

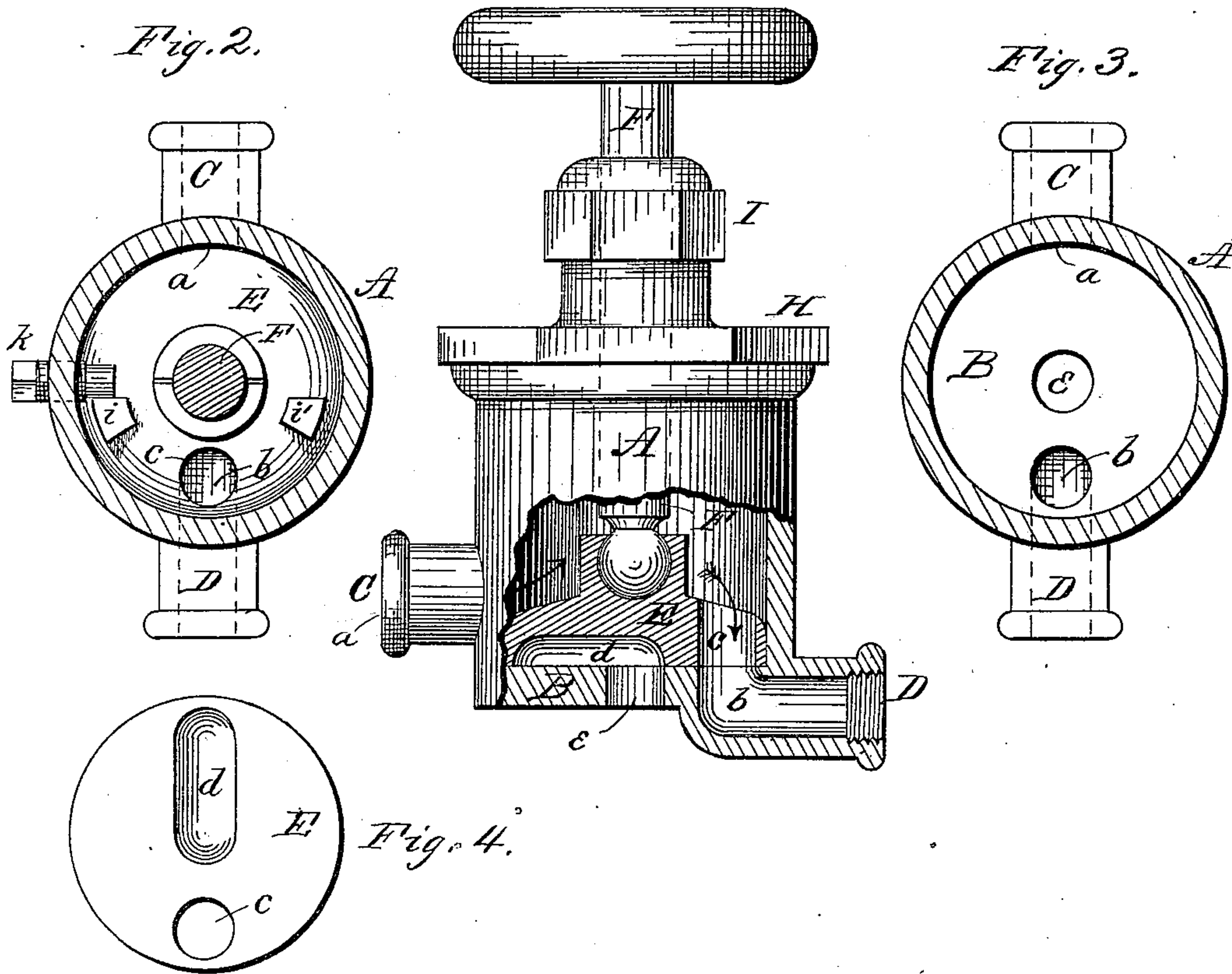
(Model.)

M. CRIDGE.
THREE WAY COCK.

No. 246,467.

Patented Aug. 30, 1881.

Fig. 1.



WITNESSES:
John M. Patterson.
G. Smith.

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ATTORNEYS.

UNITED STATES PATENT OFFICE.

MATTHEW CRIDGE, OF BENNETT P. O., PENNSYLVANIA.

THREE-WAY COCK.

SPECIFICATION forming part of Letters Patent No. 246,467, dated August 30, 1881.

Application filed April 5, 1881. (Model.)

To all whom it may concern:

Be it known that I, MATTHEW CRIDGE, of Bennett P. O., in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Three-Way Cocks; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to the construction of what are known as "three-way cocks" or valves, and has especial reference to such in connection with steam or air brakes on railway cars and engines. These cocks are usually made with conical plug-valves, and are a source of no little trouble, on account of the readiness with which they wear and become leaky, thus admitting steam unnecessarily to the cab, or allowing the pressure of air or steam which should be transmitted to the piston of the brake-cylinders to be partially dissipated at the valve or cock. A stuffing-box has been added to the cock to prevent escape of fluid into the cab; but it does not prevent leakage around the plug from port to port. My object is to so construct the valve as to prevent such wear and leakage, or to so control it as to enable the engineer to take up the wear in a moment.

The invention consists in a disk-valve rotating upon a flat valve-seat, the two having the arrangement of ports hereinafter described; and it further consists in the combination therewith of a casing or shell provided with a stuffing-box, through which the valve-stem projects, and detachable stops for limiting the movement of the valve, all as hereinafter fully described and claimed.

In the drawings, Figure 1 is a side elevation of my invention, partly sectional. Fig. 2 is a plan-section through Fig. 1. Fig. 3 is a section showing the valve removed and exposing the ports in the seat. Fig. 4 is a view of bottom of valve.

A is a shell or casing having the flat bottom or valve-seat B.

C is a nipple for attachment of the steam-pipe delivering from the boiler or reservoir, and constitutes the inlet-port *a*, which opens into the shell A a little above the level of the seat B. At the center of valve-seat B is the escape-port *e*, being simply an opening through the bottom of the casing A to the atmosphere. At a point near the opposite side diametrically from the port *a* is the cylinder-port *b*, cutting vertically downward through the seat B and going out horizontally at the nipple D, to which would be coupled the pipe leading to the brake-cylinder.

The valve E consists of a flat disk accurately fitting the face of the seat B and rotating thereon in a horizontal plane. A port, *c*, is cut vertically through the valve E, near its edge, corresponding in radial location with the cylinder-port *b* in the seat B. A radial groove, *d*, is cut on the face of the valve E, starting at the center, so as to communicate at all times with the escape-port *e*, extending toward the circumference opposite the port *c*, and terminating at a point equal in radial location with the port *c*.

Valve E is provided with a stem, F, fitted to it by ball-and-socket joint or its equivalent, which, however, is provided with key and seat, so that the valve will always turn with the stem. The valve E has cast upon its upper surface the lugs or stops *i i'*, and through the shell A, I insert the screw-pin *k*, the relations being such that when stop *i* comes against the pin *k* the valve is in one position and in the other position when stop *i'* is against pin *k*. By this construction the valve may be removed after unscrewing pin *k*.

The shell A is provided with a cap, H, having the stuffing-box I for the valve-stem F.

The steam or air enters the port *a*, and always exerts its pressure downward upon the top of valve E, holding it firmly to its seat. In one position of the valve its port *c* is over the cylinder-port *b*, and steam or air passes to the brake-cylinder by way of the nipple D. In the diametrically-opposite position of the valve E the coincidence of ports *c* and *b* no longer exists, and no steam can pass out of the shell A; but at this time the groove *d* is

around over port *b*, so that the contents of the cylinder can now pass up through port *b*, groove *d*, and thence down and out through the escape-port *e*.

5 The stem *F* may have either a hand-wheel or lever-handle.

I claim as my invention—

1. The combination of shell *A*, having seat *B*, and provided with inlet-port *a*, opening into
10 shell *A* above the valve, outlet-port *b*, and exhaust-port *e*, cap *H*, stuffing-box *I*, and stem *F*, with rotary disk-valve *E*, having vertical

opening *c* and radial slot *d*, substantially as described.

2. The combination of shell *A*, valve *E*, hav- 15
ing lugs *i i'*, and screw-plug *k*, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

MATTHEW CRIDGE.

Witnesses:

JOHN M. PATTERSON,
T. J. MCTIGHE.