig. 4; Figs. 6, 7, and 8 are fragmentary sectional views taken along lines 6—6, 7—7, and 8—8, respectively, of Fig. 5; and

Fig. 9 is a fragmentary sectional view taken along line 9—9 of Fig. 7.

Referring now in more detail and by reference characters to the drawings, which illustrate a preferred embodiment of the present invention, A designates a chair frame integrally comprising a somewhat V-shaped frame member 1 formed of hollow metallic tubing and including two rearwardly diverging arms 2, 3, which are coplanar and extend downwardly at a small angle to the horizontal. At their rear ends the arms 2, 3, are bent in the provision of upwardly extending back cushion supports 4, 5, which, at their outer ends, extend into and support a back cushion 6. Welded or otherwise rigidly secured to the arms 2, 3, is a pair of hollow tubular U-shaped frame members 7, 8, slightly larger in diameter than the frame member 1 and including slightly rearwardly inclined bight portions 9, 10, provided at their opposite ends with downwardly diverging tapering legs 11, 12, 13, 14, the latter, in turn, being provided on their lower ends with glides 15, 16, 17, 18. The bight portions 9, 10, are not straight but are bent at 19, 19', so as to form a shallow V for purposes presently more fully appearing. The bight portions 9, 10, are also provided with four pairs of elongated apertures 20, 21, 22, 23, the apertures in each pair being aligned and diametrically opposed. If desired, an ornamental grill 24 may be secured at its lower end 25 to the arms 2, 3, and at its upper end 26 to the back cushion 6.

Provided for cooperation with the chair frame A is a seat member B including a sheet metal base or bottom member 27 which supports a cushioning layer 28 of sponge rubber or other suitable material. Secured to the underside of the seat bottom member 27 at their bights 29, 30, 31, 32, by means of rivets 33, 34, 35, 36, are four spaced U-shaped spring clips 37, 38, 39, 40, each having a pair of flat, spaced, parallel depending spring fingers 41, 42, 43, 44, which bear against the bight portions 9, 10, of the members 7, 8, one of the arms 41, 42, projecting into longitudinal clearance slots 45, 46, formed at the rear ends of the arms 2, 3. Integrally formed on the arms 41, 42, 43, 44, are inwardly bent arcuately shaped resilient ears 47, 48, 49, 50, which, in turn, are adapted to project through the apertures 20, 21, 22, 23, as best seen in Figs. 6 and 7. It should be noted that the heads of the rivets are drawn down tightly enough so that there is no vertical yielding between the bights 29, 30, 31, 32, and the under surface of the seat bottom member 27 but, nevertheless, permits a small amount of swiveling movement so that the clips 37, 38, 39, 40, are in effect self-aligning and will shift a little if necessary to make up for minor dimensional errors and manufacturing inaccuracies.

In use, the completed chair frames A are telescopically nested on each other in the manner shown in dotted lines in Fig. 3. In this regard it should be noted that when the chair frames A are stacked, they will fit snugly and compactly and occupy a minimum of space, since the bight portions 9, 10, are in the form of a shallow V, which allows the rear legs of one frame sufficient space to fit somewhat forwardly of the rear legs of the frame below. A plurality of chair frames A stacked in the manner shown in Fig. 3 may then be placed in a suitable shipping carton. The seats B being separate from the frames A are separately packaged or may be packaged in such free space as may be available in the carton containing the chair frames A. When it is desired to as-

semble the chair frames A and seats B for purpose of sale or display, the seat cushion B may be properly positioned over the frame A so that the spring fingers 41, 42, 43, 44, contact the bight portions 9, 10. The seat B is then pushed downwardly until the resilient ears 47, 48, 49, 50, snap into the apertures 20, 21, 22, 23, whereupon the seat B will be held snugly and retentively in place. The resilient rubber strips 51, 52, 53, 54, by reason of the snug-fitting engagement with the bight portions 9, 10, assisting in insuring a rigid connection between the seat B and the chair frame A.

It should be understood that changes and modifications in the form, construction, arrangement, and combination of the several parts of the chairs may be made and substituted for those herein shown and described without departing from the nature and principle of my invention.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A chair comprising a frame having a hollow supporting member provided with a plurality of pairs of laterally presented aligned horizontal apertures, and a seat member having a plurality of U-shaped spring clips secured at their bights to the underside of said seat member, each said spring clip having a pair of spaced parallel fingers projecting downwardly from said bights and being in facewise engagement with the exterior surface of said supporting member adjacent one pair of said apertures, each said finger being provided with a resilient ear integral with and projecting inwardly and upwardly out of the plane of the finger, each said ear projecting through its associated aperture and terminating in upwardly spaced relation to the upper margin of said associated aperture so as to snugly confine a portion of the supporting member adjacent the aperture between each finger and associated ear, and a resilient cushion, said resilient cushion being secured upon the under face of the bight of said U-shaped clip and being thereby interposed between said bight and the upper surface of said frame, the distance between the downwardly presented surface of said cushion and the upper edges of the ears being substantially shorter than the vertical distance between the top surface of the supporting member and the upper margins of the apertures therein so that when the U-shaped clip and supporting member are engaged the cushion will be deformed and, by reason of its resilience, will draw the ears of said fingers upwardly into interlocked engagement with the corresponding apertures of the supporting member.

2. A chair comprising a frame having a hollow supporting member provided with a pair of laterally presented aligned horizontal apertures, a seat member having a U-shaped spring clip secured at its bight to the underside of said seat member, said spring clip having a pair of spaced parallel fingers projecting downwardly from said bight and being in facewise engagement with the exterior surface of said supporting member adjacent said apertures, each said finger being provided with a resilient ear integral with and projecting inwardly and upwardly out of the plane of the finger, each said ear projecting through its associated aperture and terminating in upwardly

spaced relation to the upper margin of said associated aperture so as to snugly confine a portion of the supporting member adjacent the aperture between each finger and associated ear, and a resilient cushioning element interposed between the bight and supporting member, the downwardly presented surface of said element being vertically closer to the upper edges of the ears than the vertical distance between the top of the supporting member and the upper margins of the apertures so that when the U-shaped spring clip and the supporting member are engaged said element will be deformed and exert resilient pressure between the U-shaped spring clip and the supporting member.

3. A chair comprising a frame having a hollow supporting member provided with a plurality of pairs of laterally presented aligned horizontal apertures, and a seat member having a plurality of U-shaped spring clips swivelly secured at their bights to the underside of said seat member, each said spring clip having a pair of spaced parallel fingers projecting downwardly from said bight and being in facewise engagement with the exterior surface of said supporting member adjacent one pair of said apertures, each said finger being provided with a resilient ear integral with and projecting inwardly and upwardly out of the plane of the finger, each said ear projecting through its associated aperture and terminating in upwardly spaced relation to the upper margin of said associated aperture so as to snugly confine a portion of the supporting member adjacent the aperture between each finger and associated ear, and a resilient cushion, said resilient cushion being secured upon the under face of the bight of said U-shaped clip and being thereby interposed between said bight and the upper surface of said frame, the distance between the downwardly presented surface of said cushion and the upper edges of the ears being substantially shorter than the vertical distance between the top surface of the supporting member and the upper margins of the apertures therein so that when the U-shaped clip and supporting member are engaged the cushion will be deformed and, by reason of its resilience, will draw the ears of said fingers upwardly into interlocked engagement with the corresponding apertures of the supporting member.

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