METHOD OF FORMING METAL HOOPS

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METHOD OF FORMING METAL HOOPS

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4 Claims. (Cl. 113—116)

This invention relates to improvements in methods of forming metal hoops such as those which are employed for reinforcing bands around butter tubs and other containers. Heretofore it has been the usual practice, where such hoops have been formed of metal bands, to secure the ends of the band together by means of rivets and this method of fastening has been found objectionable because of the cost of the rivets and inconvenience of applying them and also because they have formed projections which have interfered with the proper nesting of the finished tubs one within the other which is a desirable arrangement for shipping purposes. The principal object of the present invention is to overcome these difficulties of prior metal hoops by providing an improved method of forming a hoop by which the overlapping ends of the metal band are secured together in an improved manner without the use of rivets. Another object is to provide an improved method of uniting the ends of a metal band in a manner which permits two ends to be brought together and interlocked with each other conveniently and without undue expense or labor. Other objects relate to various details of the improved method which will appear more fully hereinafter.

The nature of the invention will be understood from the following specification taken with the accompanying drawing, in which one example of the improved method is illustrated. In the drawing:

Fig. 1 shows a perspective view of a butter tub having hoops made according to the present invention applied thereto;

Fig. 2 shows a side elevation of the ends of a metal band which may be employed in forming a hoop according to the present invention;

Fig. 3 shows a side elevation of the two ends of the band illustrated in Fig. 1 after a succeeding step of the process;

Fig. 4 shows an elevation of the two ends of the band illustrated in Fig. 3 after they have been brought together and another step of the process performed to prevent relative movement of the ends in one direction;

Fig. 5 shows an elevation of the two ends of the band after the parts have been subjected to a further step of the process to prevent relative movement of the ends in any direction;

Fig. 6 is a detail vertical section taken on the line 6—6 of Fig. 5; and

Fig. 7 is a detail horizontal section taken on the line 7—7 of Fig. 5.

In Fig. 1 of the drawing, there is illustrated a butter tub 10 made up of a plurality of wooden staves 11 which bear edgewise upon each other and which are shaped to give an upward flare to the annular wall of the tub. A metallic hoop 14 is secured around the bottoms of the staves so as to hold the staves together in contact with the bottom of the tub and at spaced intervals above the bottom of the tub there are mounted other similar metal hoops 14, constructed according to the method of the present invention, which are driven onto the tub from the bottom so that they have a tight frictional engagement with the outer surfaces of the staves.

In forming the hoops 14 according to the present invention, there is first formed a flat sheet metal band 15 having one end thereof stamped or cut to form a projecting tongue 16 provided with a semicircular edge 16a. The other end of the band is cut away at its upper and lower edges to form a rectangular tongue 17. After having formed the band as shown in Fig. 2, the upper edge of the band is beaded to form a tubular bead 18 of circular cross-section which extends from the base of the tongue 16 to the base of the tongue 17.

The next step of the process consists in overlapping the two ends of the band, as shown in Fig. 4, so that the ends 18a of the bead abut against each other while the tongues 16 and 18 extend beneath the beads formed on the respective opposite end portions of the band. The tongue 16 then overlaps the body portion of the band adjacent the tongue 17 and the tongue 17 overlaps the body of the band adjacent the base of the tongue 16, thus providing a double thickness of metal at the point where the ends of the bead come together. After the ends of the band have been overlapped, the overlapping portions are punched to form projections 20 having the form shown in Figs. 4, 5, 6 and 7. These projections are curved in transverse cross-section and they are formed by the shearing of the metal of the two overlapping portions on lines extending transversely of the band so that the projections have transverse shoulders 20a at their ends which are adapted to abut against the transverse shoulders formed by the shearing or cutting of the metal, thus preventing the separation of the overlapping ends of the band by movement of those ends away from each other. After the 105 projections 20 have been formed by the punching operation, the lower edge portion 15a of one end of the band is turned upwardly to form a bead 21 which overlies the lower edge of the tongue 17 formed on the opposite end of the band and the
lower edge portion 15 of said last-mentioned end of the band is similarly turned up to form a bead 22 which is similar to the bead 21 which abuts against the end thereof. The abutting ends of the beads 21 and 22 and the abutting ends of the bead 18 prevent relative movement of the ends of the band in a direction adapted to increase the extent of their overlap so that it is impossible to effect such a movement for the purpose of disengaging the interlocking parts formed by the projections 20.

By means of this invention, the use of rivets, spot welds or other such fastening means is eliminated and due to the novel whereby the beads 21 and 22 are formed after the relatively narrow tongues 16 and 17 have been shaped and inserted beneath the bead 18 on the other end of the band, the operation of overlapping the ends of the band with the tongue beneath the bead, may be conveniently effected regardless of irregularities in the width of the tongue 17. When the flange or bead 21 is formed, it may be turned up by a convenient tool into close engagement with the edge of the tongue 18 regardless of the width of this tongue or any irregularities in its surface so that a very secure union is formed between the two ends of the band before the punching operation takes place.

Although one method of forming the improved metal hoop has been shown and described by way of illustration, it will be understood that the invention may be practiced in various other ways within the scope of the appended claims.

I claim:

1. The method of forming a metal hoop which consists in providing a metal band, cutting away portions of the opposite edges of said band at one end thereof to form a projecting tongue, forming a bead along one edge of said band, then overlapping the end portions of said band with each of said tongues projecting over the body portion of the opposite end of the band and beneath the bead on said opposite end of the band, to provide an interlocking connection between them.

2. The method of forming a metal hoop which consists in providing a metal band, cutting away portions of the opposite edges of said band at one end thereof to form a projecting tongue, forming a bead along one edge of said band, then overlapping said tongue and the other end of said band with said tongue inserted beneath said bead on said other end and with the ends of said bead engaging each other, then punching the overlapping tongue and band end to form an interlocking connection between them, and then turning the edge of said other end of said band over said tongue at the edge thereof opposite said band.

3. The method of forming a metal hoop which consists in providing a metal band having a projecting tongue of less width at each end thereof, forming a bead along one edge of said band, then overlapping the end portions of said band with each of said tongues projecting over the body portion of the opposite end of the band and beneath the bead on said opposite end of the band, then punching said overlapping end portions of the band to provide an interlocking connection between them, and then turning the lower edge of one end portion of said band upwardly over the lower edge of one of said tongues.

4. The method of forming a metal hoop which consists in providing a metal band, cutting away portions of the opposite edges of said band at both ends thereof to form two projecting tongues of less width than the band, forming a bead along one edge of said band terminating opposite the bases of said tongues, then overlapping each of said tongues with the opposite end portion of said band with one edge of one of said tongues extending beneath the bead on the opposite end of said band and with the ends of said beads engaging each other, by which the circumference of said hoop is determined, then punching the overlapping tongue and band to form an interlocking connection between them, and then turning the edge of said band opposite that portion of said bead engaged by said tongue over said tongue.

CERTIFICATE OF CORRECTION.

Patent No. 1,936,909.

CHESTER M. MACCHESNEY.

November 28, 1933.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 2, line 94, claim 3, for "each" read one; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 26th day of December, A.D. 1933.

Richard Spencer

Acting Commissioner of Patents.