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2,296,451

METHOD OF CONSTRUCTION OF CHAIR OR STOOL STRUCTURES

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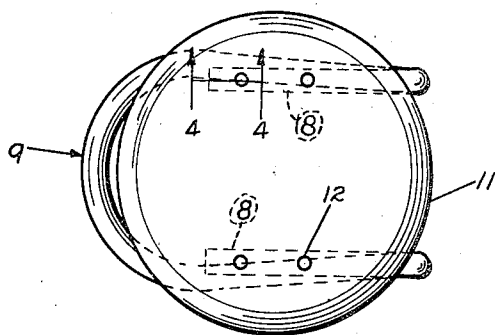


Fig-1-

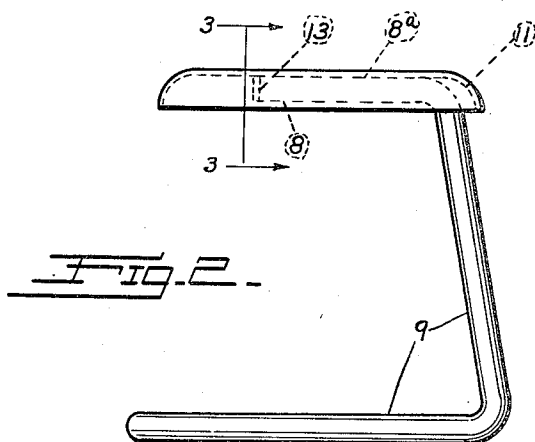


Fig. 2.

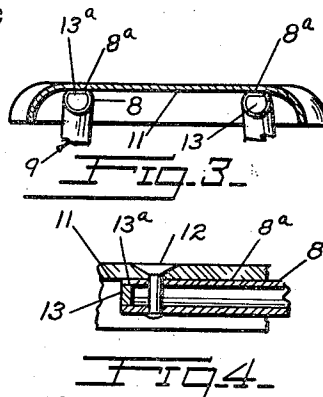


Fig 4

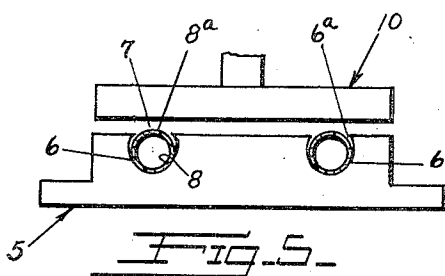


Fig. 5.

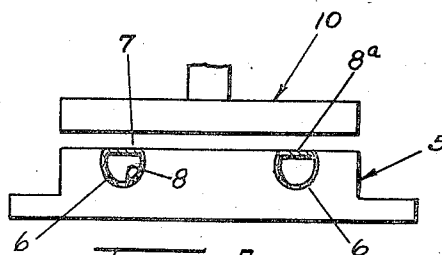


Fig. 6.

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METHOD OF CONSTRUCTION OF CHAIR OR STOOL STRUCTURES

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1 Claim. (Cl. 153—21)

This invention relates to methods for joining tubular elements to flat surfaces, as for example for joining the tubular legs of chairs flatly to the bottoms thereof.

A conventional chair structure comprises a flat metallic seat, to the under side of which is connected a supporting or leg structure of metallic tubular formation, the same being bent and rebent upon itself to the required shape, and being secured at certain points to the chair bottom. Ordinarily the mode of attachment is by rivets or bolts passed through the elements, or by spot welding the elements together. Ordinarily the making of attachments of this kind is difficult in practice, owing to the slight surface contact between the tubular leg structure and the flat bottom.

Moreover to accommodate the incurved portions of the said tubular elements at points of connection with the associated flat elements, angular recesses are there formed that materially assist in the collection of dust and dirt, and thus creating an unsanitary condition.

The prime purpose of the present invention is to provide a method for slightly flattening the tubular leg structure along one side and at certain points designed for contacting the flat chair bottom or other flat element, so as to increase the contact area and facilitate the attachment of the elements together, said method also making the article more impermeable to dirt and hence more sanitary and easy to clean.

The accompanying drawing exemplifies the practice of the invention as applied in mounting a tubular leg structure to a chair bottom, but of course the method would be equally applicable to any similar situation, as for connecting a tubular member to a flat member, or for joining together two tubular members.

In the drawing:

Fig. 1 is a top plan view of a metal chair or stool having tubular leg supports mounted thereunder in accordance with this invention.

Figure 2 is a side elevation.

Figure 3 is a section on the line 3—3 of Figure 2.

Figure 4 is a sectional detail illustrating the manner of bolting or riveting the flattened, tubular end of a leg assembly or unit to a stool bottom, and of sealing the end of the tubes for excluding dirt.

Figure 5 is an elevational view of a die plate or block as grooved or channeled out for receiving the tubular ends of a metal supporting unit for a stool, and of a press plate as poised there-

over, as in the process of flattening the adjacent sides of the tubular ends of the supporting or leg unit, the said tubular ends being shown as inserted in the channels of the die plate, ready for pressing and flattening.

Figure 6 is a view similar to Figure 5, showing the flattened upper sides of the tubular ends of the leg unit, after being acted upon by the press plate.

In practicing the invention, I provide a die plate or block 5 having formed therein, in spaced relation, grooves or rounded channels 6, circular in cross-section and which open out at their upper sides, up through the upper surface of the plate 5, as shown at 7, the width of said openings however, being preferably slightly less than the diameter of the channels 6.

In the forming of the tubular metal ends 8 of the leg unit or supporting assembly 9, the ends 8 are thrust into the channels 6, and the press plate 10 is then forced down upon the protruded sides or portions 8a of said ends, thus flattening said ends upon their protruded sides or portions.

For the stated operation it is necessary that the diameter of the ends 8 be slightly less than the diameter of the channels 6, so as to provide space 6a into which said ends may spread when crushed down by the plate 10.

The die plate 5 and press plate 10, may of course be operatively mounted in any conventional form or type of press (not here shown).

The ends 8 are then withdrawn and are positioned with their flattened sides 8a against the stool bottom 11. Rivets 12 are then forced through the ends 8 and through the bottom 11, and being suitably spread or upset, the anchorage is completed. In lieu of the described riveting, the ends 8 may be secured to the bottom 11 by spot welding. End plugs 13, cut to fit, may be forced into the open ends of the portions 8a, and spot welded in place, thereby excluding all dirt. These end plugs would be formed with flattened portions 13a to align with the flattened sides 8a of the tubular ends 8, so as to provide a perfect seal for the ends.

It is thought from the foregoing explanations, that the practice of the invention and method will be fully understood. While as stated, the invention is here exemplified as in mounting a stool bottom upon a supporting or leg unit, the invention is of course equally applicable to any similar purpose, and while I have pointed out certain procedural features of the invention and method, same may be varied within the scope of the claim.

I claim:

The method of simultaneously pre-shaping the ends of tubing comprising the following steps: bending a piece of tubing into U-formation, then placing the lower rounded section of each U-end of the tubing in shallow channels of a die plate having a larger circumferential area than the outer circumferential area of the tubing ends and exposing the upper rounded section of the

tubing ends, then pressing the exposed upper sections flush and flat with the surface of the die plate while expanding the lower section of the tubing ends into intimate contact with the interior larger circumferential area of the shallow channel and then removing the tubing ends from the die plate channels.

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