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AGITATOR SHAFT SUPPORT

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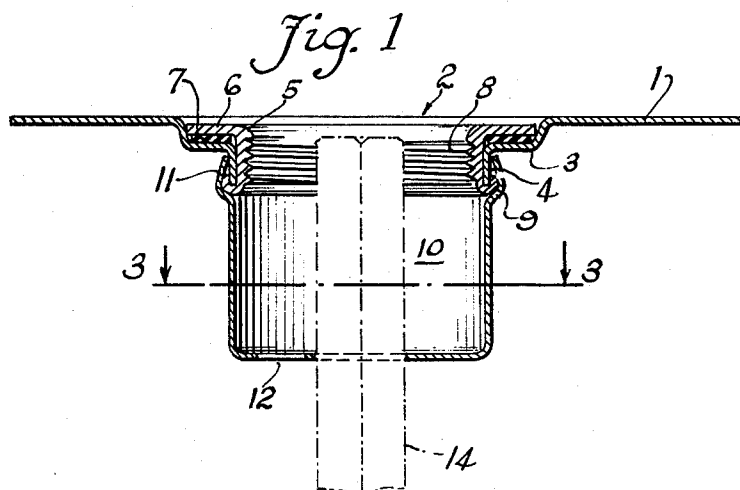


Fig. 2

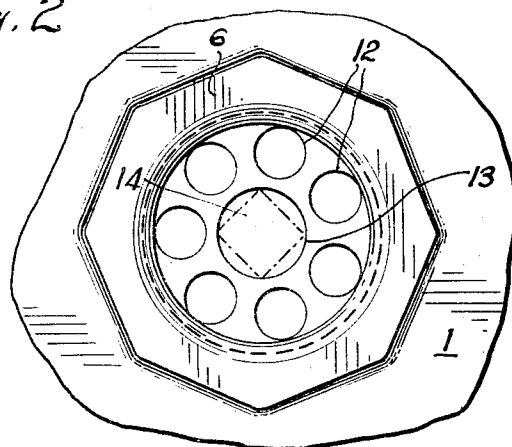
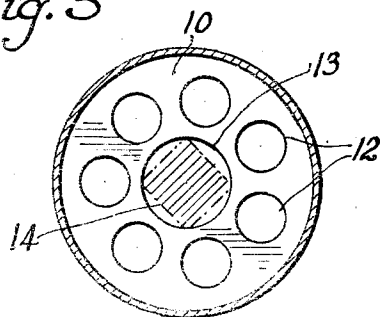


Fig. 3



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AGITATOR SHAFT SUPPORT

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5 Claims. (Cl. 259—108)

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This invention relates to a support for the shaft of an agitator located within a container, and the invention has as an object the provision of a simple, inexpensive, and reliable device of this character.

When an agitator is used in a container for mixing the contents before using, some means must be employed to support or guide the agitator shaft. Present practice is to use a metal strap permanently connected at both ends to the container head and having a hole near its center to receive the agitator shaft. The connection of the strap to the head may weaken the latter, thereby increasing the possibility of a break in the head with resultant leakage. The connection also creates crevices around the joints in which the contents of the container will become embedded, making it difficult to clean thoroughly the interior of the container.

According to my invention, the support is in the form of a cup, connected essentially to the bung hole bushing or flange, thereby eliminating the necessity of connections to the main body of the container head. This arrangement reduces the possibility of leakage and permits more thorough cleaning of the interior of the container.

Another object of my invention, then, is to provide an agitator shaft support which reduces the danger of leakage and facilitates cleaning of the container.

The cup-shaped support of my invention is also stronger and more durable than a strap support of comparable weight, since the cup will give equal support in all directions and is not so prone to break loose.

Accordingly, another object of my invention is to provide a sturdy and reliable agitator shaft support.

A further object of my invention is to provide a support of the above-indicated character which may be economically produced and readily and efficiently assembled with the structure in connection with which it is to be used.

My invention, together with further objects and advantages thereof, will best be understood by reference to the following description taken in connection with the accompanying drawing, and its scope will be pointed out in the appended claims.

In the drawing, in which like parts are indicated by like reference numerals:

Figure 1 is a vertical-sectional view showing an agitator shaft support embodying the invention, in association with a bung hole bushing or flange in a container head or the like;

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Fig. 2 is a top plan view of Fig. 1; and

Fig. 3 is a horizontal-sectional view taken along the line 3—3 of Fig. 1.

Referring now more specifically to the drawing, a head 1 for a container (not shown), such as a steel drum or barrel, is provided with a bung hole 2. The head 1 is bent inwardly adjacent the edge of the bung hole 2 to form an annular shoulder 3. The head 1 is further bent inwardly to form a substantially cylindrical portion 4 which defines the bung hole 2.

A bushing or flange 5 is used to line the bung hole. A flange portion 6 of the bushing 5 engages the shoulder 3 of the cover with a gasket 7 located between the flange 6 and the recessed shoulder 3 in order to effect a tight seal. The bushing 5 is threaded on its interior surface 8 to receive a threaded bung (not shown).

The inner lip of the bushing 5 is rolled outwardly to form a bead 9 which embraces the lower end of the cylindrical portion 4 of the head. The cylindrical portion 4 of the head 1 is, therefore, securely clamped between the flange 6 and the bead 9 of the bushing 5 and forms essentially a part of the bushing. The bushing 5 is thereby securely connected to the head 1.

An agitator support cup 10 is secured to the bung hole structure by having its rim 11 crimped over the bead 9 of the bushing 5. It is to be noted that the support cup 10 is thereby securely mounted without the necessity of any form of connection to the main portion of the head 1. This is very desirable, since any connection of the agitator support to the main portion of the head 1 naturally results in corners and crevices into which the contents of the container become embedded. Furthermore, any form of connection of the agitator support to the head may result in a weakening of the head at that point, thereby increasing the possibility of leakage.

If desired, the rim 11 of the support cup 10 can be welded, brazed or soldered to the bushing 5 or to the cylindrical portion 4 of the head.

In the bottom wall of the cup 10 is a series of holes 12 which provide access between the interior of the cup 10 and the interior of the container in order that material can pass into and out of the container through the bung hole 2. More holes can, of course, be made in the sides of the cup 10 if desired.

A hole 13 is provided in the center of the bottom wall of the cup 10. This hole is of such a size as to receive an agitator shaft 14, and the edges of the hole 13 form a support or guide for such shaft. It will be understood, of course, that

the shaft 14 is connected to a rotatable agitator (not shown), located within the container. The hole 13 being coaxial with the bung hole 2, and ordinarily also with the container in which the agitator is located, it will be seen that the agitator may be properly operated by means of a crank (not shown) engaged with the shaft 14 through the bung hole 2, and that the cup 10 will provide effective support for the shaft 14 during such operation.

While I have shown and described a particular embodiment of my invention, it will be obvious to those skilled in the art that changes and modifications may be made without departing from my invention in its broader aspects, and I, therefore, aim in the appended claims to cover all such changes and modifications as fall within the true spirit and scope of my invention.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. The combination with a cover and a bung receiving bushing for a container, said bushing including a bead disposed inwardly from the inner surface of said cover, of an agitator shaft support cup, said cup having means defining an opening in its bottom portion adapted to receive and laterally support the agitator shaft, said cup also having a rim portion crimped around the bead on the bushing as a means of support for said cup.

2. The combination of an agitator shaft support cup with a head for a container and a bung receiving bushing for edging a bung hole in the head, the bushing being substantially cylindrical with a flange at one end secured against the portion of the head adjoining the bung hole, the other end of the bushing extending inwardly from the inner surface of said head and having a bead formed on its outer surface; said support cup having a rim portion crimped around the bead on the bushing as a means of support for said cup, said support cup also having means defining an opening adapted to receive and laterally support the agitator shaft.

3. The combination of an agitator shaft support cup with a head for a container and a bung receiving bushing for edging a bung hole in the head, the bushing being substantially cylindrical with a flange at one end secured against the portion of the head adjoining the bung hole, the other end of the bushing having a bead formed on its outer surface; said support cup having a rim portion crimped around the bead on the bushing as a means of support for said cup, said support cup also having means defining an opening to provide access between the interior of said cup and the interior of the container and means

defining a second opening adapted to receive and laterally support the agitator shaft.

4. The combination of an agitator shaft support with a head for a container and a bung receiving bushing for edging a bung hole in the head, the head having a substantially cylindrical portion bent inwardly toward the container and defining a bung hole, the bushing being substantially cylindrical with a flange at one end secured against the portion of the head adjoining the bung hole, the other end of the bushing being rolled outwardly to engage the inner end of the cylindrical portion of the head; said support cup having a rim portion crimped around the outwardly rolled portion of the bushing as a means of support for said cup, said support cup also having means defining an opening to provide access between the interior of said cup and the interior of the container and means defining a second opening adapted to receive and laterally support the agitator shaft.

5. In combination, a head for a container, said head having an opening therethrough and including an inwardly extending substantially cylindrical flange surrounding said opening, a substantially cylindrical bung receiving bushing having a flange at one end which abuts the outer surface of said head adjacent said opening, the cylindrical portion of said bushing extending inwardly within said cylindrical flange of said head and being rolled outwardly at its innermost end to engage the innermost end of said cylindrical flange of said head whereby said bushing is secured to said head, and a support adapted to support an agitator within the container, said support cup having means defining an opening in the bottom of said cup adapted to receive and laterally support the shaft of the agitator, said support cup also having a rim portion crimped around the outwardly rolled portion of said bushing whereby said support cup is secured to said bushing.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
358,290	Ordway	Feb. 22, 1887
419,200	Kahlenberg	Jan. 14, 1890
1,171,054	Keppler	Feb. 8, 1916
1,402,813	Vogt	Jan. 10, 1922
1,740,709	Parker et al.	Dec. 24, 1929
1,841,435	Gibson	Jan. 19, 1932