W. J. WALKER.

RETAINING CUP.

APPLICATION FILED APR. 29, 1916.

1,212,294. Patented Jan. 16, 1917.

Fig. 1

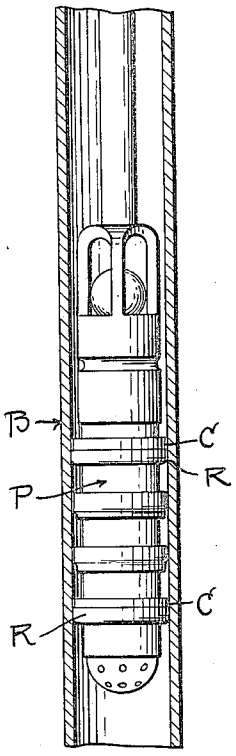


Fig. 2

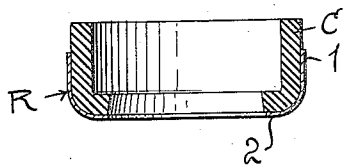


Fig. 3

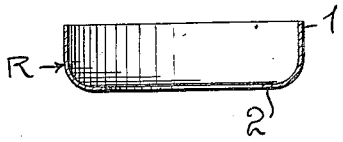
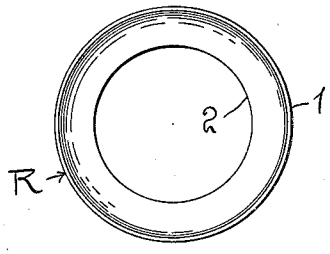


Fig. 4



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RETAINING-CUP.

1,212,294. Specification of Letters Patent. Patented Jan. 16, 1917.

Application filed April 29, 1916. Serial No. 94,417.

To all whom it may concern:

Be it known that I, WILLIAM J. WALKER, a citizen of the United States, residing at Bolivar, in the county of Allegany, and State of New York, have invented certain new and useful Improvements in Retaining-Cups, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to certain improvements in retaining cups adapted to be employed in connection with reciprocating pistons of pumps and particularly of a type employed in connection with oil wells or the like; and it is an object of the invention to provide a novel and improved retaining cup adapted to receive the lower portion of a leather cup as generally employed whereby said leather cup is protected at its lower end in order to prolong the life of the leather cup.

It is also an object of the invention to provide a novel and improved retaining cup adapted to be employed in connection with the leather cup of a pump piston and wherein said cup is formed of expansible metal which is caused to frictionally engage the wall of the pump barrel under the pressure of the fluid to be lifted and thereby create a tight connection or joint with the barrel.

The invention consists in the details of construction and in the combination and arrangement of the several parts of my improved retaining cup whereby certain important advantages are attained and the device is rendered simpler, less expensive and otherwise more convenient and advantageous for use, all as will be hereinafter more fully set forth.

The novel features of the invention will hereinafter be definitely claimed.

In order that my invention may be the better understood, I will now proceed to describe the same with reference to the accompanying drawings, wherein—

Figure 1 is a fragmentary view partly in elevation and partly in section illustrating a retaining cup constructed in accordance with an embodiment of my invention and in applied position; Fig. 2 is an enlarged sectional view taken through a leather cup and a retaining cup in assembled relation; Fig. 3 is a sectional view taken through one of my improved retaining cups, detached, as herein embodied; and Fig. 4 is a top plan view of one of my retaining cups, detached, as herein disclosed.

As disclosed in the accompanying drawings, P denotes a piston of a type generally employed in deep well pumping and especially in connection with oil and which is arranged for reciprocation within the barrel B, and coacting with the piston P are the leather cups C of a conventional type.

My improved retaining cup R is adapted to be disposed around the lower end of a cup C and is formed preferably from sheet aluminum, although it has been fully demonstrated in practice that my improved retaining cup can be produced from copper, zinc or other metal which will permit the retaining cup R to expand under pressure.

As herein embodied, my improved retaining cup R comprises an annular member 1 having its lower marginal portion provided with the inturned annular flange 2, the same being preferably pressed by suitable dies out of sheet metal, with the annular member 1 and annular flange 2 arranged on such curvature in cross section as to snugly receive the lower portion of the cup C. The cup R is not positively connected with the cup C in any manner but is held in applied position through friction, and the annular member 1 is of such a diameter as to allow the upper marginal portion of the cup C to expand thereabove so that the upper portion of the cup C may have the requisite coaction with the barrel B.

In practice, the enormous pressure of oil or other fluid upon the leather cup C forces said cup C out at right angles against my improved retaining cup R and forces said retaining cup into frictional contact with the working barrel B which results in a tight joint practically the same as if the retaining cup R should be made of lead. While my improved retaining cup affords this coaction with the barrel B, it also serves to protect the lower portion of the leather cup C against wear as it has been fully demonstrated in practice that the lower portion of the cup wears out before the upper portion thereof, but this is obviated in connection with my improved retaining cup as

said cup R serves to prevent the unnecessary flexing of the cup C at its lower portion which would otherwise result in the breaking or splitting of the cup C at its lower part.

From the foregoing description, it is thought to be obvious that a retaining cup constructed in accordance with my invention is of an extremely simple and comparatively inexpensive nature and is particularly well adapted for use by reason of the convenience and facility with which it may be assembled, and it will also be obvious that my invention is susceptible of some change and modification without material departure from the principles and spirit thereof and for this reason I do not wish to be understood as limiting myself to the precise arrangement and formation of the several parts herein shown in carrying out my invention in practice.

I claim:

In combination with a pump barrel and a leather cup of a pump piston working in said barrel, a retaining cup adapted to snugly receive the lower portion of the leather cup, said retaining cup being formed of a metal capable of expansion under pressure and comprising a continuous annular member having its lower marginal portion provided with an inturned continous annular flange, said annular flange and member being pressed out of sheet metal, the annular member being continued in cylindrical form to coact with the inner surface of the pump barrel to form a tight fit therewith.

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

WILLIAM J. WALKER.

Witnesses:

J. D. WATSON,

JOHN LUNSTEAD.