July 17, 1956 P. D. BECKER 2,755,114

FASTENING DEVICE

Filed June 21, 1952

FIG. 1.

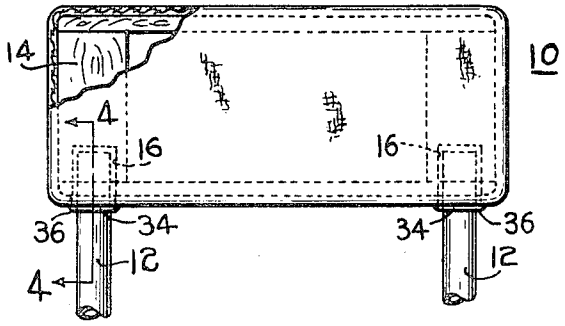


FIG. 2.

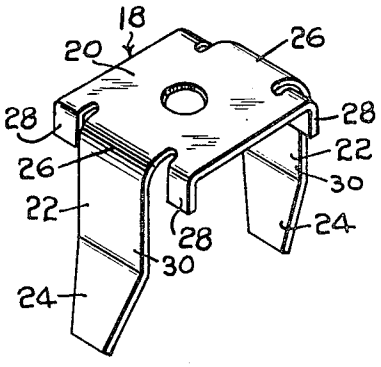


FIG. 3.

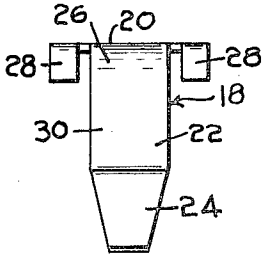


FIG. 4.

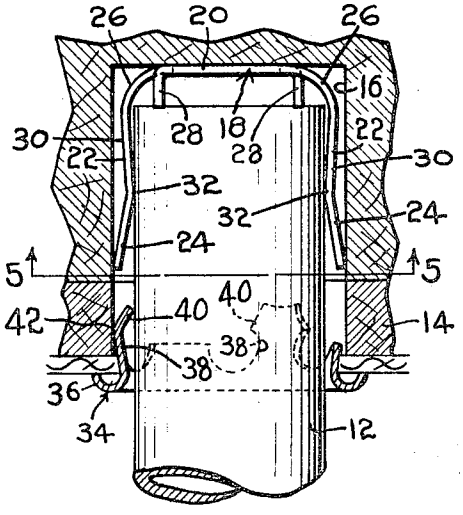
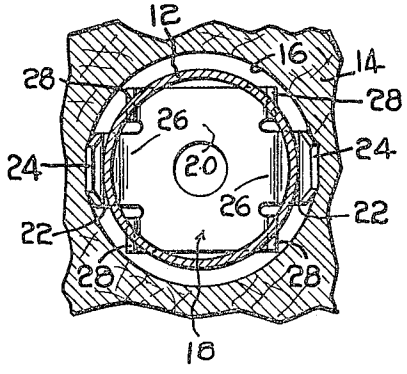


FIG. 5.



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FASTENING DEVICE

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Application June 21, 1952, Serial No. 294,951

1 Claim. (Cl. 287—20)

This invention relates generally to the construction of furniture, and has particular reference to the construction of tubular frame chairs and to a device for retaining a wooden back member on such a tubular frame.

In the construction of certain types of chairs, the frame is formed of steel tubes which are bent into the desired configuration to form the seat support and the legs. To provide a back, a pair of spaced tubes extend upwardly from the seat to form support means for a wooden back member extending between the pair of tubes in spaced relation to the base. Heretofore it has been common to attach the wooden back member to the tubes by simply superimposing it into the tubes and fastening it thereto by bolts or screws. This method of attachment is not entirely satisfactory, since holes must be provided in the tubes, which adds to the expense of the assembly, and other means must be provided to close the exposed ends of the tubes to provide a neat appearance to the completed chair.

The object of this invention is to provide a means for attachment of a chair back to a tubular frame chair which enables the back to be easily assembled onto the tubular back members without the necessity of providing holes in the frame, and which eliminates the necessity of closure members for the ends of the tubes.

In the drawing:

Fig. 1 is a view in elevation of a portion of a chair embodying the features of the invention having a tubular frame with a wooden member secured thereto to form a back;

Fig. 2 is a perspective view of a fastening device for use in the assembly of Fig. 1;

Fig. 3 is a view in side elevation of the fastener of Fig. 2;

Fig. 4 is an enlarged view in section taken on line 4—4 of Fig. 1; and

Fig. 5 is a view in section taken on line 5—5 of Fig. 4.

Referring to the drawing, there is illustrated the back portion of a tubular frame chair 10, in which a pair of upright tubular members 12 are provided to support a wooden back member 14. The back member 14 extends between the tubular members, and is provided with a pair of cylindrical apertures 16 in the lower edge thereof to receive the ends of the tubular members.

To retain the back on the tubular members, a fastener 18 is provided in each aperture 16 to engage the end of the tube. Before assembly, the fastener 18 has the configuration illustrated in Figs. 2 and 3, and comprises generally a flat base 20, and a pair of broad flat legs 22 extending downwardly from opposite ends of the base, said legs having outwardly inclined end portions 24. Since the fastener 18 is preferably formed of a single piece of high carbon sheet steel, the legs 22 are joined to the base by a curved portion 26 having a radius which is relatively large compared to the thickness of the metal of which the fastener is formed so as to avoid cracking of the metal during forming and heat treatment thereof. A group of

stop members 28 are provided on the base, which are preferably formed from the edges thereof, and are spaced in pairs on opposite sides of each leg in a position to be abutted by the end of an inserted tubular member as will appear hereinafter.

The fastener 18 is assembled with the back member 14 by simply forcing it base first into one of the apertures 16 until the base 20 seats against the bottom of the aperture. During such insertion, the ends of the legs 22, which are normally spaced apart a greater distance than the diameter of the opening, are flexed together to conform to the size of the opening, and hence after such insertion the outwardly inclined end portions 24 and the portion 30 of the legs adjacent the base cooperate to form an inwardly bowed medial portion 32, and the ends of the arms frictionally engage the walls of the opening to retain the fastener therein.

To provide a finished appearance to the assembly, and to prevent tilting movement of the tubular member after insertion, a ring shaped member 34 is assembled into the end of the aperture, and comprises a curled flange 36 for seating against the outside of the back member about the opening, and a series of retaining legs 38 for extending into the opening. The legs 38 have an inwardly extending end portion 40 for frictional engagement with an inserted tube, and an outwardly extending intermediate portion 42 for frictional engagement with the wall of the opening to retain the member 34 in assembly in the opening.

The back member 14, after assembly of the fasteners 18 and the rings 34 into the apertures, may be assembled onto the ends of the tubular members 12 of the back by merely forcing the end of each tube into one of the apertures, so that inwardly bowed portions 32 of the fastener 18, which are spaced apart in the opening a distance less than the diameter of the tubes, must flex outwardly to receive the tube therebetween, thereby causing the legs 22 to frictionally engage the inserted tube. As the tubes move into the openings, the end thereof abuts the stop members 28, so that the end of the tube comes to rest in spaced relation to the base, thereby avoiding contact between the end of the tube and the curved portions 26. Without the provision of the stop members, the end of the tube would seat on the curved portion, and since the back is ordinarily assembled onto the tubes by the application of considerable force, the abutting of the ends of the tubes against the curved portion would damage the legs so as to impair the holding power thereof. The provision of the stop members 28 eliminate the possibility of such damage, since force applied to the tube is transmitted through the stop members directly to the bottom of the opening.

With the illustrated construction, the upper ends of the legs are hidden inside the back member after assembly, thereby eliminating the requirement of another member to close the ends thereof. The present construction also eliminates the necessity of the tubular members being superimposed on one face of the back member, since the members enter the back member on the lower edge, thereby providing a neater appearance to the finished chair.

The ring member 34, in addition to providing lateral support to the tube at the entrance of the opening, also assists in providing frictional engagement to retain the tube in the opening. Although two arms are provided in the illustrated fastener 18, it will be understood that in some cases more arms may be desirable.

Since certain other obvious modifications may be made in the device without departing from the scope of the invention, it is intended that all matter contained herein be interpreted in an illustrative and not in a limiting sense.

I claim:

A retainer for assembly into an opening in a fibrous support to receive and engage a tubular member, said retainer being formed of relatively stiff metal and comprising a flat base for seating against the bottom of the opening, a pair of broad substantially flat legs extending upwardly in lateral spaced relation to the opposite ends of the base and being joined thereto by an upwardly and outwardly curved portion, said legs having outwardly projecting portions on the ends for bearing laterally against the side walls of the opening, said legs being inwardly bowed to frictionally grip the tubular member inserted therebetween, and a pair of tongue members formed at each end of the base, the tongues of each pair being disposed inwardly from the adjacent leg and being spaced laterally on each side of the adjacent leg, said tongues being terminated in blunt end portions disposed at the plane of the junction of the legs with the curved portions.

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