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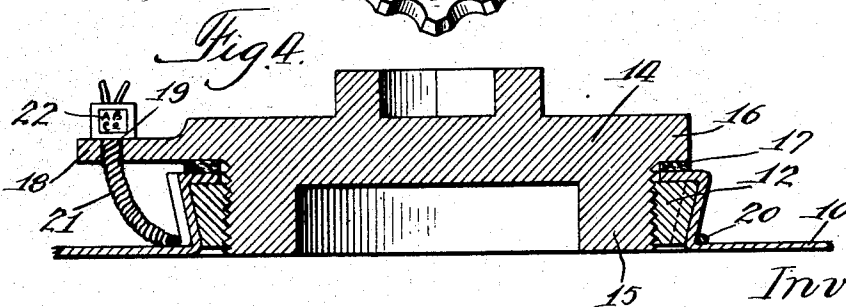
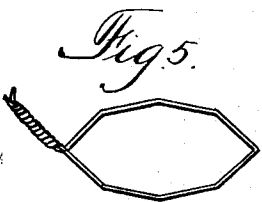
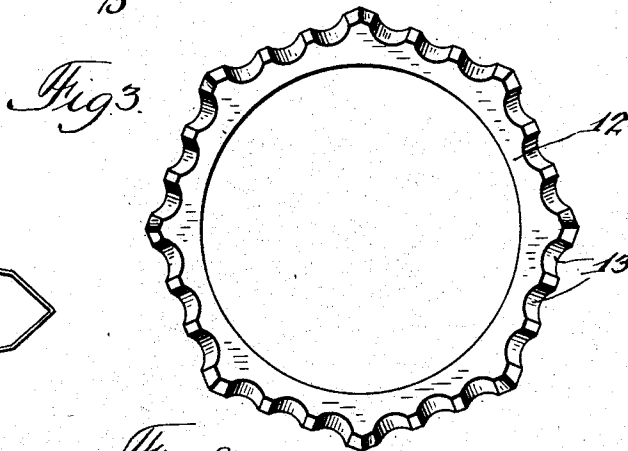
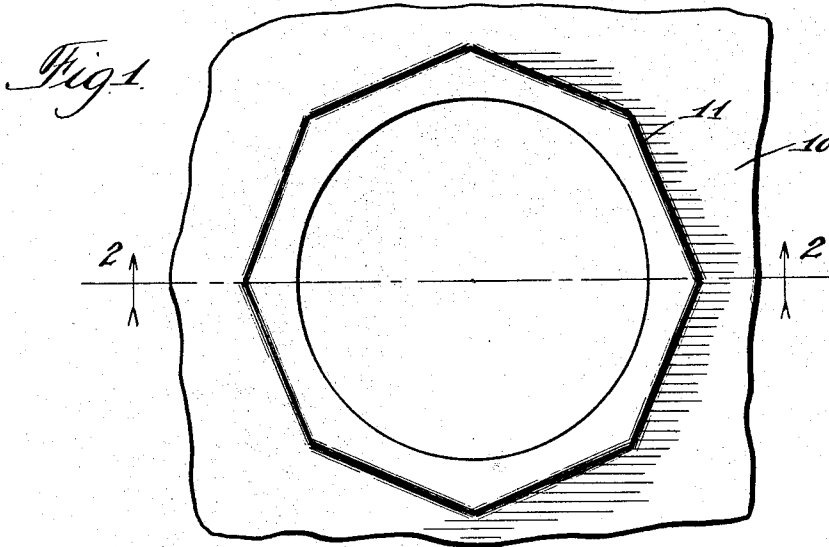
H. SCHWARTZ

2,023,977

BUSHING STRUCTURE

Filed Sept. 2, 1927

2 Sheets-Sheet 1



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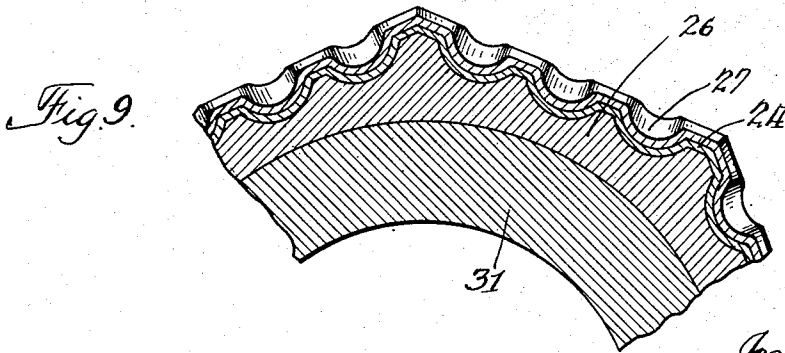
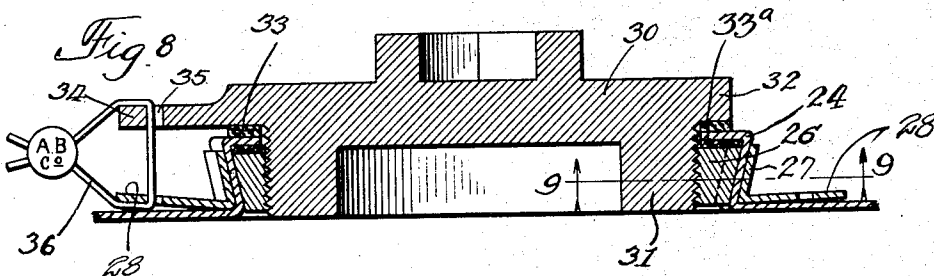
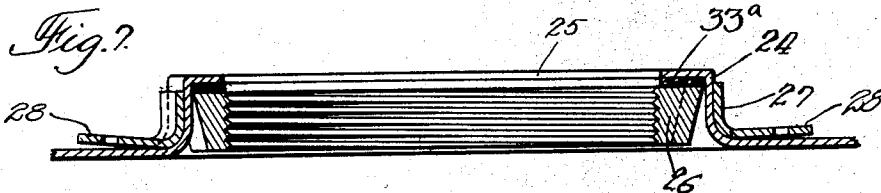
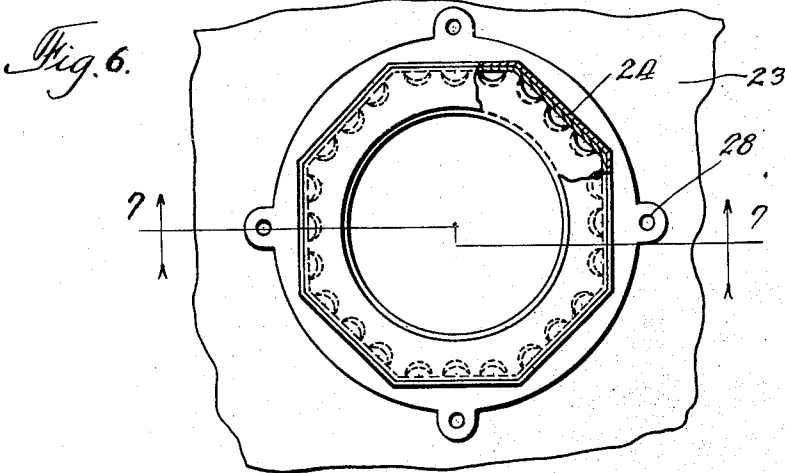
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BUSHING STRUCTURE

Filed Sept. 2, 1927

2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,023,977

BUSHING STRUCTURE

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Application September 2, 1927, Serial No. 217,032

5 Claims. (Cl. 220—39)

This invention relates to a bushing structure and has special reference to a bushing structure as employed particularly in the construction of metallic barrels and other containers, such, for example, as may be used in storing or in shipping oils or other liquids or semi-liquids, a bung or stopper being associated with the bushing structure in order to make the latter fluid-tight.

More particularly, this invention relates to a bushing structure comprising an internally threaded body portion secured within a socket formed by a flange which latter is preferably struck outwardly from the barrel or other container. It is also preferable that the flange member be formed integrally with the barrel wall or other supporting body with which it is associated.

Heretofore, in bushing structures provided on barrels and other containers, it has been impossible to drain the entire contents thereof for the reason that the bushing assembly usually projected a substantial distance within the interior of the barrel. In the present construction, it will be apparent that by means of forming the flange in a plane outside of the inner wall of the barrel, the contents of the barrel will have no obstruction to its outward flow.

In order that the internally threaded body portion be securely positioned against turning within the socket formed by the flange and in which the body portion is disposed, the outer edges of the latter are recessed or provided with notches into which the walls of the flange are formed. Further, in order to guard against the unauthorized opening of the barrel or container, a new and novel means is provided for sealing the bung or stopper engaging the bushing structure.

Other objects and advantages will hereinafter be referred to and for a better understanding of the nature, scope and characteristics of this invention, reference may be had to the accompanying drawings and the following description, in which drawings:

Figure 1 is an end view of a portion of a barrel head showing the flange portion of the bushing structure prior to receiving the body portion;

Fig. 2 is a vertical sectional view taken on the line 2—2 of Fig. 1 showing the main body portion loosely inserted therein;

Fig. 3 is a bottom plan view of the body portion of the bushing structure;

Fig. 4 is a vertical sectional view similar to Fig. 2 showing the bushing assembly together with a bung in threaded engagement therewith and sealed thereto;

Fig. 5 is a perspective view of a preferred form of sealing means;

Fig. 6 is an end view of a portion of a barrel head showing the body portion and sealing member loosely engaging the flange portion of the bushing structure;

Fig. 7 is a vertical sectional view taken on the line 7—7 of Fig. 6;

Fig. 8 is a vertical sectional view similar to Fig. 7 showing the body portion and sealing member in an assembled relation, together with a bung in threaded engagement with the body portion; and

Fig. 9 is a fragmentary sectional view taken on the line 9—9 of Fig. 8.

Referring now to the drawings and more particularly to Figs. 1 to 5, inclusive, the barrel head 10 or supporting wall of any container is shown and is preferably formed of a sheet material such as steel. A flange portion 11 is preferably integrally formed with the barrel head 10 and projects outwardly therefrom to form a socket. This flange portion is formed from the material surrounding an annular opening in the barrel head.

The socket 11 is preferably polygonal in its peripheral contour to receive a main body portion 12 of a similar peripheral contour whereby the main body portion is prevented from turning in the socket. The material of the main body portion is preferably a casting of a malleable iron or other suitable material.

The main body portion may be formed of any number of edges and although it is preferably polygonal and regular in its peripheral contour, it is to be understood that this is merely for convenience in the assembly of the bushing structure and that any non-circular peripheral contour may be employed. The edges of the body portion are provided with a plurality of notches 13 or recesses in order to more securely grip the retaining wall of the socket 11 which, as will hereinafter be more fully described, is formed thereagainst. However, it is to be understood that each of the laterally extending edges may be arcuate and in such an instance but a single recess, of course, is formed.

Each of the vertical edges of the polygonally shaped body portion 12 is tapered, the taper of two edges when viewed together in cross-section converging rearwardly or inwardly from the outer surface thereof; that is, the outer diameter of the bottom surface is smaller than the outer diameter of the top surface. The walls of the socket 11 are adapted to snugly engage the tapered edges of the main body portion whereby a dove-tail cross-section is obtained. The walls

of the socket 11, in addition to engaging the tapered edges of the body portion, are formed into the recesses or notches 13 thereby affording a more secure relation therebetween than could be obtained by merely the engagement of the polygonally shaped contours thereof.

As shown in the drawings, the depth of the notches is uniform throughout their length. The notches are also of uniform width. However, this is merely for purposes of illustration and it will be apparent to one skilled in the art that the widths and depths of the notches may vary and the results obtained therefrom may be effectively the same.

It will be seen that by forming the flange or socket 11 outwardly from the container as shown, the internally threaded body portion 12 may be of sufficient height to accommodate at least five full threads (this number being ordinarily prescribed in these constructions) without necessitating the projection of the body portion into the interior of the barrel. This construction permits of the unrestricted flow of the contents of the barrel whereby the full contents thereof may be withdrawn.

A bung 14 comprising a bore portion 15 and a flange portion 16 engages the internally threaded body portion 12. A sealing gasket 17 is interposed between the flange 16 and the socket, the gasket, of course, serving to prevent leakage of the fluid content in the barrel. A projection 18 is formed on the outer periphery of the flange 16 and preferably integrally therewith, the projection having an aperture 19 therein.

In instances where the barrel or other container is used for local storing purposes, it may not be necessary to employ a sealing element. However, in the shipment of oil or in other instances where the container has left the owner's hands, it is desirable to guard against the unauthorized opening of the barrel by means of a sealing member. In the construction which will now be described, the manufacturer of the barrel may or may not include the sealing means in the bushing structure just prior to the shipment of the barrel; whereas, in the usual construction, the sealing means is included in the bushing assembly and is necessarily made up when the barrel is in the process of manufacture. A wire 20 is placed around the inner portion of the socket adjacent the barrel head 16 and the ends thereof are twisted together tightly in order to permit the wire to conform to the peripheral contour of the socket. The twisted ends 21 of the wire 20 are inserted in the aperture 19 in the projection 18 of the bung whereafter a sealing means of the usual type is disposed thereon.

Heretofore, it has been usual that the manufacturer have on hand a number of containers without sealing means and a further number with sealing means. The present construction provides that the manufacturer may make up all of the containers without sealing means whereafter sealing means are provided as they are wanted. This sealing member, as formed by the peripheral contour of the socket, is shown more particularly in Fig. 5 of the drawings.

Referring now to Figs. 6 to 9, inclusive, a sealing member of a further form is shown. A barrel head 23 is shown having a polygonally shaped socket portion 24 formed outwardly from the material surrounding a hole 25 in a supporting portion of the barrel head, an internally threaded body portion 26 being disposed in the socket 24. The body portion is preferably polygonally shaped

to conform to the polygonally shaped socket 24 and the edges of the body portion converge inwardly from the larger diameter thereof. The inwardly converging edges have a plurality of substantially vertically extending grooves formed thereon preferably of the same depth throughout the length thereof. The side walls of the socket are formed against the inwardly converging edges, the material thereof engaging the grooves.

A collar member 27 of a size and shape to conform with the outer portion of the socket 24 has a lower flange portion containing a plurality of ears 28. A bung 30, having a threaded bore portion 31 and a flange portion 32, is in engagement with the internally threaded body portion 26, a gasket 33 being interposed between the flange member and the socket in order to prevent leakage therebetween. It may also be desirable to interpose a gasket 33a between the flange of the socket and the main body portion 26 in order to prevent leakage through the bushing structure. A projection 34 is formed on the flange member 32 and has an aperture 35 for receiving a sealing wire 36 which extends through an aperture of one of the ears 28. The ends of the sealing wire 36 are sealed together in the usual manner.

By referring to Fig. 9 of the drawings, it will be noted that the material of the collar member 27 and the wall of the socket 24 are formed into the notches provided in the body portion 26. In order to secure the collar member 27 in such a relation with the bushing structure, the collar portion is formed at the same time that the wall of the socket is formed against the inwardly converging edges of the body portion. The manner of forming this structure will now be briefly described. For a more complete description thereof, reference may be had to a copending application filed of even date herewith and bearing Serial No. 217,031.

A barrel head blank, provided with an aperture in any well known manner, is interposed between a punch and die member whereby the material adjacent the aperture is formed into a socket, the walls of the latter being formed preferably at substantially right angles to the barrel head. An internally threaded body portion is disposed in the socket, whereafter the barrel head is placed on a die member, preferably comprising a series of segments pivotally mounted on a supporting structure, one segment being required for each inwardly converging edge of the body portion. The segments are provided with pointed end portions for engaging the side wall of the socket to form the material against the inwardly converging wall of the body portion. However, in the present construction, a series of ridges may be formed on the engaging edge of the segment to correspond with and be received in the grooves formed in the body portion. If a flange collar be provided on the outer side of the socket to be used as a sealing means, the collar is also formed into the grooves of the body portion, together with the side walls of the socket.

While several embodiments of this invention are herein shown and described, it is to be understood that various modifications will be apparent to those skilled in the art without departing from the spirit and scope of this invention, and therefore, the same is to be limited only by the scope of the prior art and the appended claims.

I claim:

1. A bushing structure for metallic barrels and the like comprising a polygonally shaped socket

bounding a hole in a supporting wall of said barrel, said socket being formed from the material surrounding said hole and extending directly outwardly from the substantial plane of said supporting wall, an apertured body portion for receiving a bung secured in said socket and having inwardly converging edges, and a collar member having an upstanding flange on its inner periphery disposed around said socket, the walls of said flange of the collar member and said socket being formed to snugly engage said converging edges.

2. A bushing structure for metallic barrels and the like comprising a socket bounding a hole in a supporting wall of said barrel, said socket being formed from the material surrounding said hole and extending directly outwardly from the substantial plane of said supporting wall, and an apertured body portion having inwardly converging edges disposed in said socket, the edges of said body portion having grooves thereon extending the full length of said converging edges, and a collar member having an upstanding flange on its inner periphery disposed around said socket the walls of said flange of the collar member and of said socket being formed to snugly engage said converging edges and said grooves.

3. A bushing structure for metallic barrels and the like comprising a socket bounding a hole in a supporting wall of said barrel, said socket being formed from the material surrounding said hole and extending directly outwardly from the substantial plane of said supporting wall, an apertured body portion for receiving a bung secured in said socket and having inwardly converging edges, and a collar having an upstanding

flange on its inner periphery disposed around said socket, the flange of said collar and the side walls of said socket being formed to engage snugly said converging edges.

4. A bushing structure for metallic barrels and the like comprising a socket bounding a hole in a supporting wall of said barrel, said socket being formed from the material surrounding said hole and extending directly outwardly from the substantial plane of said supporting wall, an apertured body portion for receiving a bung secured in said socket and having inwardly converging edges, and a collar member having an upstanding flange on its inner periphery disposed around said socket, the flange of said collar and said socket being formed to engage snugly said converging edges, and means on said collar for cooperation with said bung to provide a sealed relation therebetween.

5. A bushing structure for metallic barrels and the like comprising a socket bounding a hole in a supporting wall of said barrel, said socket being formed from the material surrounding said hole and extending directly outwardly from the substantial plane of said supporting wall, an apertured body portion for receiving a bung secured in said socket and having inwardly converging edges, and a collar member having an upstanding flange on its inner periphery disposed around said socket, the flange of said collar and said socket being formed to engage snugly said converging edges, the said collar having apertures therein for receiving a sealing member engaging said bung.

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