

J. F. CRAVEN.  
 BARREL OR KEG.  
 APPLICATION FILED NOV. 2, 1908.

943,815.

Patented Dec. 21, 1909.  
 2 SHEETS—SHEET 1.

FIG. 1.

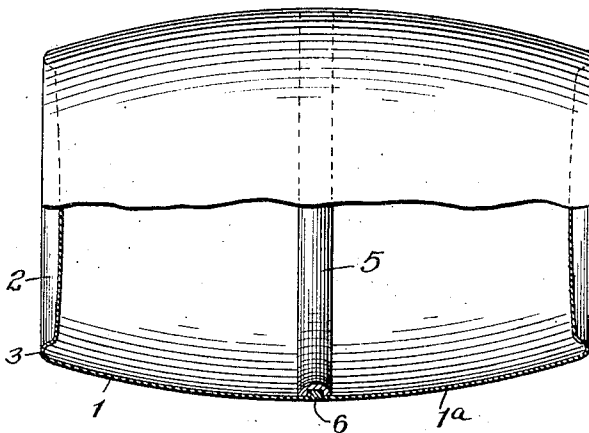


FIG. 2.

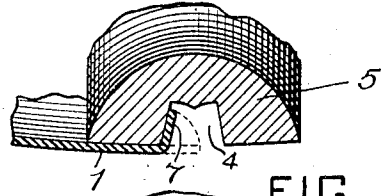


FIG. 3.

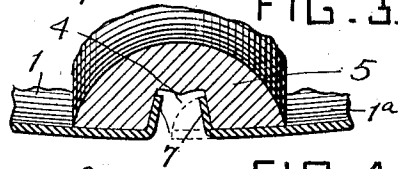


FIG. 4.

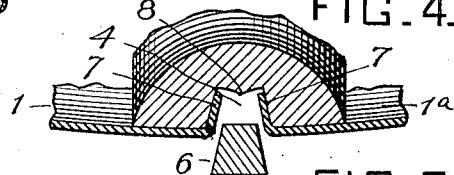


FIG. 5.

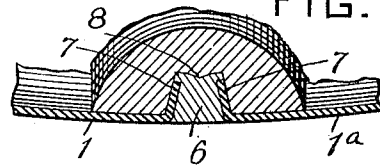


FIG. 6.

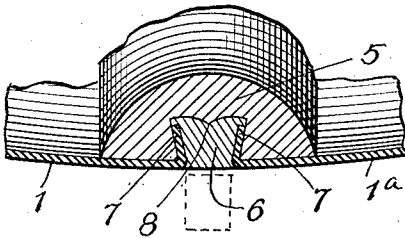
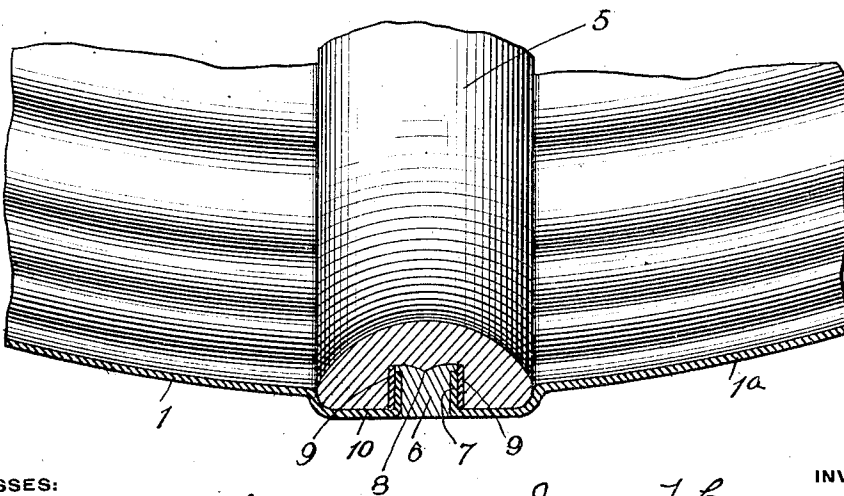


FIG. 7.



WITNESSES:

*J. Herbert Bradley.*  
*Francis J. Tomasson*

INVENTOR

*James F. Craven*  
*by Christy and Christy*  
 Atty's

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FIG. 9.

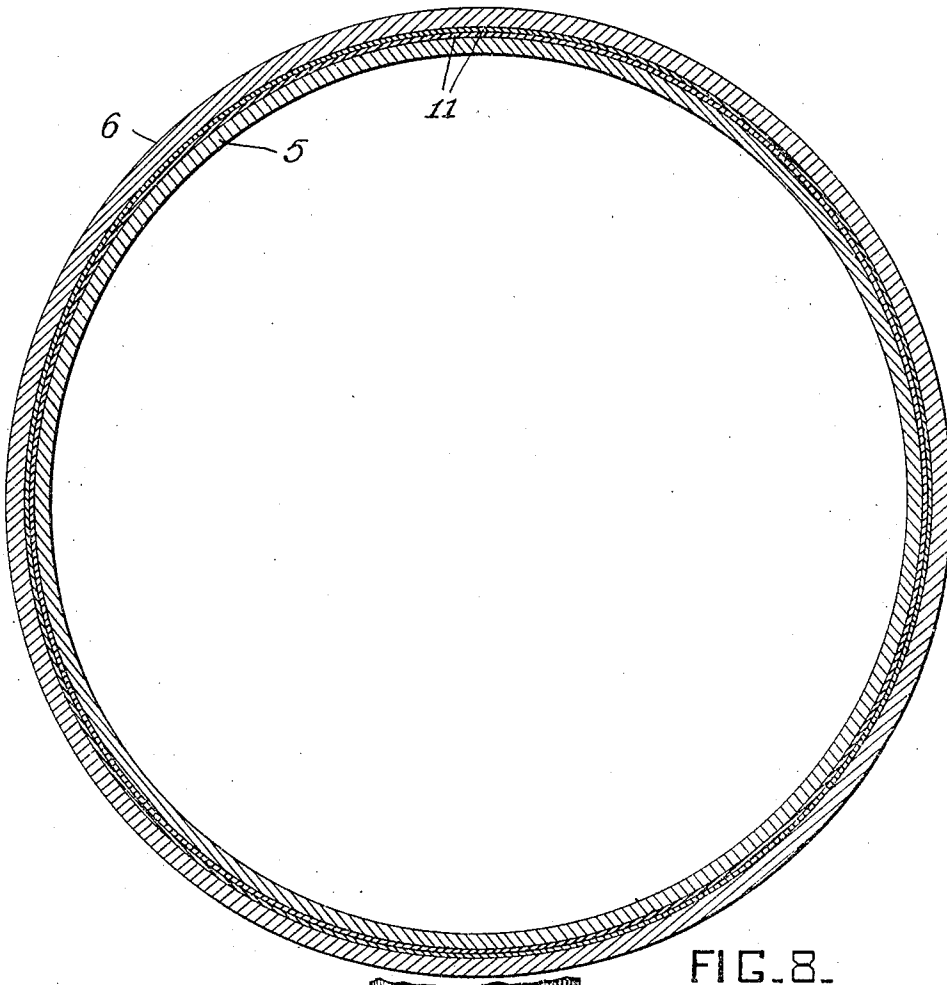
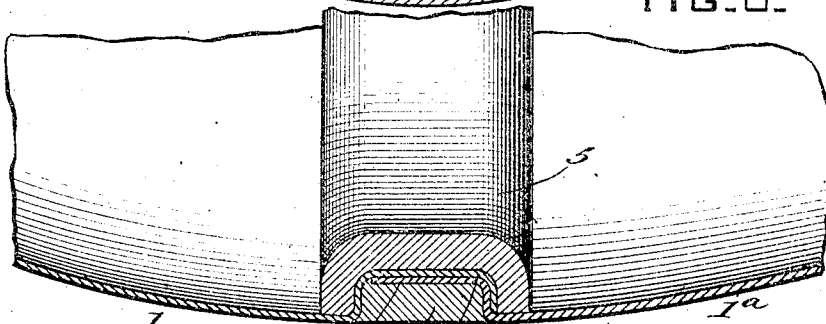


FIG. 8.



WITNESSES:

*J. Herbert Bradley.*  
*Edward F. Mosser.*

INVENTOR

*James F. Craven*  
*by Christy and Christy*  
Atty's

# UNITED STATES PATENT OFFICE

JAMES F. CRAVEN, OF PITTSBURG, PENNSYLVANIA.

## BARREL OR KEG.

943,815.

Specification of Letters Patent.

Patented Dec. 21, 1909.

Application filed November 2, 1908. Serial No. 460,689.

*To all whom it may concern:*

Be it known that I, JAMES F. CRAVEN, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, a citizen of the United States, have invented or discovered certain new and useful Improvements in Barrels or Kegs, of which the following is a specification.

This invention relates to metal barrels, kegs or other receptacles and has for its object to provide an article of this kind which is light, strong, cheap to manufacture, and which can be handled in the ordinary way of handling barrels without liability of loosening the joints and causing leakage.

Generally stated the invention comprises a barrel or like receptacle having closed ends and formed in two or more sections with their contiguous ends provided with flanges and connected by means of a ring or hoop grooved to receive said flanges, and an annular key forced into said groove and keying the flanges to said grooved ring, as will hereinafter be more fully described and claimed.

In the accompanying drawings Figure 1 is a view partly in side elevation and partly in section of one form of my improved barrel; Figs. 2, 3, 4 and 5 are sectional detail views illustrating the method of connecting said barrel sections; Fig. 6 is a similar view illustrating a modification in the shape of the connecting parts; Fig. 7 is a sectional detail of a portion of a barrel having longitudinal corrugations and a flat plain bilge portion, and also showing a further modification of the connecting parts; Fig. 8 is a sectional detail illustrating another form of the joint; and Fig. 9 is a transverse section through a completed barrel having sections connected as shown in Fig. 8.

The barrel shown is formed of a plurality of transverse sections 1 and 1<sup>a</sup>, which preferably are formed by stamping, pressing or spinning the same from sheet metal. The heads 2 are integral with the end sections, and preferably are depressed within the ends of the shell as shown and are dished or concave. It is also preferred that the rim portions 3 connecting the head with the shell be curved and stand away from the shell, as such construction permits the head to yield when subjected to a severe blow, pressure or other stress.

The sections 1 and 1<sup>a</sup> are connected to-

gether by the following means:—5 represents a hoop or ring placed inside of the barrel and provided in its outer face with a groove 4 which may be formed therein either by cutting or rolling. The hoop or ring preferably is continuous and without a joint or seam, but if desired it may be formed in sections. The contiguous edges of the sections 1 and 1<sup>a</sup> are flanged inwardly as at 7, said flanges entering the groove 4 of ring 5, and in the preferred form as shown in Fig. 8, are provided with lips or projections 7<sup>a</sup> which lie in the bottom of groove 4 and overlap one of said lips preferably at its free edge forming an outwardly projecting flange as shown in Fig. 8. The flanges 7 are keyed into the groove 4 of ring 5 by means of an unbroken annulus or ring 6, which is forced tightly into said groove to entirely fill the same and securely lock the flanges in the groove. Preferably this ring or annulus is first heated and contracted peripherally and forced down into the groove, and is non-resilient so that when forced into the groove it takes a permanent set and remains firmly in the position to which it is forced. It may be contracted peripherally into the groove 4 by any suitable means and made to conform to the shape of the groove in the ring. The groove 4 in ring or hoop 5 may have flared walls as shown in Figs. 2 to 5, or undercut walls as shown in Fig. 6, or parallel or right angled walls as shown in Figs. 7 and 8. When the key is wedge-shape, as in Figs. 2 to 5, and forced between the flanges 7 it serves to firmly press said flanges against the walls of groove 4. In the form shown in Figs. 1 to 7 the simple flanges 7 may be of such depth that they do not extend entirely to the bottom of the groove 4 in ring or hoop 5 so that small spaces are left into which some of the metal of the key 6 is forced to hold the latter firmly in position, as shown in Figs. 5, 6 and 7. To insure the spreading of the metal into these spaces a V-shaped projection 8 is formed in the bottom of the groove. When the groove is undercut, as in Fig. 6, the shape of the key holds it in place.

In constructing the barrel the sections 1 and 1<sup>a</sup> are first formed and the hoop or ring is placed within one of such sections. The edge of the section is then bent down into the groove 4 against one of the side walls thereof as shown in Fig. 2. Another section is then slid onto the projecting portion

of the ring or hoop and the edge of this section is then bent down into the groove and against the other side wall thereof as shown in Fig. 3. The key 6 is then forced  
5 into the groove between the turned-in parts 7 of the shells or sections.

With the form of flanges shown in Figs. 1 to 7 packing may be employed to prevent leakage, such packing preferably being  
10 placed between the flanges 7 and the side walls of the groove 4, as shown at 9 in Fig. 7. When the flanges are provided with overlapping portions as shown in Fig. 8 of  
15 practically the width of the groove, the key when it is forced inwardly, and particularly when it shrinks on cooling, tightly forces the overlapping parts 7<sup>a</sup> together and against the bottom of the groove so that an absolutely tight joint is provided. This form  
20 also has the advantage that if the barrel be given a blow endwise, such as when slid down skids, the joint will not readily loosen, due to the fact that the overlapping portions 7<sup>a</sup> are substantially of the width of the  
25 groove, extend entirely across the groove and abut against the wall on the opposite side of the groove, so that endwise shocks or blows on the barrel have no effect on the joint.

30 When the sections of the barrel or other receptacle are corrugated longitudinally, it is preferred that a portion of the barrel at its largest diameter be left plain, as shown at 10, Fig. 7, so that the barrel will roll  
35 easily. This plain portion is formed by forcing the metal at the ends of the adjoining sections outwardly, so that said plain portion forms the largest diameter or bilge of the barrel. The recess formed by so forcing  
40 out the metal to form this plain bilge, provides a seat for the hoop or ring 5.

It will be readily understood that the flanges 7 may be turned in before the hoop or ring 5 is inserted. In such case the hoop  
45 or ring should be noncontinuous so that its ends can be moved out of line and its diameter sufficiently contracted to permit it being inserted into the sections.

The barrel described is light and yet  
50 strong and capable of withstanding all ordinary usage. It is of standard barrel shape, that is, enlarged at the middle so that it can be readily handled, and particularly easily up-ended. The joint can be made absolutely  
55 tight, and in the preferred form is of such a nature that it effectually resists end shocks.

A barrel constructed as described can be used for storing and transporting even very mobile and volatile liquids.

What I claim is:

60 1. A barrel or other receptacle composed of a plurality of transverse sections, contiguous ends of the sections being provided with inturned flanges, and means for connecting said sections consisting of an annular  
65 hoop or ring arranged within the sections and grooved for the reception of the flanges of the latter, and a continuous unbroken non-resilient annular key contracted peripherally and completely filling the groove in  
70 the ring and the space between the flanges.

2. A barrel or other receptacle composed of a plurality of transverse sections, contiguous ends of the sections being provided with inturned flanges and overlapping lip  
75 portions, an internal ring provided with a groove for the reception of said flanges and lips, and a continuous unbroken non-resilient annular key contracted peripherally into the groove in the ring and between the flanges  
80 and forcing the overlapping lips into contact.

3. A barrel or other receptacle composed of a plurality of transverse sections, an internal ring grooved on its outer face, contiguous ends of said sections being provided  
85 with inturned flanges having at their edges overlapping lips supported in the groove of said ring, and an unbroken annulus contracted peripherally into said groove between the flanges and forcing the overlapping portions  
90 into tight contact with each other and with the bottom of the groove.

4. A barrel or other receptacle composed of a plurality of transverse sections, an internal ring grooved on its outer face, contiguous ends of said sections being provided  
95 with inturned flanges and with lips of substantially the width of the groove in said ring, the lips of the two sections overlapping in said groove and a continuous unbroken  
100 annular key contacted peripherally into said groove between the flanges of the sections and forcing the overlapping lips into tight contact with each other and with the bottom  
105 of the groove.

In testimony whereof, I have hereunto set my hand.

JAMES F. CRAVEN.

Witnesses:

FRANCIS J. TOMASSON,  
CHARLES BARNETT.