No. 847,146. PATENTED MAR. 12, 1907.

E. W. ALLER.

CHECK VALVE.

APPLICATION FILED JUNE 19, 1905.

Fig. 1.

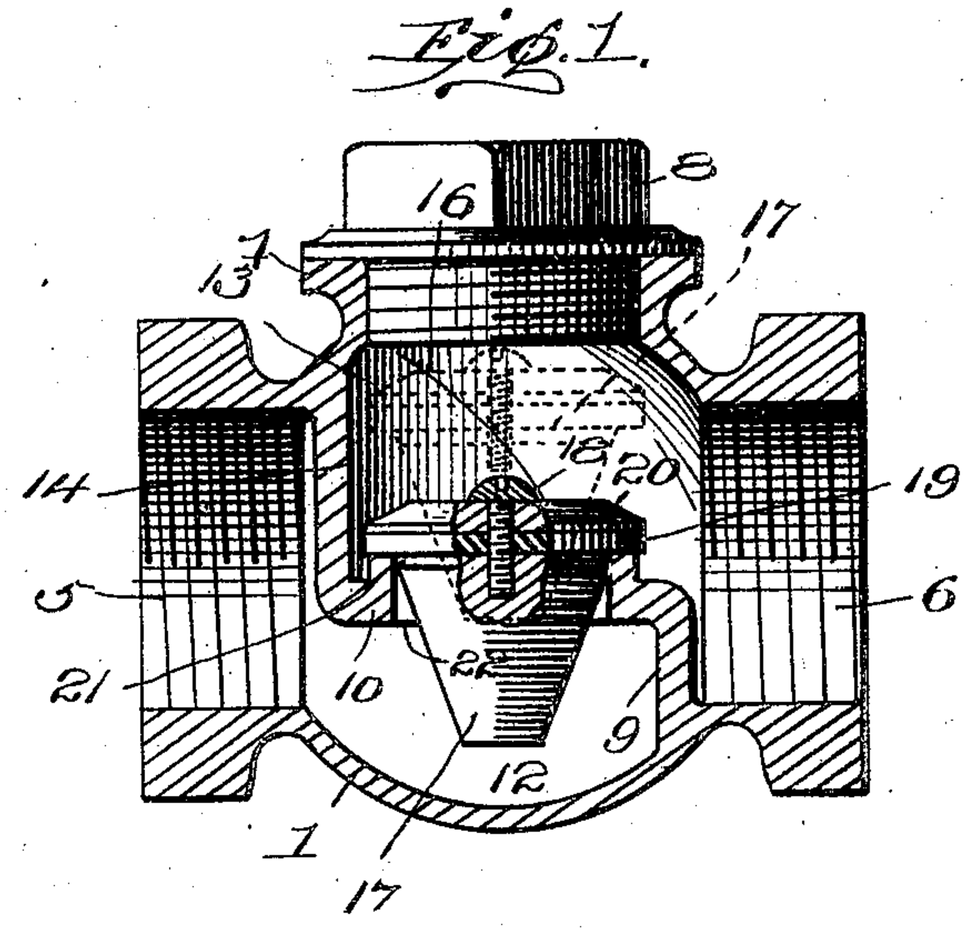
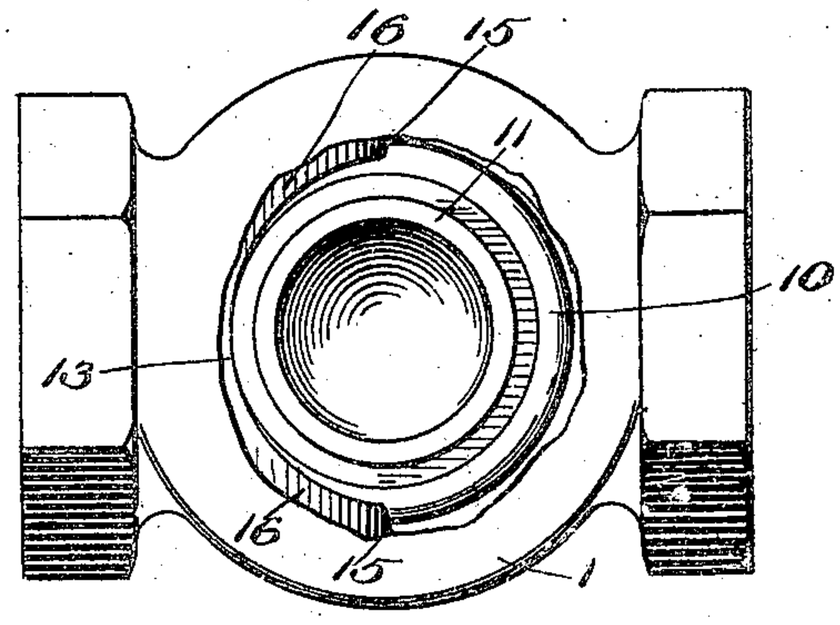


Fig. 2.



Witnesses
J. M. Fowler Jr.
Edwin E. Crowmare.

Inventor
Edward W. Aller,
By Mason, Fenwick & Lawrence
Attorneys.

UNITED STATES PATENT OFFICE.

EDWARD W. ALLER, OF NAPOLEON, OHIO.

CHECK-VALVE.

No. 847,146. Specification of Letters Patent. Patented March 12, 1907.

Application filed June 19, 1905. Serial No. 266,027.

To all whom it may concern:

Be it known that I, EDWARD W. ALLER, a citizen of the United States, residing at Napoleon, in the county of Henry and State of Ohio, have invented certain new and useful Improvements in Check-Valves; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to certain new and useful improvements in valves, and particularly in check-valves.

One of the several objects in view is the production of a valve which is simple, durable, and comparatively inexpensive.

Another object of the invention is the improvement of the construction of a check-valve and its casing.

A further object of the invention is the construction of a valve which will always seat itself and prevent leakage of liquid—as, for instance, water—the valve remaining in its seated position under the lightest or greatest pressure with equal effectiveness, and by use of certain materials in constructing the valve it may be equally effective as a steam-valve.

With these and other objects in view the invention consists of certain other novel constructions, combinations, and arrangements of parts, as will be hereinafter fully described, illustrated in the accompanying drawing, and more particularly pointed out in the claim hereto appended.

In the drawings, Figure 1 is a longitudinal vertical sectional view of the valve-casing, showing the valve in a seated position, the valve being shown in side elevation and parts broken away. Fig. 2 is a top plan view of a valve-casing, shown partly in section, with its cap removed.

The valve-casing 1 is provided with openings 5, 6, and 7. The openings 5 and 6 are adapted to receive the threaded ends of tubings. A cap 8 is threaded into the opening 7 of the casing 1. The cap 8 can be easily removed when desired. A partition 9 is formed in the valve-casing 1, said partition being provided with a horizontal portion 10. The horizontal portion 10 of the partition 9 is provided with a raised extension 11, preferably annular in shape, which is engaged by the valve 12. The valve-casing 1 is provided with a segmental vertical wall 13, which is of greater width at 14 and decreases in width toward diametrically opposite parts of the casing, which is upon opposite sides of the raised portion 11 at 15 15. The segmental portion provided with a vertical wall 13 terminates in an upper flat surface 16. This peculiar segmental structure formed upon the partition of the valve-casing constitutes guiding means for assisting in adjusting the valve through the medium of the liquid in the casing when the valve structure is in use.

The valve 12 comprises a conical-shaped stem 17, suspended, by means of a screw 18, from a disk 19 and a disk 20, preferably of metal. The disk 19, which is preferably formed of yielding material—as, for instance, rubber—is provided with a central aperture as well as disk 20. Screw 18, which is positioned within these registering apertures of the two disks, is threaded into a portion of the conical valve-stem 17. Upon the upper end of the valve-stem 17 there is formed a vertical annular portion 21. The vertical annular portion 21 engages the similar surface of the apertured portion 22 of the partition 9. By reason of the peculiar structure of portion 21 the valve-stem when the valve is in the position shown in Fig. 1 is snugly seated, preventing any lateral movement when back pressure is exerted upon said valve, which would not be the case if the valve-seat 11 and the apertured portion of the horizontal part 10 of the partition 9 were beveled. The disk or flat member 20 is beveled upon its upper surface near its edge. The stem 17 constitutes a guide member for the valve 12, and it will be seen by referring to Fig. 1 that when the valve is in its unseated position within the aperture 22 the stem is still a sufficient distance within said aperture for insuring of said valve being readily and accurately seated, the upper portion of the valve-stem 17 being substantially of the same diameter as the aperture 22.

When the valve is open, as shown by dotted lines, Fig. 1, and a current of liquid is passing through the valve-casing, the valve will be moved to one side of the current, permitting of the same to pass through the casing unobstructed, which would not be true if the valve was positioned so as to move longitudinally of the casing instead of transversely, as in the present instance. The length of the stem 17 is sufficient for preventing the valve from becoming displaced, the prevention of the displacement of the valve 12 being also insured by reason of the fact that when it is in an open position the

liquids tend to hold the valve against the vertical guiding-surface 13. It is to be noted that the valve is made of different parts—to wit, a yielding member, the metallic member, and the stem constituting a guide member, said stem being of a conical solid structure, the upper portion of which being of the same width as the aperture or port 22 of the partition 9.

What I claim is—

In a valve, the combination of a casing formed with a pair of coupling ends, and provided with an internal partition, the said partition having a horizontal portion provided with an aperture, and a valve positioned within the casing and normally closing the aperture through the horizontal portion of the partition, the said valve comprising a yielding disk, the edges of which bear against the portion of the partition in the casing surrounding the before-mentioned aperture, a metallic disk fitting against one side of the yielding disk, the said metallic disk being of substantially the same diameter as the yielding disk and serving as a guard to prevent the outward bending of the yielding disk, and a valve-stem fitting against the opposite side of the yielding disk, the said valve-stem being in the nature of a conical member provided upon its larger end with an annular, vertical surface, the tapering portion of the stem operating to bring about an accurate seating of the valve, while the before-mentioned annular, vertical surface fits closely within the before-mentioned aperture in the partition in the casing and serves to prevent any lateral movement of the valve when subjected to back pressure.

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

EDWARD W. ALLER.

Witnesses:

D. S. FARNHAM,

B. E. DENSMORE.