W. F. ROPER.

CHECK VALVE.

APPLICATION FILED JAN. 13, 1917.

1,300,653.

Patented Apr. 15, 1919.

Fig. 1.

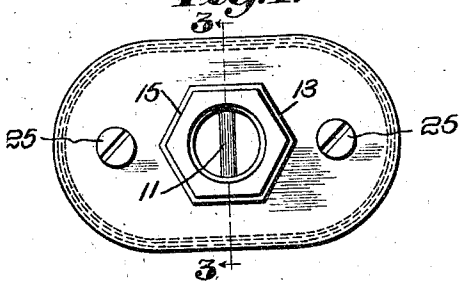


Fig. 2.

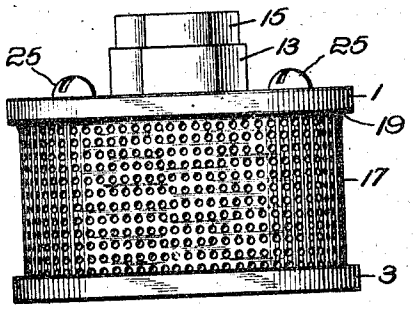


Fig. 3.

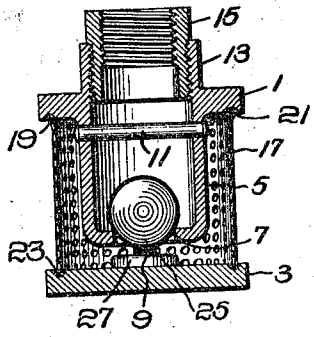
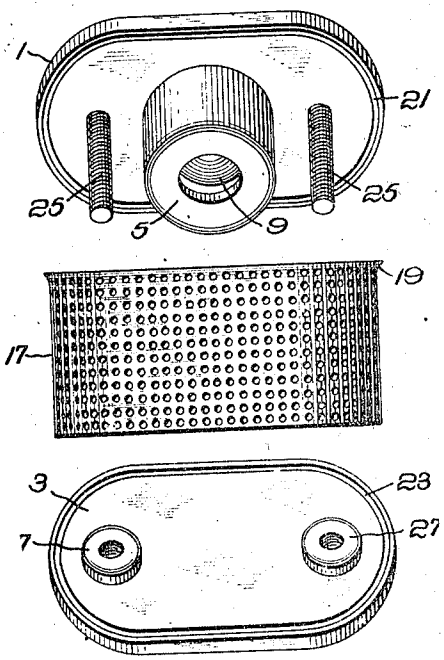


Fig. 4.



Inventor:
Walter F. Roper
by Robt. P. Harris.
Attorney

UNITED STATES PATENT OFFICE.

WALTER F. ROPER, OF HOPEDALE, MASSACHUSETTS, ASSIGNOR TO HOPEDALE MANUFACTURING COMPANY, OF MILFORD, MASSACHUSETTS.

CHECK-VALVE.

1,300,653. Specification of Letters Patent. Patented Apr. 15, 1919.

Application filed January 13, 1917. Serial No. 142,284.

To all whom it may concern:

Be it known that I, WALTER F. ROPER, a citizen of the United States, residing at Hopedale, in the county of Worcester and State of Massachusetts, have invented an Improvement in Check-Valves, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

The invention to be hereinafter described relates to check valves for pumps, fluid circulation systems and the like, and among other objects aims to provide a simple, compact check valve construction which will be protected so that foreign matters cannot reach the valve and its seat and prevent effective closing of the valve.

The character of the invention will be best understood by reference to the following description of one embodiment thereof shown in the accompanying drawings, wherein:—

Figure 1 is a plan view of the check valve construction;

Fig. 2 is a side elevation thereof;

Fig. 3 is a vertical section taken on line 3—3 of Fig. 1; and

Fig. 4 is a view showing the top plate, screen and bottom plate separated to show the form thereof more clearly.

Referring to the drawing: the device shown therein as a good example of the invention comprises a top plate 1 and a bottom plate 3, preferably of general elliptic or elongated form. A cylindrical valve chamber 5 projects from and in the present instance of the invention is integral with the top plate. The lower end of this chamber has a port therein, the margin of which may serve as a seat 7 (Fig. 3) for receiving a ball or other suitable valve 9.

This ball is substantially smaller in diameter than the inner diameter of the chamber 5, thereby permitting said valve to move readily to and from its seat according to the direction of flow of fluid through the valve chamber. Upward movement of the valve away from its seat may be limited by a bridge member or rod 11 secured to the chamber adjacent the upper end thereof.

The plate 1 may have a neck 13 projecting upward therefrom tapped to receive a coupling 15 adapted for connection with piping.

To protect the valve and prevent ingress of foreign matters thereto, such as might prevent proper seating of the valve, a foraminous wall or screen 17 may be provided. In the present instance, it is of general elliptic shape to conform to the contour of the opposed plates 1 and 3. The upper end of the screen may be formed to present a flange 19. This flange and the opposite edge of the screen are positioned by and seated in grooves 21 and 23 in the margins of the opposed plates 1 and 3.

These plates should be drawn toward one another to press the edges of said screen securely into said grooves. To accomplish this through screws 25 may be entered loosely through holes in the plate 1 at opposite sides of the valve chamber and be threaded into short bosses 27 projected upward from the bottom plate 3. The top flange of the screen has a slight resilience which enables the screen to be tensioned as the screws are tightened and thereby contributes to the secure retention of the screen between the upper and lower plates.

The device described may be very readily assembled. It is merely necessary to present the screen between the upper and lower plates and tighten the through screws. Also, the parts may be separated with equal facility for purposes of cleaning and repair. The parts are few in number, simple, strong, and cheap to manufacture.

It will be noted that the valve and its seat are located closely adjacent to the bottom plate and consequently the valve may be readily located substantially at the lowest point in a system where there will be the greatest head above the valve and consequently the greatest pressure upon the same which will desirably act to hold it tightly closed on its seat.

It will be understood that the invention is not limited to the specific embodiment shown herein, but that various departures may be made therefrom without departing from the spirit and scope of the appended claims.

What is claimed is:—

1. A check valve comprising in combination, upper and lower plates, the former having a chamber depending therefrom and presenting an opening in the bottom thereof closely adjacent the upper surface of the lower plate with a small space between them, a valve seat surrounding said open-

ing, a ball valve freely movable in said chamber to and from said seat, a pin extending transversely across said chamber above said ball valve to limit movement of the latter from its seat, a strainer wall surrounding said chamber and confined between said plates, and members independent of said chamber detachably connecting said plates and located intermediate said strainer wall and said chamber.

2. A strainer check valve, comprising, in combination, an upper and a lower plate, a valve chamber extending downwardly from the upper plate and having a valve opening and seat at its end adjacent the lower plate but separated therefrom, a ball valve in said chamber, a confining bridge for the ball, a strainer screen surrounding the valve chamber, one of the plates being formed with threaded bosses extending inward toward the opposite plate, the other of said plates being formed with bolt openings, said bosses and opening being within the space inclosed by the strainer screen, and bolts passing through the said openings and threaded into the bosses and located between the valve chamber and strainer screen.

3. A strainer check valve, comprising, in combination, upper and lower plates of substantially elliptical form, a strainer screen of substantially elliptical form in horizontal section held between said upper and lower plates, a ball valve chamber depending from the upper plate and contained wholly between the plates with a space between the ball valve opening and the surface of the lower plate, a ball valve in the chamber, securing bolts extending between the elliptical plates adjacent the end portions thereof for securing the plates and strainer screen in assembled relation, said bolts passing through the space inclosed by the strainer screen.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

WALTER F. ROPER.

Witnesses:
LUCILLA G. ROGERS,
WM. O. PERKINS.