G. C. BRAINARD.

PROCESS OF PRODUCING AND UNITING HEADS TO BARRELS.

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1,387,640. Patented Aug. 16, 1921.

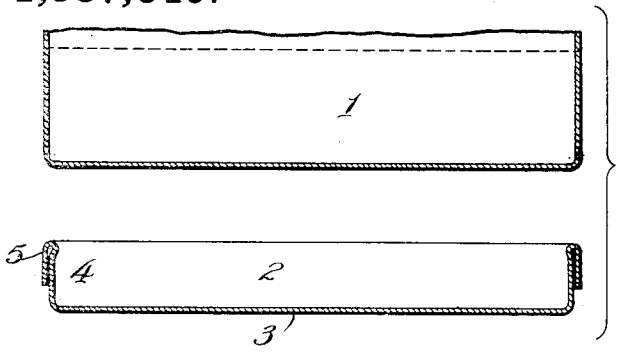


Fig. 1.

Fig. 2.

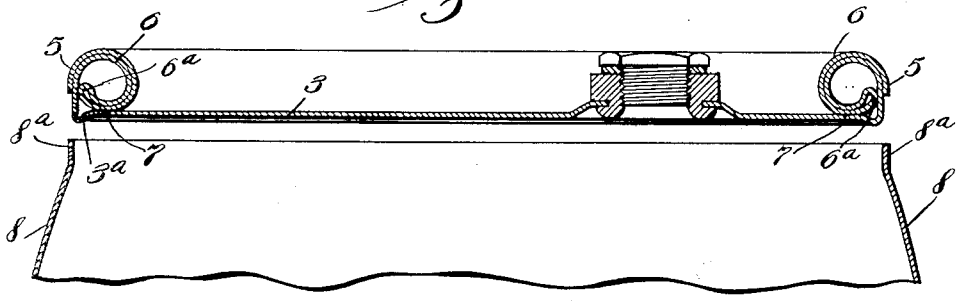


Fig. 3.

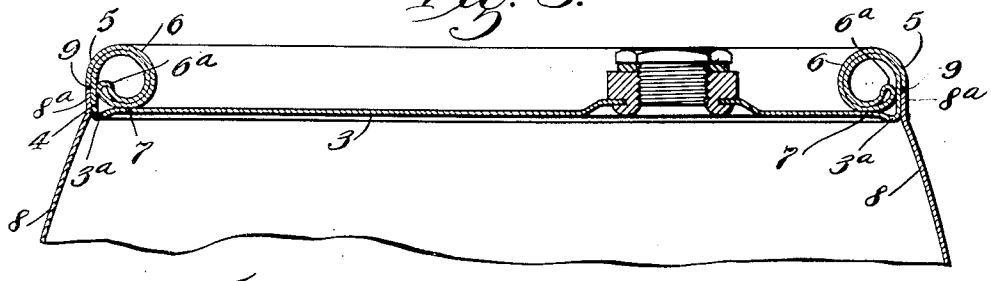
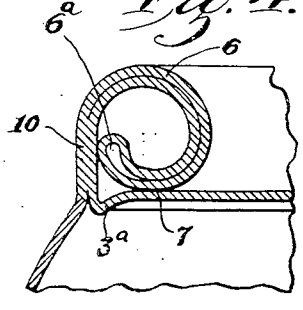


Fig. 4.



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UNITED STATES PATENT OFFICE.

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PROCESS OF PRODUCING AND UNITING HEADS TO BARRELS.

1,387,640. Specification of Letters Patent. Patented Aug. 16, 1921.

Application filed September 20, 1917. Serial No. 192,295.

To all whom it may concern:

Be it known that I, GEORGE C. BRAINARD, a citizen of the United States, residing at East Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Processes of Producing and Uniting Heads to Barrels, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to barrels, and more particularly to the manner of forming and applying the heads to the bodies thereof. It is the general object of the invention to so construct and apply the heads of such barrels as to make it possible to employ in the construction thereof metal of lighter gage than is ordinarily considered practicable for this purpose; also to provide a secure and non-leaking connection between the head and the barrel body.

The barrel body may be prepared in any suitable manner, it being preferred to employ drawn or pressed metal in the production of such body. Where the barrel body is bilged, it is preferred to provide the open end with a cylindrical extension. I preferably form the head from a circular metal plate which is first cupped, trimmed, annealed and cleaned, and is then telescoped so as to provide a skirt surrounding the wall of the cup, the skirt preferably being shorter than said wall and forming with the cup wall a wall of doubled metal. I then roll the doubled wall of metal inwardly to form a rounded double walled chime which is preferably forced into engagement with the head in a line within the periphery of the head as well as into engagement with the inner of such walls, whereby the head is braced by the chime and the joint to be subsequently formed between said walls and the barrel is prevented from opening. The diameter of the skirt will be identical with the diameter of the open end of the barrel so that the skirt may fit against such end.

I then insert the head within the open end of the barrel with the skirt in engagement with such open end. The skirt and the end of the barrel body are then united end to end, as by means of a welding torch, the head being suitably supported during this operation, as by screw pressure. A weld is simultaneously formed at this joint with the inner of the double walls of the metal. Between the line of engagement of the chime with the head and the periphery of said head, the head is preferably curved so as to present a convex surface outwardly. This strengthens the head between the line of engagement and the joint formed between the head and the barrel body and assists in preventing the opening of such joint by reason of the pressure exerted upon said head when it is temporarily serving as a bottom for the barrel.

By making the skirt or outer wall of less depth than the inner wall, the head proper may be inserted well within the end of the barrel and a secure weld joint is formed between such outer wall and the barrel body and also between these members and the inner wall; and the weld is so located with reference to the head and the barrel that it is free from undue strains during use of the barrel.

In the drawings forming part hereof, I have illustrated the manner of forming the head and the barrel and of applying the head to a barrel body. In these drawings, Figure 1 represents two steps in the formation of the head, the views being vertical sections; Fig. 2 represents a central longitudinal section through the open end of the barrel and through the finished head, the parts being shown in the positions which they occupy prior to the insertion of the head, the parts being slightly out of proportion for convenience in illustration; Fig. 3 is a view similar to Fig. 2 showing the position of the parts after the head has been inserted within the body; and Fig. 4 is an enlarged sectional view through the head and barrel illustrating the weld between the parts.

In the aforesaid drawings Fig. 1 illustrates at 1 the cup shaped blank from which the head is to be formed and at 2 the blank after being telescoped. 3 denotes the transverse wall of the head, 4 the cup shaped wall projecting therefrom, and 5 the skirt which surrounds the outer portion of the wall 4. After the telescoping operation the head is formed into the shape illustrated in Fig. 2. The double wall (walls 4 and 5) is rolled or curled inwardly to form a rounded chime 6, the end 6^a whereof abuts against the inner wall 4 at a point adjacent the lower edge of

the skirt 5. The chime 6 is also caused to engage the transverse wall 3 in a line, indicated at 7, which is within and spaced from the periphery of the head. The transverse wall 3 is formed with the rounded peripheral portion 3^a and this shape may be given to the transverse wall of the head, as by screw pressure, during the operation of forming the chime 6. The head thus formed is now ready to be assembled on and united to the barrel.

In Figs. 2 and 3, 8 denotes the open end of a bilged barrel body having a cylindrical end portion 8^a. This end portion is adapted to fit tightly over the vertical wall 4 of the head and to abut against the lower edge of the skirt 5 when the head is inserted in the barrel body, as is indicated in Fig. 3. The abutting joint between the skirt 5 and the end 8^a of the barrel body is indicated at 9. With the head inserted within the barrel body and firmly held therein, as indicated in Fig. 3, the end 8^a of the barrel and the skirt 5 are united or welded end to end, as by means of a welding torch, and simultaneously therewith a weld is also formed between the inner wall 4 on one hand and the end 8^a and skirt 5 on the other, as is indicated in Fig. 4 at 10.

By constructing and applying a barrel head to the body in the manner herein described, I am enabled to employ metal as thin as .078″ stock and at the same time produce a head and chime which will withstand all ordinary incidents of use. Furthermore, I am enabled to produce a barrel wherein the joint between the head and the body will be leak-proof, wherein the joint will be maintained in such condition, and wherein the head will not be liable to bulge or give under service conditions.

Having thus described my invention, what I claim is:—

1. The process of forming a head and securing the same to a metal barrel which comprises drawing a metal blank into cup shape, telescoping the said blank to provide a skirt surrounding the side wall thereof, inserting the head thus formed within the open end of the barrel body so that the edge of said skirt abuts the edge of said barrel body, and homogeneously uniting the abutting edges of said skirt and barrel body.

2. The process of forming a head and securing the same to a metal barrel which comprises drawing a metal blank into cup shape, telescoping the said blank to provide a skirt surrounding the side wall thereof and of less depth than said side wall, inserting the head thus formed within the open end of the barrel body so that the edge of said skirt abuts the edge of said barrel body, and homogeneously uniting the abutting edges of said skirt and barrel body.

3. The process of forming a head and securing the same to a metal barrel which comprises drawing a metal blank into cup shape, telescoping the said blank to provide a skirt surrounding the side wall thereof and of less depth than said side wall, pressing inwardly the double wall of metal to provide an inwardly extending chime, inserting the head thus formed within the open end of the barrel body, and uniting the said skirt and the end of the barrel body.

4. The process of forming a head and securing the same to a metal barrel which comprises drawing a metal blank into cup shape, telescoping the said blank to provide a skirt surrounding the side wall thereof, pressing inwardly the double wall of metal to provide a chime, inserting the head thus formed within the open end of the metal barrel body, and uniting the said skirt and the end of the barrel body.

5. The process of forming a head and securing the same to a metal barrel which comprises drawing a metal blank into cup shape, telescoping the said blank to provide a skirt surrounding the side wall thereof and of less depth than said wall, pressing inwardly the double wall of metal to form a rounded chime which engages the barrel head, and uniting the head thus formed to the open end of the barrel body.

6. The process of forming a head and securing the same to a metal barrel which comprises drawing a metal blank into cup shape, telescoping the said blank to provide a skirt surrounding the side wall thereof, pressing inwardly the double wall of metal to form a rounded chime which engages the barrel head and also the inner of said doubled walls, and uniting the head thus formed to the open end of the barrel body.

7. The process of forming a head and securing the same to a metal barrel which comprises providing the head with a marginal double wall, pressing the double wall inwardly to provide a chime, inserting the head thus formed into the open end of a metal barrel, and uniting the outer of said walls of the end of the barrel.

8. The process of forming a head and securing the same to a metal barrel which comprises providing the head with a marginal double wall the outer wall of which is of less depth than the inner wall, pressing the double wall inwardly to provide a chime, inserting the head thus formed into the open end of a metal barrel, and uniting the outer of said walls to the end of the barrel.

9. The process of forming a head and securing the same to a metal barrel which comprises providing the head with a marginal double wall, pressing the double wall inwardly to form a rounded chime engaging the head and the inner of said walls, inserting the head into the open end of a metal barrel, and uniting the outer of said

walls to the end of the barrel and the inner wall to said end and to said outer wall at the joint therebetween.

10. The process of forming a head and securing the same to a metal barrel which consists in providing the head with a marginal double wall, rolling the double wall inwardly to form a rounded chime engaging the head and the inner of said walls, subjecting said head to pressure during such rolling operation, whereby the head will be bulged outwardly within the line of engagement between said chime and said head, inserting the head within the open end of a barrel, and uniting the outer of said walls to said barrel.

11. The process of forming a head and securing the same to a metal barrel which consists in providing the head with a marginal double wall rolling the double wall inwardly to form a rounded chime engaging the head and the inner of said walls, subjecting said head to pressure during such rolling operation whereby the head will be bulged outwardly within the line of engagement between said chime and said head, inserting the head within the open end of a barrel, and welding the outer of said walls and said barrel end to each other and to the inner of said walls.

12. The process of forming a head and securing the same to a metal barrel which consists in drawing a metal blank into cup shape, telescoping the said blank to provide a skirt surrounding the side wall thereof and of less depth than said wall, pressing inwardly the double wall of metal to form a chime which engages the barrel head and also the inner of said doubled walls, subjecting the head to pressure during the pressing operation to cause the same to bulge outwardly within the line of engagement between said chime and said head, inserting the head within a barrel with the side wall of said head engaging the inner surface of the open end thereof, and with the skirt abutting thereagainst and welding the open end and the skirt to each other and to the side wall.

In testimony whereof I hereunto affix my signature.

GEORGE C. BRAINARD.