J. J. WOLF.

METAL CASK.

APPLICATION FILED JULY 21, 1913.

1,164,152.

Patented Dec. 14, 1915.

2 SHEETS—SHEET 1.

Fig. 1,

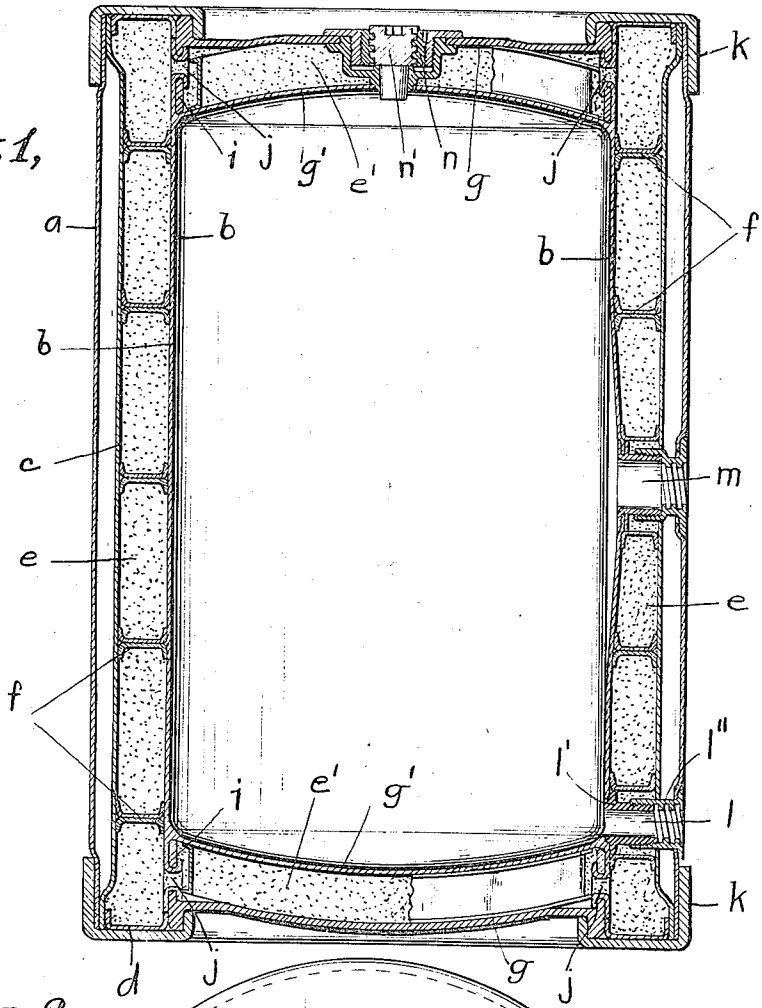
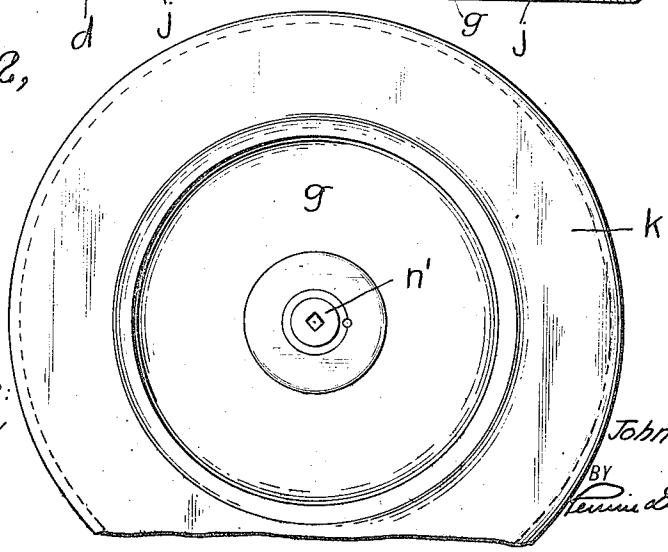


Fig. 2,



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2 SHEETS—SHEET 2.

Fig. 3.

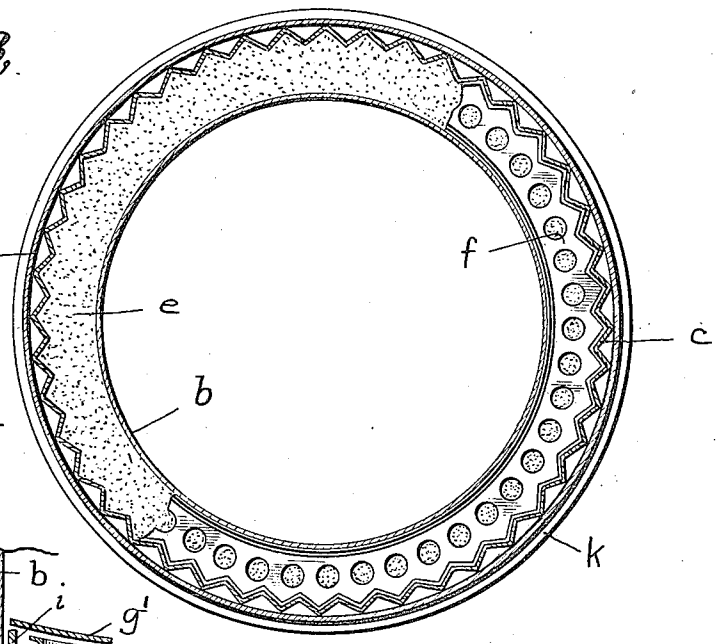


Fig. 5.

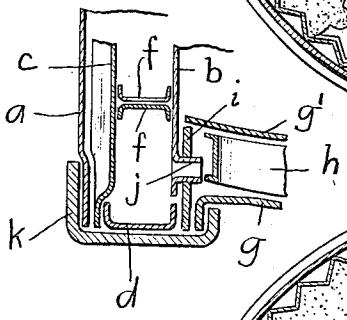
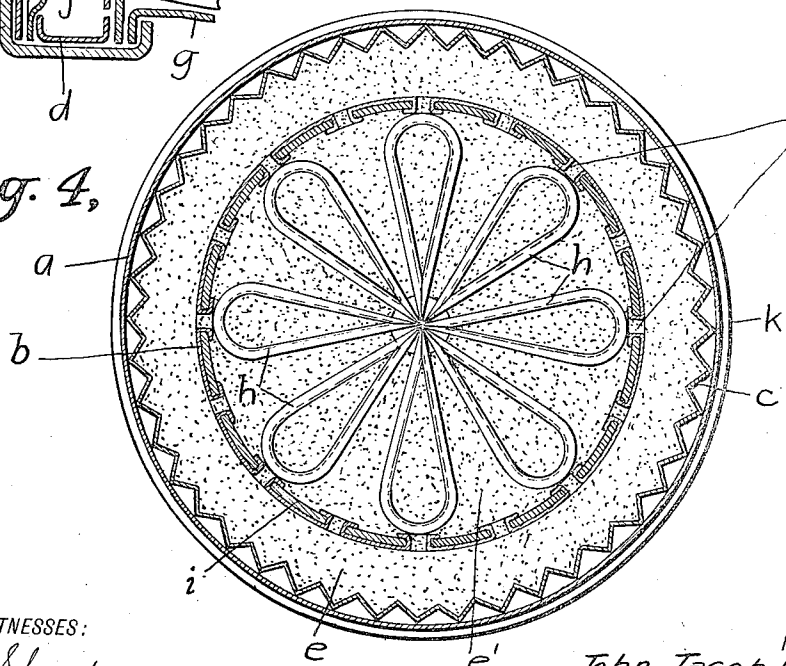


Fig. 4.



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METAL CASK.

1,164,152. Specification of Letters Patent. Patented Dec. 14, 1915.

Application filed July 21, 1913. Serial No. 780,206.

To all whom it may concern:

Be it known that I, JOHN JACOB WOLF, a citizen of the United States, residing at Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented certain new and useful Improvements in Metal Casks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to metal casks for transporting and storing beer, ale and other liquids, and the object of the invention is to provide an improved cask of the kind described in my United States Letters Patent No. 964,080 of July 12, 1910, and in my co-pending application, Serial No. 709,523, filed July 15, 1912, which is sufficiently strong and durable to withstand the wear and tear of transportation and which by its heat-insulating features maintains the low temperature of the liquid substantially unaltered throughout an appropriate time.

In the accompanying drawings, illustrating the preferred form of my present invention, Figure 1 represents a central longitudinal section, partly in elevation, of a completed cask; Fig. 2 represents a top plan view thereof; Fig. 3 represents a transverse section particularly showing the arrangement of the cylinders and a strengthening ring; Fig. 4 represents a transverse section through the lower head portion of the cask; and Fig. 5 is an enlarged view showing the relation of the parts without being fastened together.

The main body of the cask is made up of an outer cylinder *a* of sheet steel or wrought iron, an inner cylinder *b* of a metal which is neutral to the beer or other liquid, such as aluminum or Monel metal, and a longitudinally-corrugated reinforcing cylinder *c* of metal, lying in contact with the inner surface of the outer cylinder to strengthen it longitudinally and circumferentially, and spaced well apart from the inner cylinder to afford an effective heat insulating space and interrupt the flow of heat through the metal from the inner cylinder to the outer cylinder. The flanged rings *d* are of the same metal as the outer cylinder, and they form continuations of the inner cylinder and end-closures for the space between the cylinders, as shown. These rings are, in the construction shown, welded (preferably autogenously) to the outer and reinforcing cylinders and to the prolongation of the inner cylinder. The insulating space between the inner cylinder and the reinforcing cylinder is packed with heat-insulating material *e*, such as granular pressed cork, and a plurality of longitudinally-spaced rings *f* in contact with the respective cylinders serve to resist pressure from within the cask against the inner cylinder and from without the cask against the outer cylinder. These rings *f*, in order that they may have a large and effective bearing surface and at the same time small heat conductivity, are provided with flanges at their edges, which flanges make contact with the inner cylinder and the reinforcing cylinder; and the flanged edges of the rings which make contact with the reinforcing cylinders are corrugated to correspond thereto, as best shown in Fig. 3. The inner cylinder *b* is riveted at *j* to the embracing rings *i* of iron or steel which are welded to the parts *d* and *g*.

Each head portion of the cask comprises two dished disks *g* and *g'* of metal with an intermediate strengthening frame made up (as shown more clearly in Fig. 4) of bent iron channels *h* inserted on edge between the disks and fastened at their center so as to form a strong integral structure. The inner disk *g'* of each head portion is welded or otherwise joined to the inner cylinder to form a seamless joint therewith impervious to the passage of fluid. The space between the inner and outer disks of each head portion is filled with granular pressed cork *e'* or the like, so as to complete the heat-insulating inclosure for the cask.

A tread ring *k* of metal is provided at each end of the cask, so that the cask can be conveniently rolled. Each tread ring is shaped in such manner as to extend around the outer surface of the outer cylinder, over the ring *d*, and around the head portion of the cask, and is preferably brazed to the outer cylinder and to the head portion so as to be securely fastened thereto and yet be replaceable after wear.

The body portion of the cask is provided with a bung-hole bushing *l* comprising a member *l'* having flanges upset on the two sides of the inner cylinder, and a member *l''* in screw-thread engagement with the member *l'* and forced into a countersink of the outer cylinder, whereby there is attained a perfectly tight opening to the interior of the

cask. This bushing is interiorly screw-threaded, as shown in the drawings, for the insertion of a plug. The cask is likewise provided with a faucet-bung bushing *m*, as shown, while the tapping bushing in the head portion of the cask is similar to the other bushings except that it is further provided with a screw threaded sleeve *n* to provide for more frequent use and easier renewal. The plug *n'* is used to seal the tapping bushing, and similar plugs are used in the other bushings to seal the cask when it is filled. As is shown in Fig. 1, the inner cylinder *b* is dished outwardly at the region of the faucet bushing *m* to form a drain for the cask at this place.

By the construction hereinbefore described, a strong and durable cask is provided for the purpose, such as will withstand rough handling and will maintain an even temperature of the liquid content over a considerable period. The arrangement of the tread rings and head portions is such as to relieve the inner cylinder and the inner disks of the head portions from excessive stress, so that the cask remains fluid-tight even after considerable use. Furthermore the particular form of strengthening rings *f* is well adapted for protecting the body portion of the cask from internal and external pressure and rough handling.

In constructing the cask, the heat-insulating material *e* and the strengthening rings *f* are inserted from both ends of the body portion before the bushing *l* is put in place and the flanges of the member *l'* are upset on the two sides of the inner cylinder, and the end-closures *d* and the tread rings *k* are fastened in place. The strengthening rings nearest to the bushings are so formed as to fit neatly around the bushings.

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

1. In a metal cask for transporting and storing beer, ale and other liquids; an outer cylinder; an inner cylinder; heat insulating material between the cylinders; a heat insulating head portion at each end of the cask comprising an embracing ring fastened to the inner cylinder, an inner disk fastened to the inner cylinder, and an outer disk fastened to the embracing ring; and a tread ring on each end of the cask extending around the outside surface of the outer cylinder, over the ends of the inner and outer cylinders, and around the embracing ring of the head portion; substantially as described.

2. In a metal cask for transporting and storing beer, ale and other liquids, a heat insulating body structure comprising an inner cylinder, an outer cylinder, a corrugated reinforcing cylinder lying in contact with the inner surface of the outer cylinder to stiffen it longitudinally and circumferentially and spaced well apart from the inner cylinder to afford a heat insulating space therebetween, annular stiffening rings interposed in said space, said rings having edge flanges contacting with the inner cylinder and the corrugated reinforcing cylinder respectively, the flange which contacts with the corrugated cylinder being likewise corrugated to correspond thereto, and end closures for the cask, substantially as described.

3. In a metal cask for transporting and storing beer, ale and other liquids, an outer cylinder, an inner cylinder, a longitudinally-corrugated intermediate cylinder, heat-insulating material between the inner and the intermediate cylinders, a plurality of longitudinally-spaced strengthening-rings having flanged edges in contact with the inner and intermediate cylinders in order to strengthen the cask against internal and external pressure, heat-insulating head-portions for the cask, and tread rings for the cask; substantially as described.

4. In a metal cask for transporting beer, ale, and other liquids, an outer cylinder, an inner cylinder of metal which is neutral to the liquid to be contained therein, a longitudinally-corrugated intermediate cylinder, heat-insulating material between the inner and intermediate cylinders, a plurality of longitudinally-spaced strengthening-rings having flanged and corrugated edges in contact with the inner and intermediate cylinders in order to strengthen the cask against internal and external pressure, shaped rings welded to the inner cylinder and constituting end-closures for the space between the cylinders, heat-insulating head-portions for the cask riveted to the inner cylinder and having inner disks welded to the inner cylinder so as to form a fluid-tight container, and tread rings on the ends of the cask extending around the outside surface of the outer cylinder, over the shaped rings between the cylinders and around the head-portions of the cask; substantially as described.

5. In a metal cask for transporting beer, ale and other liquids, an outer cylinder, an inner cylinder of metal which is neutral to the liquid to be contained therein, a ring fastened to the inner cylinder and forming a prolongation of the same, a longitudinally-corrugated intermediate cylinder, heat-insulating material between the inner and intermediate cylinders, a plurality of longitudinally-spaced strengthening-rings having flanged and corrugated edges in contact with the inner and intermediate cylinders in order to strengthen the cask against internal and external pressure, shaped rings welded to the prolongation of the inner cylinder and constituting end-closures for the space between the cylinders, heat-insulating head portions for the cask riveted to the inner cylinder and having inner disks welded to

the inner cylinder so as to form a fluid-tight container, and tread rings on the ends of the cask extending around the outside surface of the outer cylinder, over the shaped rings between the cylinders and around the head portions of the cask; substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses.

JOHN JACOB WOLF.

Witnesses:
JOHN A. ZOELLS,
JOHN ZOELLS, Jr.