

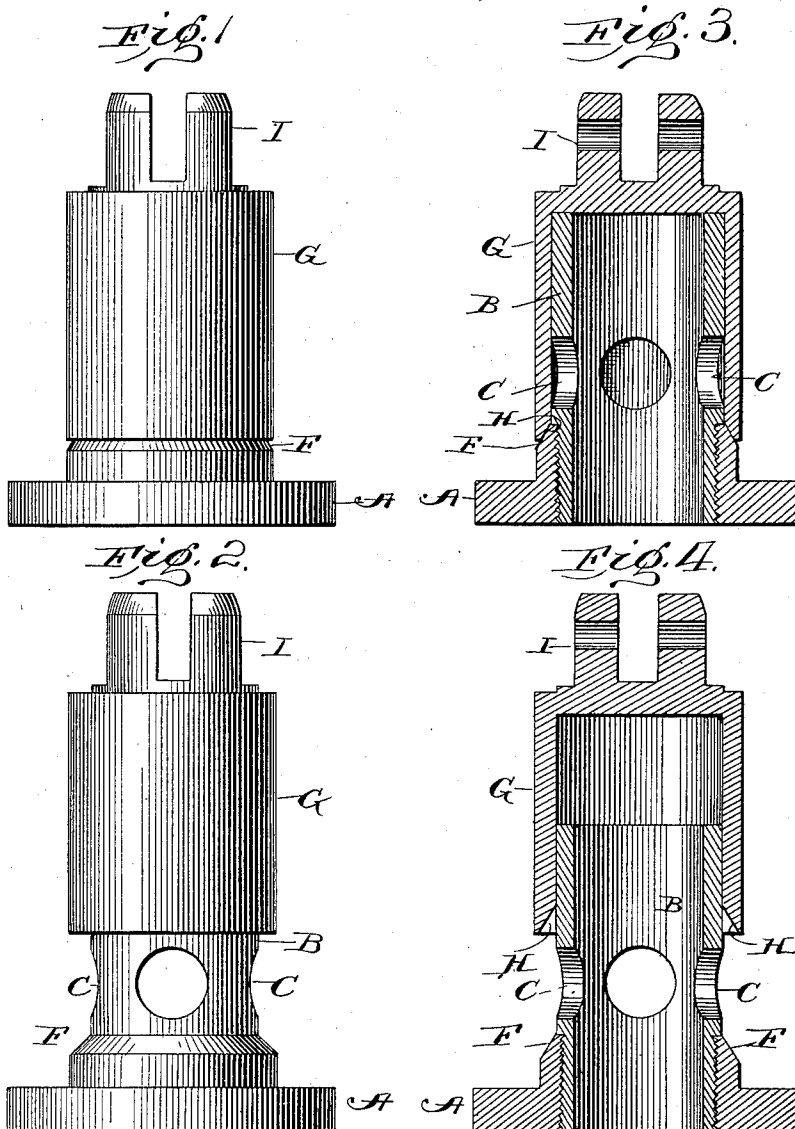
No. 656,629.

Patented Aug. 28, 1900.

F. P. COTTER.
LOCOMOTIVE TENDER VALVE.

(Application filed July 5, 1900.)

(No Model.)



witnesses:
J. M. Fowler Jr.
Alexander Stewart.

Inventor
Frank P. Cotter,
by Charles V. Church
his Attys.

UNITED STATES PATENT OFFICE.

FRANK P. COTTER, OF AUGUSTA, GEORGIA.

LOCOMOTIVE-TENDER VALVE.

SPECIFICATION forming part of Letters Patent No. 656,629, dated August 28, 1900.

Application filed July 5, 1900. Serial No. 22,586. (No model.)

To all whom it may concern:

Be it known that I, FRANK P. COTTER, a citizen of the United States, residing at Augusta, in the county of Richmond, State of Georgia, have invented certain new and useful Improvements in Locomotive-Tender Valves; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

This invention relates to improvements in valves such as are employed for controlling the supply of water from a locomotive-tender to the locomotive itself and which valves are usually located within the tank of the tender and controlled manually through suitable connections. Valves for use in the situation mentioned are subject to conditions not usually found to exist elsewhere, and provision has therefore to be made for maintaining the operativeness and efficiency of the valve when subjected to such unusual conditions. With valves as ordinarily constructed it is found that the vibration of the tender, together with the sudden and unequal displacement of the water transversely, due to the train motion, tends to unseat the valves even when in perfect working order, and where used for any great length of time the effect of such motion is to cause excessive wear, which quickly renders the valve inoperative and puts the locomotive out of action while repair is being made. Another difficulty developed in the use of valves in the situation mentioned is due to the fact that the water taken into the tender-tank at various points in the run varies greatly in its condition and is liable to contain much sediment, trash, and impurities, which with an ordinary valve quickly accumulate in the valve-openings and upon the valve-seat, rendering the valve useless until the tank is emptied and the valve cleared of the obstructing matter.

The objects of the present invention are to produce a cheap simple valve which will effectually overcome the difficulties mentioned and which may be operated with slight exertion on the part of the attendant or fireman, to which ends the invention consists in certain novel details of construction and combinations and arrangements of parts of the

valve, all as will be now described, and pointed out particularly in the appended claims.

Referring to the accompanying drawings, 55 Figure 1 is a side elevation of a valve embodying the present improvements. Fig. 2 is a similar view with the valve open; and Figs. 3 and 4 are vertical sections with the valve in the positions indicated, respectively, in Figs. 1 and 2.

Like letters of reference in the several figures indicate the same parts.

In said drawings the letter A indicates an extended base for the valve adapted to be secured in place over the outlet-opening to the tank of the tender by means of suitable bolts or other customary attaching means. Rising from this base is a vertical hollow or tubular stem B, extending upwardly quite a distance and having at an intermediate point in its length circular apertures C formed therein, preferably on diametrically-opposite sides. At a short distance below the apertures C and on the outer side of the tubular extension B a downwardly-sloping annular valve-seat F is formed, preferably by thickening the wall of the extension B and sloping the upper edge of the thickened portion. The valve-seat F therefore occupies an intermediate position between the extended base A and the exit-apertures C and being inclined sharply prevents any accumulation of dirt or material thereon, as will hereinafter more fully appear. 85

For coöperating with the parts thus far described, and which may be termed the "stationary" part of the valve, I provide a cup or dome G, closed at the top and having a cylindrical bore approximately fitting the tubular extension B of the stationary part, the lower edge of said dome or cup being formed into an inclined seat H, which coöperates with the seat F for closing the valve and cutting off the flow of liquid. The upper end or the body of the dome may be provided with suitable attaching devices or means—such, for instance, as the lugs I—for the rod or manually-controlled mechanism, by means of which the dome or cup is raised or lowered to open or close the valve. 95 100

In the practical manufacture of valves as described it is obvious that all of the parts may be simple castings, and the only parts

requiring accurate fitting are the two inclined seats at the lower edge of the dome and base of the projection B, respectively. The projection B and bore of the dome may be dressed off, if so desired, and, in fact, in some instances it may be desirable to form the projection B separately from the base A and valve-seat F and to unite these parts by a screw-thread, as indicated in the drawings, although I do not wish to be limited to such construction.

It will be observed that the dome or cup is closed at the top, the valve being designed for use as a submerged valve, located at the bottom of a deep tank, and in operation the overhanging edge of the dome protects to a certain degree the exit-openings. The exit-openings are round in order that they may be easily formed, are less liable to become clogged, and may be gradually opened to permit the desired flow of water. Furthermore, any accumulations of dirt or trash in the tank will be prevented from lodging on the valve-seat by reason of the sharp inclination thereof, or if lodged for an instant will at once drop off by gravity or be washed off by the transverse movement of the water due to the train motion. The exit-openings being located some distance above the valve-seat proper will cause any matter lodging in said openings and projecting therethrough to be cleaned away by the dome, and a sufficient play or free space is left below for the same to drop away before the seating of the valve. The circular form of the exit-openings it is found are most advantageous in that they do not harbor accumulations and avoid friction. The tubular extension B affords an extended bearing for the dome or cup, which will not only effectually guide the said dome or cup into position under any and all conditions, but will prevent excessive wear due to vibration, a serious difficulty where valves were employed having the usual wing construction for guiding the movable member. Further-

more, the extended bearing of the tubular projection prevents the unseating or disjointing of the valve either by train motion or by obstructions or trash which might accumulate around the same.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a valve for locomotive-tender tanks, the combination with a base having a central upwardly-extending tubular projection with exit-apertures in its sides at an intermediate point but near the bottom and an inclined annular valve-seat below the bottom of said exit-apertures and of greater diameter than the tubular projection, of a dome closed at the top and having a central bore fitting the tubular projection on the base and with its lower edge formed into an inclined valve-seat corresponding and adapted to coöperate with the valve-seat surrounding the base of the tubular projection with means for attaching a manually-operated controlling mechanism to said dome; substantially as described.

2. In a valve for the tanks of locomotive-tenders, the combination with an extended base having a central upwardly-extending tubular projection open at the top with circular exit-apertures located on opposite sides of said tubular extension slightly above its lower end and an annular valve-seat having an inclined upper surface surrounding and of larger diameter than the base of said tubular projection, of a dome having a central cylindrical bore fitting the tubular projection of the base and closed at the upper end, and an inclined valve-seat at the lower edge of said dome adapted to coöperate with the valve-seat on the base with means whereby said dome may be moved vertically; substantially as described.

FRANK P. COTTER.

Witnesses:

P. ARMSTRONG,
JOHN L. ARMSTRONG.