

(No Model.)

E. L. ROWE.
VALVE.

No. 556,695.

Patented Mar. 17, 1896.

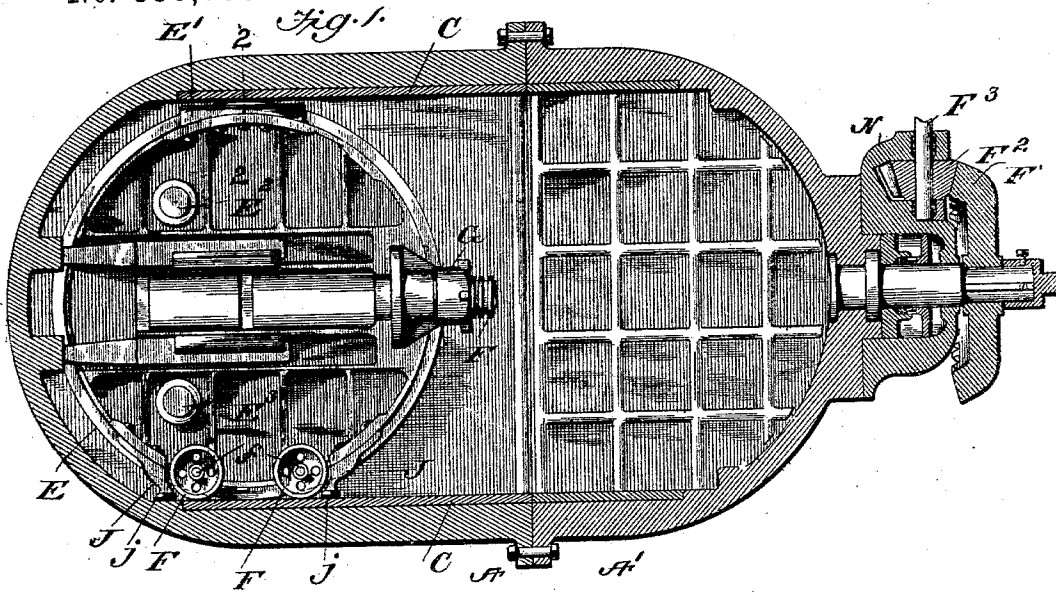


Fig. 2.

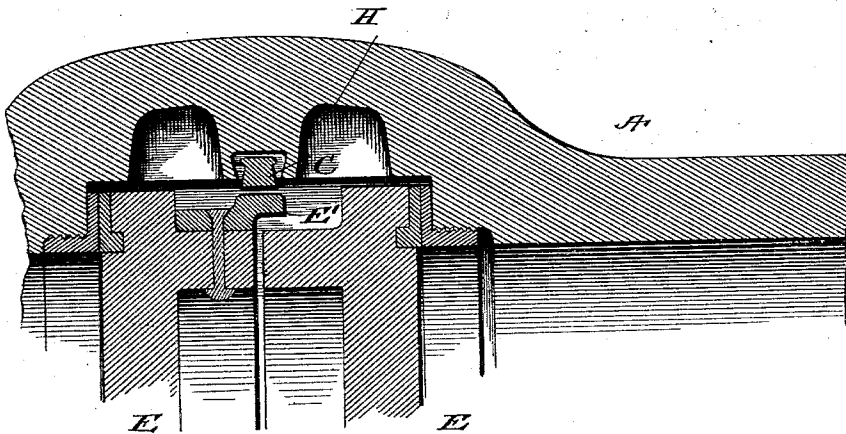
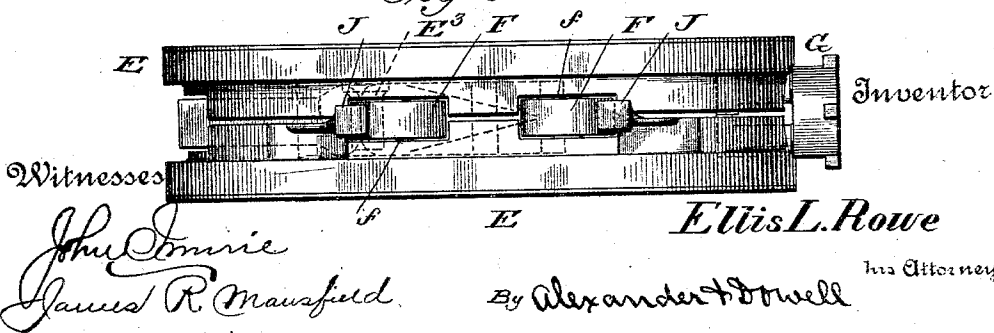


Fig. 3.



UNITED STATES PATENT OFFICE.

ELLIS L. ROWE, OF TROY, NEW YORK, ASSIGNOR TO THE RENSSELAER MANUFACTURING COMPANY, OF SAME PLACE.

VALVE.

SPECIFICATION forming part of Letters Patent No. 556,695, dated March 17, 1896.

Application filed March 5, 1895. Serial No. 540,611. (No model.)

To all whom it may concern:

Be it known that I, ELLIS L. ROWE, of Troy, in the county of Rensselaer and State of New York, have invented certain new and useful Improvements in Valves; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

This invention is an improvement in valves such as are described in my other application for Letters Patent filed herewith, when such valves are arranged in a horizontal position; and the object of this invention is to prevent choking or jamming of the gates in the casing or obstructions forming on the ways or tracks which will prevent the opening and closing of the gates, as will be hereinafter more fully explained.

The invention therefore consists in the novel construction and combination of parts hereinafter set forth in the claims, and described in detail as follows.

In the accompanying drawings, Figure 1 is a longitudinal section through the horizontal valve. Fig. 2 is a transverse section on line 2 2, Fig. 1. Fig. 3 is an edge view of the gate.

The valve-casing is made of two parts A A' bolted together, the former having the bronze-faced seats *a*, and at top and bottom of the casing are bronze ways or tracks C C, which guide the gates E E in their reciprocating or sliding movements in the casing.

The gates are moved back and forth in the casing to close or unclose the water-passage by a threaded stem F, on which is a nut G having flanges fitting corresponding recesses in the opposed faces of the gates. These parts are constructed substantially as described in my application aforesaid and need no further description herein.

The gates E E are mounted on a pair of rollers F⁵ F⁵ having axial trunnions *f f*, which enter corresponding sockets *e* in the opposed faces of the gates, the wheels coming between the gates and running upon the lower bronze-track C, as shown, so as to support the gates thereon. As these gates are of great weight in large valves the utility of the wheels is evident, but I do not broadly claim the wheels.

To the upper edge of the gates is secured a bronze guide-plate E', which moves close to the upper track C and is of such length that it will effectually prevent the gates rotating on their own axis in case they should encounter an obstacle on one side or the other, such as a barnacle or lump of rust. As the sliding movement of the gate continues such an obstacle would tend to cause the gate to roll and thus bind the nut on the stem, and in some cases has resulted in bending or breaking the stem or nut, thus rendering the valve worthless. Guides E' preventing the gates rotating they must either push the obstacle aside or stop without jamming or injuring the stem.

On the outer end of valve-stem F is a bevel gear-wheel F', which meshes with a bevel-pinion F² on a stub-shaft F³, journaled in a casting N attached to the outer side of the casing, so that the stem may be operated by a shaft at right angles to the stem when the valve is buried below the surface of the earth.

It will be observed that below and around the valve-seats is a cavity H, which is necessary in order to allow the gates to properly fit against the seats. In this cavity the lower track C lies. Naturally this cavity becomes a trap for catching and retaining silt, sand, &c., carried in the water. Experience has proven that in nearly all localities, particularly near the great lakes, the silt deposited by the water becomes very hard, and with ordinary valves this deposit gradually increases until the gates are choked and rendered inoperative, as gates mounted on rollers in the ordinary way, or rolling gates simply pack down this silt, and eventually the deposit becomes so thick and hard that the gates cannot be operated.

At each side of the rollers it will be observed are secured bronze plows or scrapers J, which are fastened to the gates and run very close to the track C, and are so shaped that they will cut off any deposit of silt or sand on the track and thus keep it continually bright and clean in advance of the rollers. The lower ends *j* of the gates plow up the deposits as the gates are opened or closed, and the upturned deposits will be swept through the valve by the rushing water-current. Thus

the rollers always move on a clean track and have no opportunity of rolling and packing the silt so as to render the valve unmanageable.

5 The gates are provided with interlocking pins and sockets $E^2 E^3$ on their opposed faces so that they will be kept together at all times, and if one should break loose from the nut G it will be operated through the other gate.

10 The plows or scrapers J are, I believe, wholly novel and of great importance as demonstrated by actual experience.

Having thus described my invention, what I therefore claim as new, and desire to secure 15 by Letters Patent thereon, is—

1. In a horizontal valve, the combination of the casing, the gate therein, the tracks upon which the gate is supported and moves, and plows or scrapers, one at each side of and 20 moving with the gate, adapted to clear the track in advance of the gate, substantially as and for the purpose described.

2. In a valve, the combination of the casing, the sliding gates therein, the rollers carrying said gates, the tracks for said rollers, and a plow or scraper at each side of the supporting-rollers for cleaning the tracks in 25 advance thereof, substantially as and for the purpose set forth.

30 3. In a horizontal valve the combination of the casing, the sliding gates therein, the track intermediate the gates, the rollers between the gates and supporting them on said track, and the plows attached to the gates in

advance of and behind the rollers, for the 35 purpose and substantially as described.

4. In a valve, the combination of the casing, the upper and lower tracks therein, the sliding gates supported on the lower track, and the devices for reciprocating said gates; 40 with a plow or scraper secured to the lower sides of the gates for cleaning the lower track in advance of the gates, and the guides attached to the upper sides of gates moving beneath the upper track and adapted to prevent 45 rotation of the gates, substantially as and for the purpose described.

5. In a horizontal valve the combination of the casing, the upper and lower bronze tracks secured therein intermediate the gates, 50 the sliding gates moving on opposite sides of said tracks having interlocking lugs and sockets; and devices substantially as described for operating said gate; with the wheels carrying said gates and running on said tracks, 55 the track-clearing plows attached to the gates, respectively in advance of and behind the wheels, and the guide castings attached to the upper side of gates to prevent rotation thereof, all substantially as and for the purpose set 60 forth.

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

ELLIS L. ROWE.

Witnesses:

JAS. I. EDDY,

WILLARD I. WIDMER.