J. H. NICHOLSON.

METAL BARREL AND THE LIKE.

APPLICATION FILED OCT. 9, 1912.

1,168,545.

Patented Jan. 18, 1916.

2 SHEETS—SHEET 1.

Fig. 1.

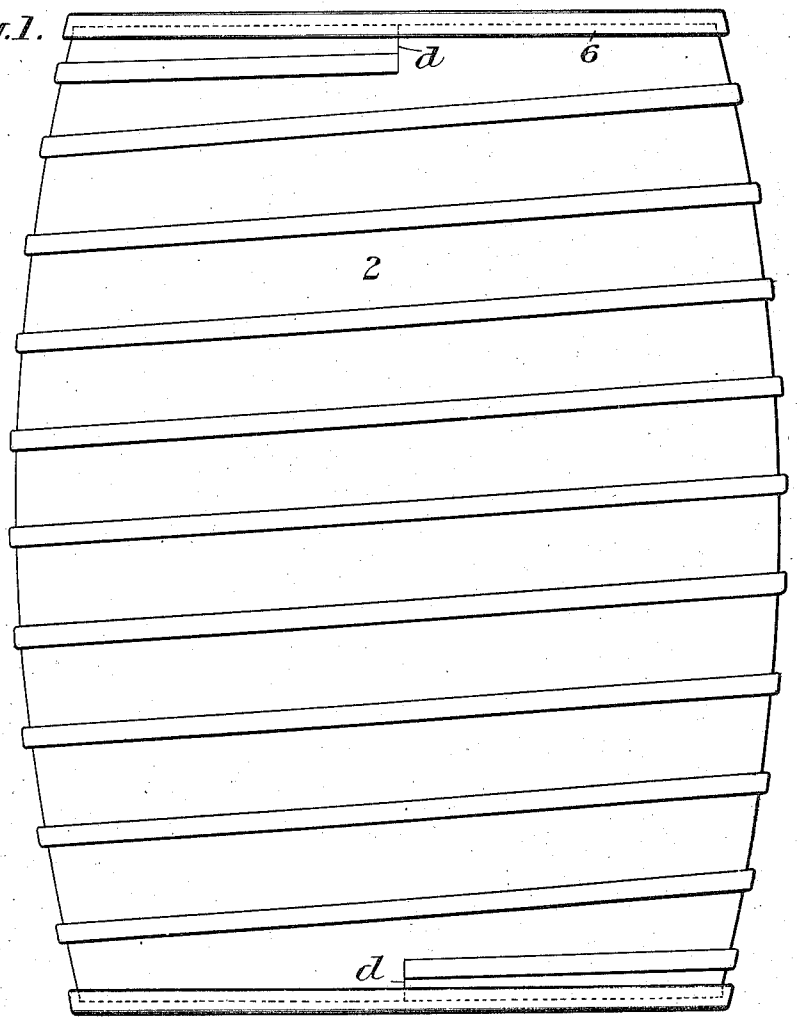
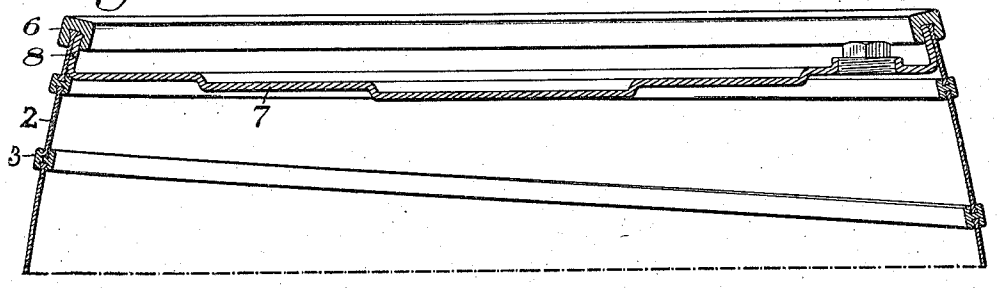


Fig. 2.



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 3.

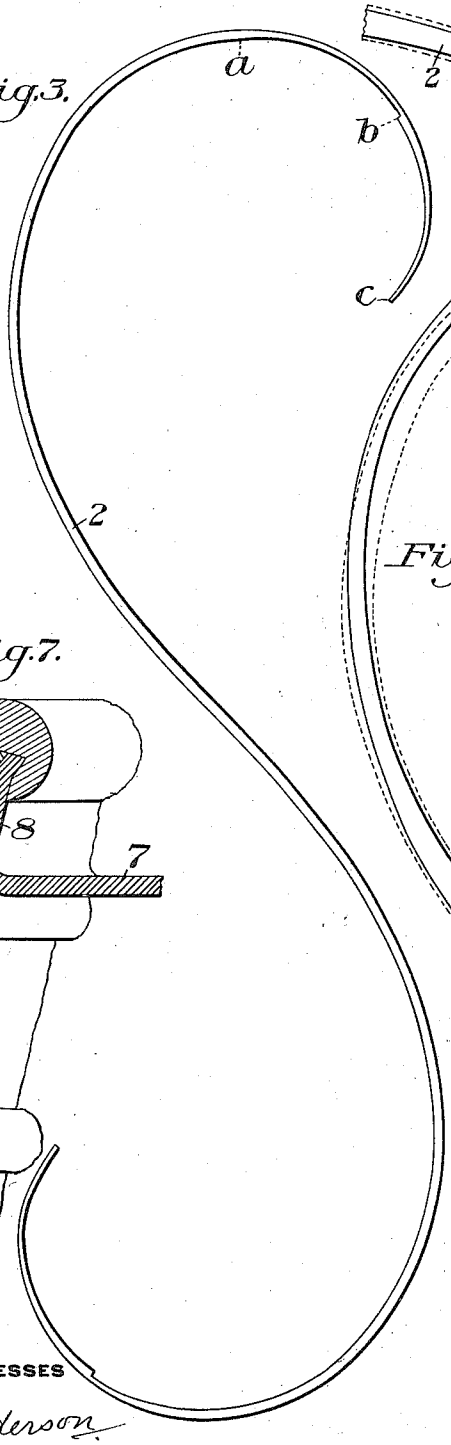


Fig. 4.

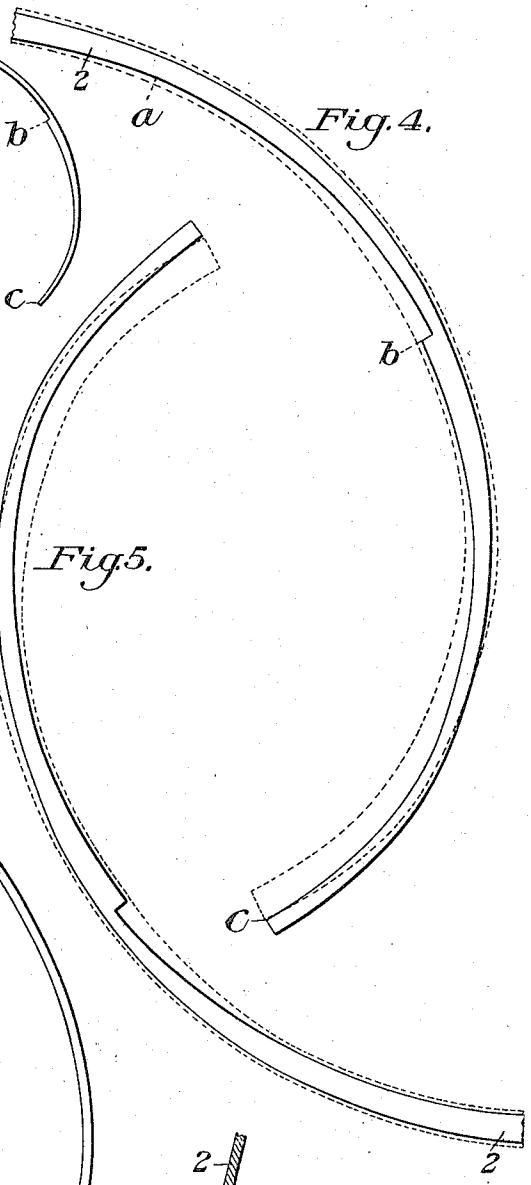
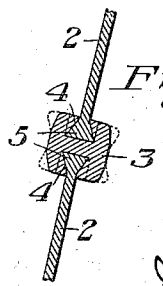


Fig. 5.

Fig. 7.

Fig. 6.



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UNITED STATES PATENT OFFICE.

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METAL BARREL AND THE LIKE.

1,168,545. Specification of Letters Patent. Patented Jan. 18, 1916.

Application filed October 9, 1912. Serial No. 724,748.

To all whom it may concern:

Be it known that I, JOHN H. NICHOLSON, a resident of Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Metal Barrels and the like, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side view of a completed barrel embodying my invention. Fig. 2 is a sectional view of one end portion of the barrel. Fig. 3 is a development of the body-forming strip unwound. Figs. 4 and 5 are developments showing the end portions of said strip on a larger scale. Fig. 6 is a detail sectional view showing the manner of attaching and securing the reinforcing strips, and Fig. 7 is a detail sectional view showing a modification.

My invention has relation to metal barrels, kegs and the like; and is designed to provide a metal barrel having its body formed from a single continuous strip of metal wound in shape, together with effective reinforcing means capable of being wound concurrently with the strip.

The invention provides a metal barrel which can be cheaply and rapidly constructed and which is exceedingly strong and durable.

In carrying out my invention, I take a relatively narrow sheet metal strip 2 of the proper length and wind it spirally upon a suitable mandrel to form the body shown in Fig. 1. Previous to winding this strip, one of its edges is provided with a metal reinforcement 3 having the opposite grooves 4 therein. This reinforcement is wound at the same time as the strip, and incidentally with the winding operations the edges of the grooves 4 are forced inwardly from the position shown in dotted lines in Fig. 6 to the full line positions shown in said figure. The edges of the strip 2 are preferably formed with reinforcements 5, so that when the walls for the grooves 4 are displaced in the manner just described, the edges of the strip 2 will be firmly gripped and rigidly secured, so that the body of the barrel becomes practically all one piece without joints. The reinforcing strips 3 may be of various forms. The form shown in Fig. 6 is generally rectangular, while that shown at 3^a in Fig. 7, is of circular form in cross-section.

In order that the barrel-body so formed shall have square ends without necessitating the narrowing of the end portions of the strip 2 to a long thin point, I shape the end portions of said strip 2 in a manner now to be described, and which is illustrated in Figs. 3, 4 and 5. Each end portion of the strip is narrowed on its inner side from a point *a* to the point *b*, a square shoulder or offset being formed at the point *b*. From this shoulder or offset another narrowing takes place to the extreme end of the strip. The distance between the points *b* and *c* is equal to one turn of the winding, so that the end at *c*, when the strip is wound will fit against the shoulder or offset at *b*. The reinforcing strip 3 terminates at a point adjacent to the shoulder or offset *b*, as will be seen at Fig. 1; and the top and bottom edges of the barrel-body are each reinforced by a separate strip 6, which is preferably of somewhat larger cross-section than the strip 3. The short joints at *d* are preferably closed by electric welds. The end reinforcing strips 6 also serve to secure in place the head members 7 of the barrel, as shown in Figs. 2 and 7. For this purpose, these head members are provided with the upwardly turned flanges 8 which lie against the inner sides of the end portions of the strip 2, and the grooves in the strip 6 are simultaneously forced over the edges of the flanges and strips, as clearly shown in these figures.

It will be seen that the body of the barrel is given the usual bilge; and it is this bilge which causes the development of the strip 2, shown in Fig. 3, to assume the S-shape, shown in Fig. 3 when unwound. It will be apparent that during the winding operation, from one end toward the center, the diameter of the barrel-body is gradually increasing, while after the center is reached the diameter gradually decreases. This necessitates an unequal stretching of the two edges of the strip, one edge being stretched more than the other until the center of the body is reached, after which the opposite edge receives the greatest amount of stretching. This fact causes the reverse S-bends shown in the development. It also causes the leading edge of the strip to have a greater length from one end to the center point of the barrel than the reverse edge,

and a less length from said center point to the opposite edge of the barrel than the reverse edge. This is the permanent condition of the metal in the formed barrel.

It will clearly appear from Fig. 1, that the increase in length of the leading edge over the opposite edge, measured within a unit length of the strip at the end of the barrel is greater than at the central portion of the barrel. This is also shown in Fig. 3 by the form of the curved end portion, the degree of curvature being in proportion to the difference in the length of the two edges of the strip.

The advantages of my invention will be apparent, since it provides a barrel or the like which can be readily formed from sheet metal, and which when finished is practically without seams, as the spirally wound reinforcing member is so firmly united that the main body-forming strip becomes practically integral therewith. The reinforcement not only stiffens the barrel body, but it also very largely protects the main body-forming strip from direct contact in handling the barrel.

By the provision of the offsets *b*, I avoid the necessity of tapering the end portions of the strip 2 to sharp points in order to square up the end edges of the barrel body. This is an important feature, because it is obviously objectionable to taper these end portions to a sharp point. By terminating the locking member adjacent the offsets *b*, I not only provide sufficient space beyond the points of termination to enable the barrel body to receive the strong edge reinforcing strip 6; but this also provides for the employment of relatively deep inset heads. If the locking strip was carried beyond these offsets, it would obviously interfere with the seating of the inset heads. These offsets in the end portions of the strip 2 change the form of the curves assumed by the end portions of the strip. Thus, in Figs. 4 and 5, the dotted lines indicate the theoretical forms of these curves, whereas the full lines represent the actual curves. The difference is due to the fact that the offsets change the pitch of the edges of the strip 2 in the last portion. The upper edge becomes a true circumference of the barrel, whereas the portion of the lower edge which fits into the offset is quite materially changed from what it would have been if there were no such offset.

While I have shown my invention as applied to a bilged barrel, it will be obvious that it can be used to equal advantage in the manufacture of barrels and kegs which are of uniform diameter. In such cases, the blank instead of assuming the S-shape of Fig. 3 would be substantially straight throughout its central portion. Its end portions, however, would still show reverse bends or curves with respect to the center lines of such end portions. These end portions also would have similar offsets to those shown; and it is because of these offsets, which give the two edges of the strip different lengths in these portions thereof, that these reverse bends in these center lines occur.

What I claim is:

1. A metal barrel or keg formed of a spirally wound sheet metal strip and a spirally wound locking and reinforcing bar interposed between and uniting adjacent spiral edges of the strip, the leading edge of the strip from each end of the barrel to the center point being longer than the opposite edge, while the length of each coil from each end of the barrel to the center of the barrel is shorter than the length of the adjacent preceding coil, whereby the barrel is bilged from each end toward the center; substantially as described.

2. A metal barrel or keg consisting of a spirally wound sheet metal strip and a spirally wound locking and reinforcing bar interposed between and uniting adjacent spiral edges of the strip, the edge portions of said strip being unequally stretched, whereby the leading edge of the strip is longer than its opposite edge from one end of the barrel to the center thereof, and is shorter than the opposite edge from said center point to the opposite end of the barrel, while the coils of the strip and bar at the center of the barrel are of greater diameter than the coils of the strip and bar at each end, whereby the barrel is bilged from each end toward the center; substantially as described.

3. A metallic barrel or keg formed from a spirally wound sheet metal strip and a spirally wound locking and reinforcing member interposed between and uniting adjacent spiral edges of the strip, said member terminating at its ends at a distance from the end edges of the barrel body, and heads secured within the end portions of the body; substantially as described.

4. A metallic barrel or keg formed from a spirally wound sheet metal strip and a spirally wound locking and reinforcing member interposed between and uniting adjacent spiral edges of the strip, said member being shorter than the strip, and inset heads seated within the end portions of the barrel body beyond the point where the locking member terminates; substantially as described.

5. A metallic barrel or keg formed from a spirally wound sheet metal strip and a spirally wound locking and reinforcing member interposed between and uniting adjacent spiral edges of the strip, said member being shorter than the strip, the strip having an inward offset at the points where the said locking member terminates; substantially as described.

6. A metallic barrel or keg formed from a spirally wound sheet metal strip and a spirally wound locking and reinforcing member interposed between and uniting adjacent spiral edges of the strip, said member being shorter than the strip, the end edges of the barrel formed by the edges of the strip having separate reinforcing members secured thereto, and heads also secured within the end portions of the barrel body beyond the points where the locking member terminates; substantially as described.

7. A metallic barrel or keg, formed from a spirally wound sheet metal strip, and a spirally wound locking and reinforcing member interposed between and uniting adjacent spiral edges of the strip, said member being shorter than the strip, and the end edges of the barrel formed by the edges having separate reinforcing members secured thereto, together with metal heads also secured in place by the last named members; substantially as described.

8. A blank for metallic barrels and the like, comprising a continuous metal strip having reversely curved portions on each side of the center of the strip; substantially as described.

9. A blank for metallic barrels and the like, comprising a continuous metal strip having reversely curved bent portions, and each end portion having an offset therein; substantially as described.

10. A blank for metallic barrels and the like, comprising a continuous metal strip having reversely curved end portions, and each end portion having an offset therein, the blank being also narrowed at its inner edge at both sides of each offset; substantially as described.

11. A metallic barrel or keg formed of a spirally wound sheet metal strip and a spirally wound locking and reinforcing bar interposed between and uniting adjacent spiral edges of the strip, the continuous metal strip having reversely bent portions, and each end of said strip having an offset therein, substantially as described.

12. A metallic barrel or keg formed of a spirally wound sheet metal strip and a spirally wound locking and reinforcing bar interposed between and uniting adjacent spiral edges of the strip, each end portion of the strip having an offset therein, the reinforcing bar extending from one offset to the other offset, substantially as described.

13. A metallic barrel or keg formed of a spirally wound continuous sheet metal strip and a spirally wound continuous locking and reinforcing bar interposed between and uniting adjacent spiral edges of the strip, said locking and reinforcing bar being shorter than the sheet metal strip, there being an unreinforced seam extending from each end of the locking and reinforcing bar to the end of the barrel, substantially as described.

14. A metallic barrel or keg formed of a spirally wound continuous sheet metal strip and a spirally wound continuous locking and reinforcing bar interposed between and uniting adjacent spiral edges of the strip, said locking and reinforcing bar being shorter than the sheet metal strip, there being an unreinforced seam extending from each end of the locking and reinforcing bar to the end of the barrel, heads for said barrel having outwardly extending flanges, and a reinforcing and securing strip engaging the ends of the barrel and the flanges of the heads, substantially as described.

15. A metallic barrel or keg formed of a spirally wound continuous sheet metal strip and a spirally wound continuous locking and reinforcing bar interposed between and uniting adjacent spiral edges of the strip, each end of the strip having an offset therein, the reinforcing bar extending from the offset at one end to the offset at the other end of the strip, said offsets being arranged to receive the adjacent ends of the strip, substantially as described.

In testimony whereof, I have hereunto set my hand.

JOHN H. NICHOLSON.

Witnesses:
GEO. B. BLEMING,
GEO. H. PARMELEE.