S. A. AND M. A. KNAPP.

COLLAPSIBLE BARREL.

APPLICATION FILED DEC. 2, 1916.

1,336,358. Patented Apr. 6, 1920.

Fig. 1.

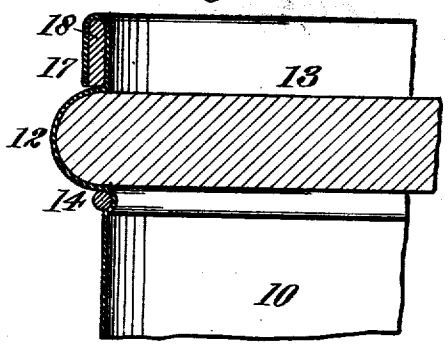



Fig. 2.

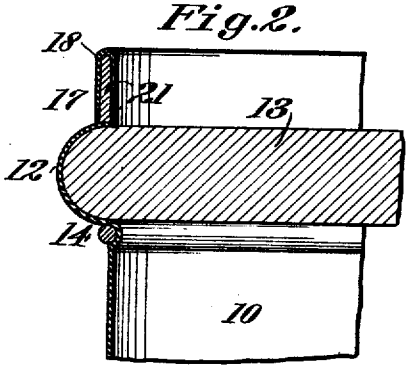



Fig. 3.

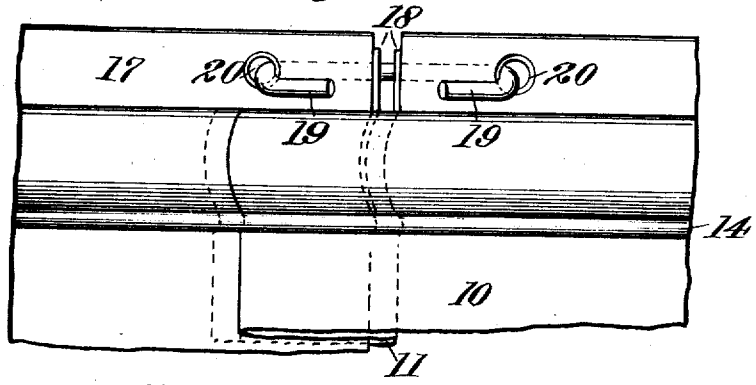



Fig. 6

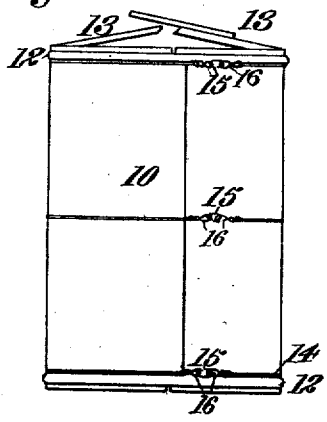



Fig. 4.

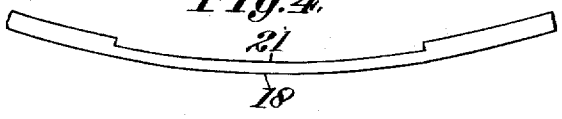
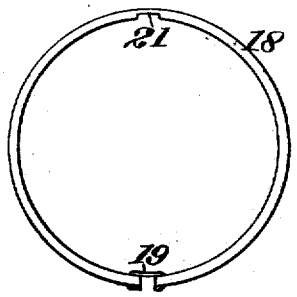



Fig. 5.




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# UNITED STATES PATENT OFFICE.

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## COLLAPSIBLE BARREL.

1,336,358. Specification of Letters Patent. Patented Apr. 6, 1920.

Application filed December 2, 1916. Serial No. 134,691.

*To all whom it may concern:*

Be it known that we, SEWELL A. KNAPP, of Berkeley, county of Alameda, State of California, and MOSES A. KNAPP, of Oakland, county of Alameda, State of California, citizens of the United States, have invented new and useful Improvements in Collapsible Barrels, of which the following is a specification.

This invention relates to collapsible sheet metal barrels; and has for its object to simplify and improve the construction of same.

The invention in its present form comprises a barrel having a body portion consisting of a single sheet of metal rolled into cylindrical form with its longitudinal meeting edges detachably held together by means of hoops or bands, said sheet having end crozes to receive each a removable head, a split metal chine reinforcing ring for each end of the barrels held in place thereon by the outwardly folded edges of the cylinder, forming in conjunction with the adjacent crozes an annular pocket, said ring having its portion opposite the split end weakened to permit spreading apart of the ends, whereby the barrel sheet may be nested when in collapsed form, and easily separable means for fastening together the meeting ends of the chine ring and fold.

One form which our invention may assume is exemplified in the following description and illustrated in the accompanying drawings, in which—

Figure 1 shows a cross section of an edge of the barrel, illustrating the head, the chine and barrel croze.

Fig. 2 shows the same section through a thinned and bendable portion of the chine reinforcing ring.

Fig. 3 shows an elevation of a portion of the barrel, illustrating the tie for the ends of the chine reinforcing ring.

Fig. 4 shows in plan a thinned and bendable portion of the chine reinforcing ring.

Fig. 5 shows a plan of the chine reinforcing ring with the tie at the ends and one bendable portion.

Fig. 6 shows an assembled barrel.

Referring more in detail to the form illustrated, we show a barrel comprising a sheet metal body portion 10, rolled into cylindrical form with one of its longitudinal edges provided with a pocket 11, to receive the opposite edge; suitable packing being inserted in the joint to prevent leakage of the contents. Near each end of the cylinder is an outwardly expanded croze 12, to receive a removable head 13 of suitable form, and at points intermediate the crozes and adjacent thereto, the sheet metal is grooved to receive tie wires or bands 14, the ends of said tie wires being connected together in any suitable way, but preferably by means of a staple 15 similar to staple 19 passing through the looped ends 16 of the wire.

At each end of the barrel, adjacent to croze 12 is a chine 17, formed by folding the edge of the sheet outwardly to form in conjunction with the croze an annular pocket to receive a split ring 18. As shown in Fig. 3, the ends of the chine fold and ring are not overlapped, but are held in position by means of a staple or tie 19 passing through openings 20 in the chine fold and the ring. The lower edge of the chine reinforcing ring rests upon and is supported by the upper edge of the adjacent croze, the latter in effect closing the channel formed by the folded edge of the body portion. The staple 19 is capable of quick detachment and makes a strong fastener for the split ends of the chine, thereby preventing the head 13 from becoming displaced.

On chine reinforcing ring 18, preferably at a point opposite the split ends, is a thinned portion 21 which permits the ring to bend readily at this point, sufficient strength being retained to hold the barrel head in place and resist all ordinary strain on the chine. By having this thinned portion the ring yields readily to permit separate movement of the free ends thereof when the barrel is in collapsed position, so that a number of barrels may be nested one within the other.

The advantages of the described construction reside more particularly in the use of a split reinforcing chine fold and chine ring held together at their meeting ends by means of an easily separable fastener; the use of an outward fold on the chines of the body portion to form an annular pocket for the chine ring whereby the outwardly expanded croze will coöperate therewith to retain the chine reinforcing ring in place, and also in the use of a chine reinforcing ring having a weakened or thinned portion opposite the

split ends to permit separating movement of the ring for nesting a plurality of barrels.

It is important that the chine of the barrel should be securely held against any outward movement in order to prevent any possibility of the head being dislodged, and inasmuch as the nearest band or tie wire 14 is below the head, suitable fastening means must be provided for the meeting ends of the chine fold and chine reinforcing ring. Should the circumferential ends of the sheet metal body be turned inwardly instead of outwardly to form the pocket for the chine reinforcing ring, the coöperation of the croze 12 would be lost and no convenient means would be present for retaining the ring in place within the pocket.

The manner of assembling and collapsing the barrel is believed to be obvious. The assembly is accomplished by putting the tie wires in place within their grooves and fastening their looped ends together through the agency of the staples 15 and connecting the split ends of the chine reinforcing rings with the fastening means 19. The collapsing of the barrel can be quickly accomplished by disconnecting or separating the fasteners or staples 15 and 19.

Various changes in the construction and arrangement of the several parts herein shown and described may be employed without departing from the spirit of our invention, as disclosed in the appended claims.

Having thus described our invention what we claim and desire to secure by Letters Patent is:

1. A knock-down metal barrel comprising a cylindrical sheet metal body portion the contiguous edges of which interlock longitudinally, a croze formed at each end of the body portion, a removable head seated within each croze, tie wires adapted to securely bind the body portion around the heads, and a reinforcing ring adapted to be secured around the outer faces of the heads to further prevent the removal thereof.

2. A knock-down metal barrel comprising a sheet metal cylindrical body portion detachably joined longitudinally, a croze at each end of the body portion, a removable head in each croze, easily separable means intermediate the crozes for retaining the longitudinal ends of the body portion together, a split chine adjacent each croze, a split reinforcing ring therein, said ring having a thinned portion opposite the split ends to permit separating movement thereof when the barrel is collapsed, whereby to meet a plurality of barrels.

3. A knock-down barrel comprising a cylindrical sheet metal body portion detachably joined longitudinally, a croze formed in each end of the body portion, a chine formed at each end of the body portion by overturning the marginal edges of the sheet metal body around the outer circumference of the body portion, a rigid chine reinforcing ring adapted to be positioned within each of the chines, said chines and rings having separable ends and means whereby said rings and chines may be detachably secured at their separable ends.

4. A knock-down metal barrel comprising a cylindrical sheet metal body portion joined longitudinally, a croze formed at each end of the body portion and within which a barrel head may be seated, an annular groove formed in the body portion adjacent to the croze and therebeneath, a chine formed by the body portion upon the opposite side of the croze and having an outturned flange, the chine groove being closed by the croze, tie wires adapted to be positioned within the annular groove to bind the body of the barrel, and a split reinforcing ring adapted to be positioned within the chine to bind the ends of the barrel and prevent the removal of the heads.

5. In a knock-down barrel construction, a metal body portion, a croze semicircular in section, a chine adjacent thereto forming a groove around the barrel, said groove being closed by the croze, and a chine reinforcing ring positioned within the groove and retained by the croze.

6. In a knock down metal barrel construction, having an overturned chine, a chine reinforming ring inclosed within said portion and comprising a one piece rigid split ring having a weakened portion diametrically opposite to the split.

7. In a knock down metal barrel construction, comprising a cylindrical sheet metal body portion having a yieldable interlocking joint extending longitudinally of the barrel, a croze formed in each end of the body portion and providing an annular groove into which a barrel head may seat, an annular groove formed in the body portion of the barrel adjacent the croze and therebeneath, a tie wire mounted within said groove and adapted to tighten the body of the barrel around the head, a chine formed at the edge of the barrel body and overturned to provide a channel passageway, circumscribing the body, a chine ring seated within said chine and comprising a one-piece rigid split ring having a weakened portion opposite to the split and fastening means for engaging and tightening the chine ring and the barrel body around the heads.

8. A knock-down barrel comprising a sheet metal body portion, the contiguous longitudinal edges of which interlock, a croze formed in each end of the body portion and adapted to provide a seat and to positively engage the circumferential edges

of barrel heads, chines formed at the ends of the body portion and around the outer circumference thereof and a rigid chine ring having separable ends and adapted to be detachably secured within the chine to hold the heads in their seated positions within each croze.

9. A metal barrel comprising a cylindrical sheet metal body portion, the contiguous edges of which interlock longitudinally, a croze formed at each end of the body portion, a removable head seated within each croze, tie wires adapted to securely bind the body portion around the heads, a chine formed at each end of the body portion by over-turning the marginal edges of the sheet metal body around the outer face of said body, and reinforcing rings adapted to be positioned within said chines and circumscribing said body.

In testimony whereof we have hereunto set our hands in the presence of a subscribing witness.

SEWELL A. KNAPP.
MOSES A. KNAPP.

Witness:
CHARLES R. HOLTON.

Corrections In Letters Patent No. 1,336,358.

It is hereby certified that in Letters Patent No. 1,336,358, granted April 6, 1920, upon the application of Sewell A. Knapp, of Berkeley, and Moses A. Knapp, of Oakland, California, for an improvement in "Collapsible Barrels," errors appear in the printed specification requiring correction as follows: Page 2, line 61, claim 2, for the word "meet" read *nest;* same page, line 100, claim 6, for the word "reinforming" read *reinforcing;* and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 11th day of May, A. D., 1920.

[SEAL.]

M. H. COULSTON,
*Acting Commissioner of Patents.*

Cl. 220—61.