July 11, 1939. H. P. NORDMARK 2,165,294

REINFORCED METAL TUBE

Filed Jan. 23, 1937

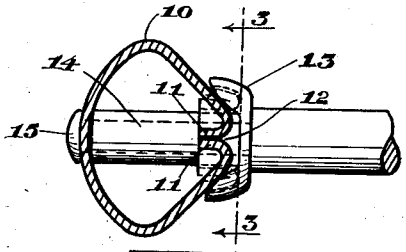


Fig. 1

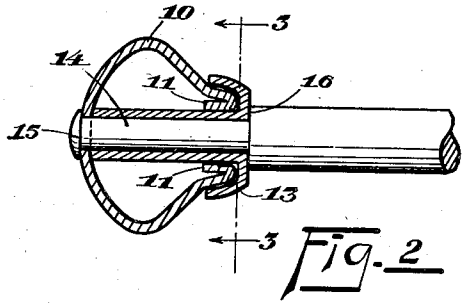


Fig. 2

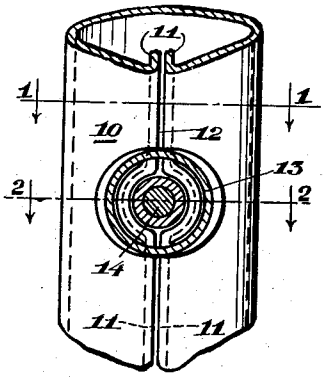


Fig. 3

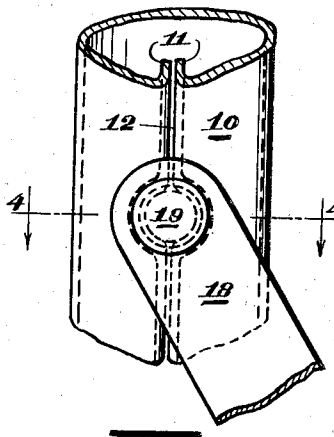


Fig. 5

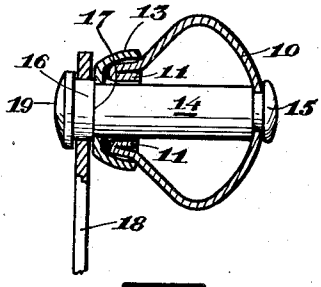


Fig. 4

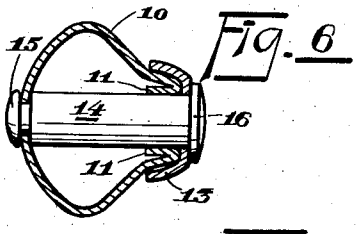


Fig. 6

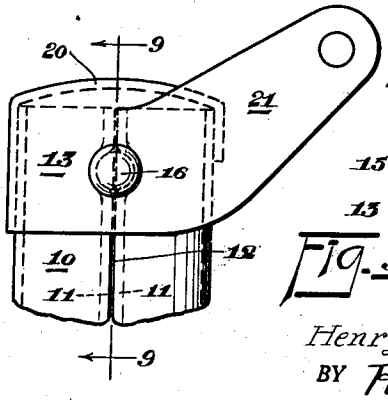


Fig. 7

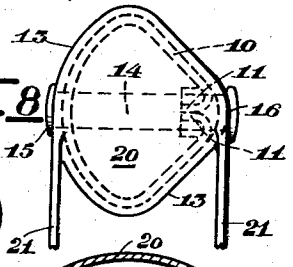


Fig. 8

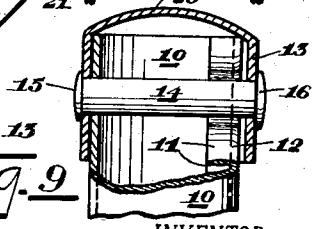


Fig. 9

Witness:
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UNITED STATES PATENT OFFICE

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REINFORCED METAL TUBE

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Application January 23, 1937, Serial No. 121,946

1 Claim. (Cl. 138—74)

The present invention relates to reinforced metal tubes and more particularly to means for reinforcing seams of metal tubes in their assembled relation with pivotally or rigidly connected and associated parts.

Illustrative embodiments of the invention are shown in the accompanying drawing, wherein:

Figure 1 is a sectional view on line 1—1 of Figure 3 of a reinforced tube and its rigidly secured transverse rod;

Figure 2 is a sectional view thereof on line 2—2 of Figure 3;

Figure 3 is a sectional view on lines 3—3 of Figures 1 and 2;

Figure 4 is a sectional view on line 4—4 of Figure 5 of a reinforced tube and its pivotally connected link;

Figure 5 is an elevational view thereof;

Figure 6 is a sectional view of a reinforced tube having neither a rigidly nor a pivotally connected member associated therewith;

Figure 7 is an elevational view of a reinforced tube and its bifurcated arm supporting cap secured at one end thereof;

Figure 8 is a top plan view thereof; and

Figure 9 is a sectional view on line 9—9 of Figure 7.

Referring to the drawing in which like parts of a metal tube and its longitudinal seam reinforcing mechanically equivalent elements are designated by the same numerals in the several views, the metal tube 10, is here shown as triangularly formed in cross-section from sheet metal stock whose longitudinal lengths 11 are folded inwardly to provde a finished seam 12.

Means for reinforcing the seam 12 comprises a ferrule 13 straddling the seam and embracing a pin 14 which is projected through the seam and which pierces the wall of the tube opposite the seam thereof.

In Figures 1–3 of the drawing, the pin 14 has a head 15 in engagement with the outer wall of the tube, the other end 16 of the pin being enlarged to provide a shoulder 17 in engagement with the ferrule. In these views, a rod may be thus rigidly secured to the tube transversely thereof whose seam is thus reinforced by the ferrule 13.

In Figures 4 and 5, the head 15 of the pin is in engagement with the outer wall of the tube 10 and its enlarged portion 16 forming a shoulder 17 bears against the ferrule 13. A pivotal connection between the tube 10, whose seam 12 is thus reinforced, is provided by the link 18 disposed between the ferrule 13 and the head 19 of the pin 14.

In Figure 6 of the drawing, the seam 12 of the tube 10 is merely reinforced by the ferrule 13 which embraces the pin 14 whereas in Figures 7–9, the double ferrule 13 has a head portion 20 forming a cap secured to one end of the tube 10 by the pin 14. The cap which is here shown as provided with bifurcated arms 21 thus doubly reinforces the seam 12 of the tube 10.

Although the means herein shown for reinforcing the longitudinal seams of metal tubes in their assembled relation with pivotally or rigidly connected and associated parts is particularly well adapted for use in connection with the economical manufacture of folding chairs, it will be obvious to those skilled in the art that this reinforcing means is applicable in conjunction with other manufacturing operations wherein metal tubes having longitudinal finishing seams are employed.

While but several embodiments of the invention have been herein shown and described, it will be understood that certain details of the constructions shown may be altered or omitted without departing from the spirit of this invention as the same is defined by the following claim.

I claim:

Means for reinforcing the longitudinal seam of a metal tube comprising a pin projected through the seam of the tube and piercing the opposite wall thereof, and a ferrule straddling said seam and embracing the pin, one end of said pin having a shoulder in engagement with said ferrule and the other end of the pin being riveted over into engagement with the outer wall of said tube.

HENRY P. NORDMARK.