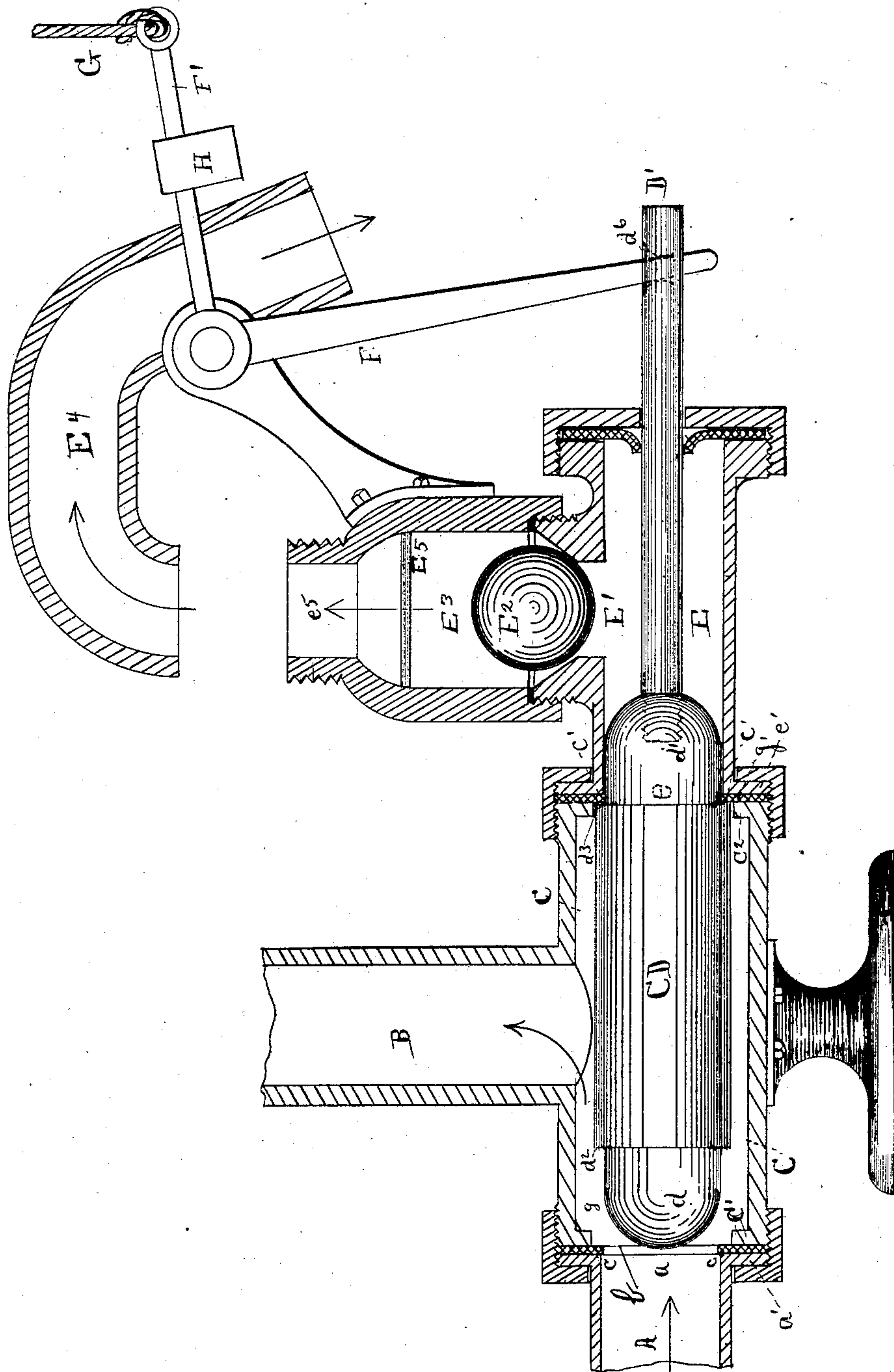


(No Model.)

P. HARVEY.
STOP AND WASTE VALVE.

No. 314,836.

Patented Mar. 31, 1885.



Witnesses:

F. W. Parker.

L. C. Riggall

Inventor:

Patrick Kearney
per Chas. S. Burton
his Atty:

UNITED STATES PATENT OFFICE.

PATRICK HARVEY, OF CHICAGO, ILLINOIS.

STOP AND WASTE VALVE.

SPECIFICATION forming part of Letters Patent No. 314,836, dated March 31, 1885.

Application filed September 22, 1884. (No model.)

To all whom it may concern:

Be it known that I, PATRICK HARVEY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Stop and Waste Valves, which are fully described in the annexed and following specification.

The purposes of this invention are to provide an automatic stop and waste valve which shall prevent the waste of water from the mains through such stop and waste valve, as sometimes occurs with forms of such valves now in use, to prevent the possibility of the entrance of backwater from the sewer through the stop and waste valve when it is open for the purpose of emptying the system with which it is connected, and to prevent passage of sewer-gas through the same.

The drawing is a vertical section of my invention wherein the valve lies and plays horizontally.

A is the water-supply pipe. B is the service-pipe leading to the system supplied and controlled by the valve. C is the stop and waste valve chamber. D is said valve. D' is its stem. E is a portion of the waste-pipe forming a supplemental chamber surrounding the valve-stem D'. E' is the eduction-port from said chamber E. It is closed by the automatic valve E², opening outward into the chamber E³, and arranged to be checked by the guard E³, so as not to be caught and detained off its seat. E⁴ is the final eduction-pipe leading to the sewer through the eduction-port e⁵.

The valve D plays between the seats c and c'—the former at the induction or supply port b, and the latter at the eduction or waste port e. Both seats are provided with yielding packing g g', of leather or rubber, which is bound into place between the shoulders C' and C² of the valve-chamber C, and the shoulders a' and e' of the supply-pipe A and the waste-pipe E, respectively. The valve D terminates in the tongues d and d', which act as pistons, which pass through the apertures of the elastic packing g g' and fit closely within the induction and waste pipes, respectively, entirely closing them, while the shoulders d² and d³ of the valve D bear positively against the inner surface of said packing-pieces g and g' and force them against the valve-seats c and c'. The taper-

ing or, as illustrated, spherical portion, of the tongues d and d', which terminates them, is not to be considered a part of the length of the said valve or tongues in considering the action of the valve, the sole purpose of said tapering part being to facilitate the entrance of the valve within the aperture of the packing g g'. The distance between the two seats c and c' is greater than the distance between the two shoulders d² and d³ by an amount less than the sum of the lengths of the two piston-tongues d and d', and greater than either one, so that it is possible for the valve to stand in such position as to close both apertures at the same time, and also possible to have either one open while the other is closed by the valve. From this structure it results, also, that it is impossible to have both apertures open at once, since when the valve D is moved to open the waste-port to effect drainage of the system, such movement will cause its piston-tongue d to enter and close the supply-port b before its piston-tongue d' has fully withdrawn from and opened the waste-port e.

The valve E² is designed to be of specific gravity greater than water, so as to be normally on its seat, except when lifted off by a passing current of water. Should there occur a back-pressure of water or gas from the sewer at a time when the waste-port e is open for the purpose of draining the system, such back-pressure will at once firmly seat the valve E² and prevent the entrance into the chamber E of the gas or foul water, and will so detain it until and unless the pressure of water in the pipes after the valve D has been shifted to open the supply-port and again shifted to open the waste-port should be greater than the back-pressure from the sewer, in which case such greater pressure will tend to cleanse the sewer.

The valve-stem D' protrudes through suitable stuffing-box at the end of the chamber E. F is a lever pivoted to any fixed support, and having one end passed through the slot d⁶ in the valve-stem D', so that it may actuate said valve in either direction. The other end of the said lever is connected by suitable pull-rod or cable G to any point from which it is desired to control the valve D. The arm F' of said lever is weighted, said weight H being adjustable on said arm, so that when not re-

strained by the cable G it may exert sufficient pressure to retain the valve on its seat, closing the supply-port against the supply-pressure.

I claim—

- 5 1. In combination with a water supply pipe and a waste-pipe, a valve-chamber located and affording communication between the two, and a valve playing in such chamber and adapted to pass through and close at one end
10 the supply-port and at the other end the waste-port, and longer than the distance between said ports, said valve provided with bearing-shoulders, and said chamber provided with bearing-seats for said shoulders at the margin
15 of said ports, respectively, the distance between said seats being greater than the distance between said shoulders and less than the distance from either shoulder to the opposite end of the valve, substantially as set forth.
20 2. The combination, with a water-supply pipe and service-pipe, and a waste-pipe com-

municating therewith, and a stop and waste valve controlling such communication, of an automatic check-valve in the waste-pipe beyond the stop and waste valve, substantially
25 as set forth.

3. In combination with the water-supply pipe, service-pipe, and waste-pipe, the chamber C, communicating between the two, the valve D, playing within said chamber, the supplemental chamber E, having the eduction-
30 port E', and the automatic valve E², closing said eduction-port and opening outward, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set
35 my hand, in the presence of two witnesses, at Chicago, Illinois, this 17th day of September, A. D. 1884.

PATRICK HARVEY.

Attest:

FRANCIS W. PARKER,
CHAS. S. BURTON.