

July 17, 1962

C. B. MURTON

3,044,132

STOPPER FOR A LADLE OR SIMILAR RECEPTACLE

Filed July 5, 1960

Fig. 1.

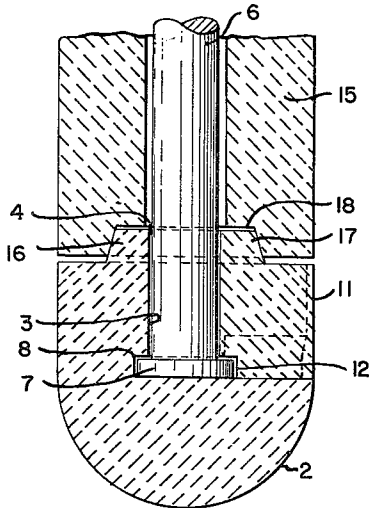


Fig. 2.

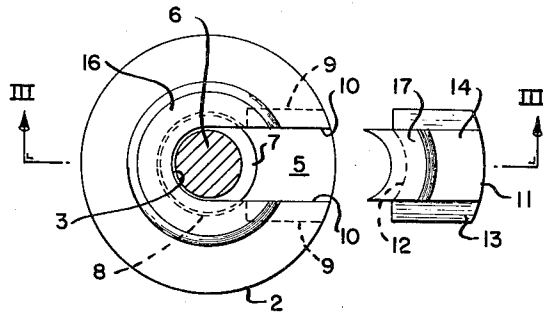


Fig. 3.

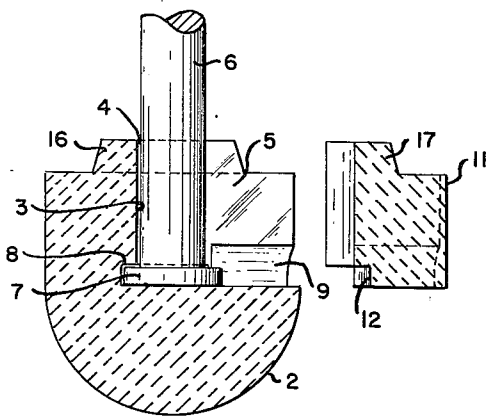
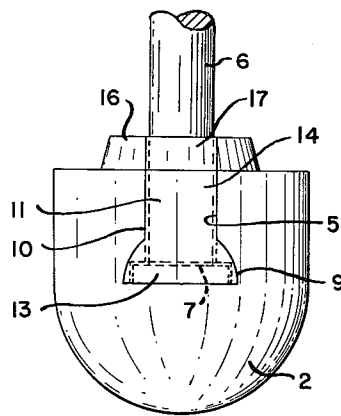


Fig. 4.



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3,044,132  
STOPPER FOR A LADLE OR SIMILAR  
RECEPTACLE

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1 Claim. (Cl. 22—85)

This invention relates to a stopper for a ladle or similar  
receptacle and has to do particularly with the manner of  
attachment of the stopper rod to the stopper head. I  
utilize a stopper head having therein an upwardly open  
well receiving the lower portion of the stopper rod and  
novel and easily applicable means for locking the stopper  
rod to the stopper head.

I provide a stopper for a ladle or similar receptacle  
comprising a refractory head having therein a well open  
upwardly and laterally, a rod having at its bottom a  
lateral projecting disposed with its lower portion in  
the well of the head and projecting upwardly therefrom  
together with a holding member insertable laterally into  
the head to close the lateral opening of the well and  
maintain the rod connected to the head. A portion of  
the lateral projection at the bottom of the rod may under-  
lie a portion of the head and the holding member may  
maintain that portion of the lateral projection of the rod  
underlying a portion of the head. I provide means main-  
taining the holding member against laterally outward  
movement.

The head preferably has means maintaining the hold-  
ing member against upward movement relatively to the  
head, in which case either or both of the head and hold-  
ing member may have a portion overlying the lateral pro-  
jection at the bottom of the rod to maintain the rod con-  
nected to the head. I prefer to provide each of the head  
and holding member with a portion overlying the lateral  
projection at the bottom of the rod. The means main-  
taining the holding member against laterally outward  
movement relatively to the head may be a sleeve sur-  
rounding the rod above the head and engaging the head  
and holding member.

In a preferred form my stopper for a ladle or similar  
receptacle comprises a refractory head having therein  
a well open upwardly and laterally, the lateral open-  
ing of the well having a lower portion of relatively great  
width and an upper portion of relatively less width, a  
rod having at its bottom a lateral projection disposed  
with its lower portion in the well of the head and pro-  
jecting upwardly therefrom and preferably a holding  
member insertable laterally into the head to close the  
lateral opening of the well, the holding member having  
a lower portion of relatively great width and an upper  
portion of relatively less width shaped to fit the lateral  
opening of the well whereby the holding member is main-  
tained against upward movement relatively to the head,  
at least one of the head and holding member having a  
portion overlying the lateral projection at the bottom of  
the rod. As indicated above I preferably also provide  
means maintaining the holding member against laterally  
outward movement relatively to the head.

Other details, objects and advantages of the invention  
will become apparent as the following description of a  
present preferred embodiment thereof proceeds.

In the accompanying drawings I have shown a present  
preferred embodiment of the invention in which

FIGURE 1 is a fragmentary axial cross-sectional view  
through a ladle stopper head and the lower portion of  
the stopper rod showing one form of my novel means for  
attaching the stopper rod to the stopper head;

FIGURE 2 is a plan view of the stopper head and  
holding member in exploded relationship;

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FIGURE 3 is a cross-sectional view taken on the line  
III—III of FIGURE 2; and

FIGURE 4 is an elevational view of the head, rod and  
holding member viewed from the side of the head at which  
the holding member is disposed.

Referring now more particularly to the drawings, the  
ladle stopper head is designated generally by reference  
numeral 2, the head being formed of refractory material  
as well known to those skilled in the art. The head 2  
has therein a well 3 which is open upwardly at 4 and  
laterally at 5, viewing FIGURE 3. A conventional ladle  
stopper rod is shown at 6, the rod having the usual cir-  
cular flange 7 at its bottom. The rod is disposed with its  
lower portion in the well 3 of the head 2 and projecting  
upwardly therefrom as shown. The head 2 is shown as  
having a kerf 8 cut therein at the bottom of the well 3  
receiving a portion of the flange 7.

The lateral opening 5 of the well has a lower portion  
9 of relatively great width and an upper portion 10 of  
relatively less width as shown in FIGURE 4. I provide  
a holding member designated generally by reference  
numeral 11 which is insertable laterally into the opening  
5 in the head which leads to the well 3. In the form  
shown a kerf 12 is cut in the holding member 11 so that  
when the holding member 11 is fully introduced into the  
opening 5 as shown in FIGURE 1 the flange 7 will be  
received within the kerf 12 just as it is received within  
the kerf 8 of the head; the flange thus underlies a por-  
tion of the head 2 and a portion of the holding mem-  
ber 11.

The lower portion of the holding member 11 is desig-  
nated 13 and is of relatively great width while the upper  
portion of the holding member 11 is designated 14 and  
is of relatively less width, the holding member being  
shaped to fit the lateral opening 5 of the well whereby  
because of the fact that both the holding member and  
the opening have a lower portion of greater width than  
the upper portion thereof the holding member is main-  
tained against upward movement relatively to the head.  
In such a structure it is not essential in order to main-  
tain the connection between the rod and head that both  
the head and the holding member have portions overlying  
the rod flange; either one or the other of the head and  
holding member may have a portion overlying the rod  
flange. In either case the introduction of the holding  
member laterally into the opening 5 into position against  
the rod as shown in FIGURE 1 insures maintaining the  
connection between the rod and the head.

I provide means maintaining the holding member 11  
against laterally outward movement relatively to the head  
2. Such means may assume various forms, but I prefer  
to employ a sleeve 15 shown in FIGURE 1. The sleeve  
interfits with the head and holding member. In the  
form shown each of the head and holding member has  
an upwardly projecting inner portion, such portion of  
the head being designated 16 and such portion of the  
holding member being designated 17. The bottom of  
the sleeve 15 is annularly cut out at its inner portion as  
shown at 18 so that when the sleeve 15 is moved down-  
wardly after the holding member 11 has been moved in-  
wardly to the position shown in FIGURE 1 the bottom  
portion of the sleeve embraces the upper portions of the  
head and holding member and thus inhibits outward  
movement of the holding member and consequently in-  
sures maintenance of the connection between the rod  
and the head.

The rod may be inserted into the head through the  
lateral opening 5 as that opening is of such size and shape  
as to receive the rod including the flange 7 as shown in  
FIGURE 4. This greatly facilitates the application of

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the head to the rod and also the changing of stopper heads.

While I have shown and described a present preferred embodiment of the invention it is to be distinctly understood that the invention is not limited thereto but may be otherwise variously embodied within the scope of the following claim.

I claim:

A stopper for a ladle or similar receptacle comprising a refractory head and a stopper rod, the refractory head having therein an upwardly open well and a lateral opening through the side of the refractory head communicating with the well and extending to the top of the head of such size as to permit the lower portion of the rod to be inserted laterally therethrough from the outside into the well, the rod being disposed with its lower portion in the well of the head and projecting upwardly therefrom and with a portion of its lateral projection under-

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lying a portion of the head, a holding member insertable laterally into the head to close the lateral opening communicating with the well and maintain said portion of the lateral projection of the rod underlying said portion of the head, the holding member interfitting with the head so that the holding member is restrained by the head against upward movement relatively to the head, and means maintaining the holding member against laterally outward movement.

References Cited in the file of this patent

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UNITED STATES PATENT OFFICE  
CERTIFICATE OF CORRECTION

Patent No. 3,044,132

July 17, 1962

Crawford B. Murton

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 1, line 20, for "projecting" read -- projection --; line 50 strike out "preferably".

Signed and sealed this 30th day of October 1962.

(SEAL)

Attest:

ERNEST W. SWIDER  
Attesting Officer

DAVID L. LADD  
Commissioner of Patents