

W. L. DEMING.
 BUCKET VALVE.
 APPLICATION FILED JULY 12, 1912.

1,044,149.

Patented Nov. 12, 1912.

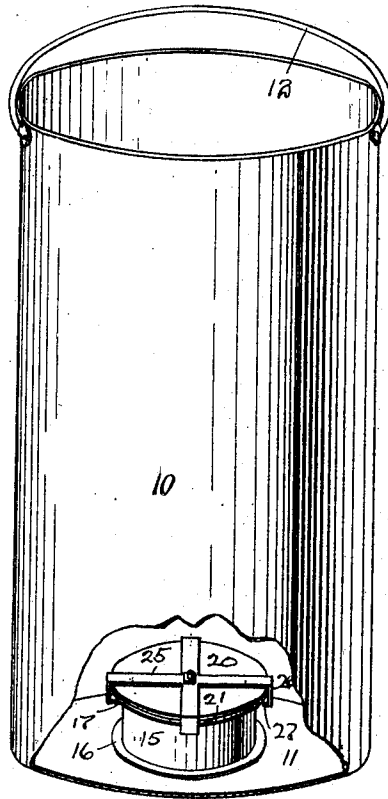


FIG. 1

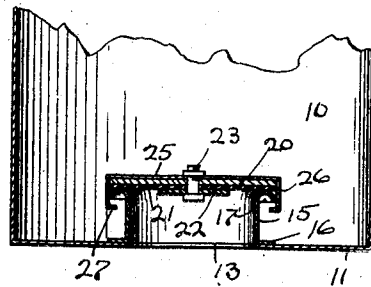


FIG. 2

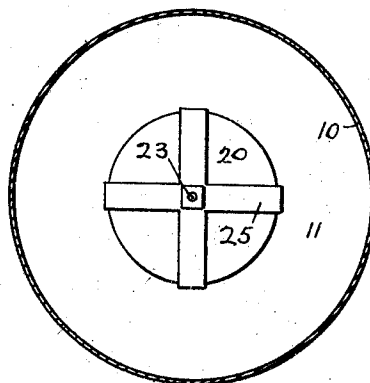


FIG. 3

WITNESSES=

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UNITED STATES PATENT OFFICE.

WILLIAM L. DEMING, OF SALEM, OHIO, ASSIGNOR TO THE DEMING COMPANY, OF
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BUCKET-VALVE.

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To all whom it may concern:

Be it known that I, WILLIAM L. DEMING, a citizen of the United States, residing at Salem, in the county of Columbiana and State of Ohio, have invented a certain new and useful Improvement in Bucket-Valves, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

The primary object of this invention is to provide a cheap and effective check valve for use with buckets or other liquid containers, arranged to enable such vessel to be filled with great rapidity by being immersed in liquid and, after filling, to effectively close the opening during transportation or use. To this end, I have provided in the base of the bucket an up-standing sleeve having a rolled over edge forming a valve seat, and, coating with this, a weighted disk valve adapted normally to rest by gravity on the seat or be raised by the incoming liquid. The disk is provided with suitable stops adapted to extend beneath the rolled-over edge, thus limiting the upward movement of the disk and preventing displacement thereof.

The particular characteristics of the invention are also more fully hereinafter described and summarized in the claims.

In the drawings, Figure 1 is a perspective view of a bucket, partly broken away, having my valve; Fig. 2 is a vertical section through the lower end of such bucket and the valve; Fig. 3 is a horizontal section through the bucket showing a plan of the valve.

As shown in the drawings, 10 represents the cylindrical wall of the bucket, 11 the bottom thereof, and 12 a suitable carrying bail. Through the bottom is a central opening 13 around which is a sleeve 15. This sleeve is outwardly flanged at its lower end at 16, whereby it is secured to the bottom. At the upper end the sleeve is rolled over outwardly into the annular inverted trough 17 which provides the valve seat.

The moving portion of the valve consists of a disk 20, preferably of metal, having beneath it a pad 21, which is preferably a disk of leather, held in place by an under head or washer 22 and a central bolt 23. The leather 21 normally rests on the curled over edge 17.

Secured on the top of the valve 20 is a cage or spider 25 which has legs extending downwardly, as at 26, across the periphery of the valve disk, these legs then having claws or inward projections 27 extending beneath the rolled over edge 17. This cage centers the valve, as well as limiting its upward movement. As shown in the drawing, the cage has four arms like a Greek cross. At its center this cross is held by the bolt 23. The downward bends of the cross arms are preferably at right angles and close to the periphery of the disk. The inward bends are preferably at right angles to the downward bends and stand such distances below the bottom of the edge 17 that it has the desired limit of movement. It is to be understood, of course, that a greater or less number of arms than the four shown may be employed on the strap 25, if desired.

Not only does the cage maintain the valve disk in properly centered position while allowing it to move easily upward a distance limited by the flanges 27, but it enables the disk to be removed entirely, whenever desired, one or two of the legs being simply sprung outwardly at the lower end thereof to clear the edge 17.

It will be seen that the construction is very simple and cheap; that there is nothing about it to get out of order; and that it may be easily taken apart for repairs or cleaning. Moreover, the valve action is not interfered with by sediment or foreign matter in the liquid, for the weight of the disk 20 and superincumbent liquid acting downwardly against the comparatively small engaging surface of the rolled-over edge, operates to squeeze out any material which might chance to settle on that edge. The up-standing sleeve 15 raises the valve seat sufficiently above the bottom of the vessel so that any ordinary collection of sediment in the bottom of the vessel will not interfere with the operation of the valve.

Having thus described my invention, what I claim is:

1. In an apparatus of the class described, the combination of a vessel having an opening, an up-standing sleeve within the vessel surrounding the opening, said sleeve being rolled over at its upper edge to constitute a valve seat, a free cooperating disk adapted to rest on such seat, and a member carried

by one of such cooperating parts and extending beyond and across the other to limit the upward movement of the disk.

2. In an apparatus of the class described, the combination of a vessel having an opening, a sleeve within the vessel surrounding the opening, said sleeve being extended laterally at its free edge to constitute a valve seat, a disk adapted to rest on such seat, and a cage carried by the disk extending beyond and across said lateral edge to guide the disk and limit its movement.

3. In an apparatus of the class described, the combination of a vessel having an opening in its bottom, an upwardly extending sleeve within the vessel surrounding such opening, said sleeve being extended outwardly at its upper edge to constitute a valve seat, a disk adapted to rest on such seat, and downwardly extending straps carried by the disk to center it on the seat and projecting beneath the extension of the sleeve to limit its upward movement of the disk.

4. In an apparatus of the class described, the combination of a vessel having an opening in its bottom, an upwardly extending sleeve within the vessel surrounding such opening, said sleeve being rolled over at its upper edge to constitute a valve seat, a disk adapted to rest on such seat, and downwardly extending means carried by the disk to center it on the seat and limit its upward movement by engaging beneath the rolled over edge.

5. In an apparatus of the class described, the combination of a tank having an opening through its bottom, an upwardly extending sleeve within the tank surrounding such opening, said sleeve being rolled over outwardly at its upper edge to constitute a valve seat, a disk adapted to rest on such seat, and spring straps carried by said disk and extending downwardly and projecting inwardly beneath such rolled over edge, there being clearance between the projections of the strap and the rolled over edge.

6. The combination of a vessel having an opening in its base, a sleeve secured to the base and surrounding the opening and rising vertically within the vessel, said sleeve having its upper edge turned outwardly to provide a valve seat, a disk adapted to rest on such seat, and a spring spider secured on the top of the disk and having arms extending downwardly over the periphery of the disk and projecting inwardly beneath the outward projection of the sleeve.

7. In an apparatus of the class described, the combination of a portable bucket having an opening through its bottom, an upwardly extending sleeve within the bucket surrounding such opening and having at its bottom an outward flange by which it is secured to the bottom of the bucket, said sleeve being rolled over at its upper edge into an inverted annular trough to constitute a valve seat, a valve disk adapted to rest on such seat, and a spider carried by said disk on its top and having downwardly extending legs with claws projecting inwardly beneath such rolled over edge, there being clearance between the claws of the spider and the rolled over edge.

8. The combination of a vessel having an opening in its base, a sleeve secured to the base and surrounding the opening and rising vertically within the vessel, said sleeve having its upper edge rolled outwardly to provide an inverted annular trough forming a valve seat, a valve disk adapted to rest on such seat, and downwardly extending spring means carried by said valve disk and adapted to be sprung over the edge of said inverted trough and project inwardly beneath the same to limit the upward movement of the valve disk.

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

WILLIAM L. DEMING.

Witnesses:

ALBERT H. BATES,
J. B. HULL.