

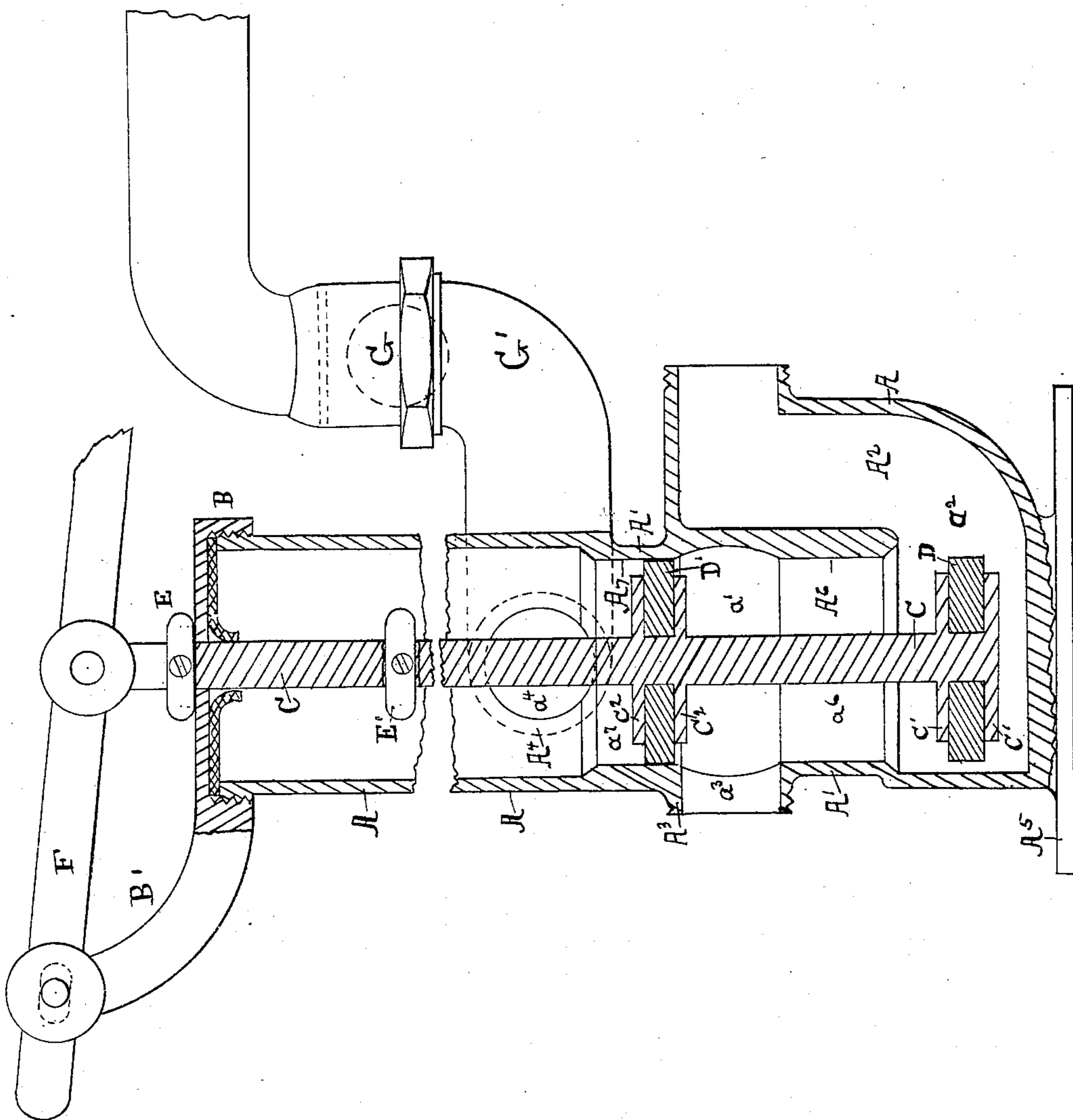
(No Model.)

P. HARVEY.

STOP AND WASTE VALVE.

No. 318,247.

Patented May 19, 1885.



Witnesses:
H. W. Parker
L. B. Riggs

Inventor:
Patrick Harvey
by 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. 318,247, dated May 19, 1885.

Application filed October 27, 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 set forth in the annexed and following specification.

This invention is an improvement upon a certain form of stop and waste valve for which I have made application for Letters Patent, filed in the Patent Office September 22, 1884, Serial No. 143,637. The purposes of the said invention, as stated in said application, are to provide an automatic stop and waste valve, which shall prevent the waste of water from the mains through such valve, and prevent the possibility of the entrance of back-water from the sewer through the stop and waste valve when the same is open for the purpose of emptying the system to which it is attached, and to prevent the passage of sewer-gas back through the valve into the supply and service pipes of the system.

The especial purpose of the present invention is to simplify the construction of the valve and its connections for the purpose of rendering it cheaper of manufacture, and particularly easier of repair, in that the entire valve and all the piston-heads therewith connected may be withdrawn without separating the parts of the shell or detaching it from the pipe to which it is connected.

The drawing is a vertical section of my improved device.

A is the shell, comprising the valve-cylinder A', the induct or supply pipe A², the educt or service pipe nipple A³, and the waste-pipe nipple A⁴, all cast in a single piece and adapted to be connected with the supply-service and waste system in which it is to be used, and to be secured to suitable support by means of the base A⁵. The valve-cylinder A' is open at the top and the upper part of its chamber, above the valve-bearing a², may be extended indefinitely by means of connected pipe to cause it to terminate in a position where the cap B, which closes it, may be conveniently accessible and easily removable for purpose of making repairs or of repacking. The valve-chamber a' has two cylindrical valve-orifices, a⁶ and a⁷,

bounded by the valve-seats A⁶ and A⁷, the former between the induction-orifice a² and the eduction-orifice a³, and the latter between the eduction-orifice and the waste-orifice a⁴. They are of equal diameter, and the valve-cylinder has its cavity expanded between them and beyond them at both ends. The valve-stem C is provided with fixed flanges C' C' and C² C², each pair adapted to retain between them the rubber gaskets or washers D D', which are of outer diameter to fit closely the cylindrical valve seats or bearings A⁶ and A⁷. The flanges C' C' and C² C² are of slightly less diameter than the valve-orifices, and are at such a distance apart on the valve-stem that the rubber washers D D', which constitute the valves, may both be on their respective seats, closing the valve-orifices a⁶ and a⁷, leading to the waste and the eduction pipes, respectively, at the same time, this position being illustrated in the dotted lines; and the said valve-seats A⁶ and A⁷ are of such lengths and at such distance apart that either orifice may be closed by its valve while the other is wide open. To the valve-stem C, above both valves, are secured, one outside and one inside the top cap, B, two stop-knots, E E', which are designed to be so adjusted that the stroke or play of the valve-stem shall be limited in both directions by the contact of the said knots against the top cap, B, the upward limit of stroke being when the lower valve, D, is at the upward limit of its seat A⁶, and the lower limit being when the upper valve, D', is at the lower limit of its seat A⁷.

Instead of the upper stop, the stem at the lower end may be produced so as to be stopped by coming into contact with the shell.

The stops, one or both, may be either integral with the stem or removable, and in the latter case adjustable, and in that case they may be adjusted so as to limit the aperture of either the induction or the waste port to less than its maximum.

Integral with the cap B, I form the ear B', which has the fulcrum of the lever F', which is connected to and actuates the valve-stem and both valves in a manner familiar, and which is fully described in my said application No. 143,637.

To remove the valves for repacking or other

repairs, or to remove foreign matter which may obstruct their action, it is only necessary to disconnect the lever F, and unscrew the cap B, and withdraw the entire valve-stem and all its attached parts.

In order to facilitate the seating as well as the insertion and removal of the valves, the approaches to both seats on both ends are beveled or curved, so that a very snugly-fitting valve may be employed. The rubber gaskets or washers D D', which serve as such valves, are put into place between the flanges by being stretched over the outer flange. They thus lie somewhat loosely between the flanges, but should be arranged to fit closely the central stem. If they do not fit their respective seats with complete accuracy, the pressure of the water against them will expand them sufficiently to cure any slight inaccuracy.

G is a check-valve in the waste-pipe G', designed to prevent the return of sewer-gas or backwater into and through the stop and waste valve. Its action is fully set forth and claimed in my said application No. 143,637, and is not a part of the present invention, but co-operates with the remainder of the device herein shown, precisely as with that described in said application.

I claim—

1. In a stop and waste valve, in combination with an integral shell having an induction, an eduction, and a waste port, and an end opening for the valve-stem, said four openings being in the longitudinal order named, and cylindrical valve-seats—one between the induc-

tion and eduction ports, and one between the eduction and the waste ports—a valve-stem having two piston-valves rigid with it adapted to pass through the end opening and to seat, one in each of said cylindrical seats, the distance between said valves being less than the distance between the extreme edges of said seats and greater than the sum of the distance between their proximate edges and the length of either seat, substantially as set forth.

2. In a stop and waste valve, an integral valve-shell having an induction, an eduction, and a waste port, the first being the lowest and the last being the highest, cylindrical seats between said ports, and enlarged cavity between and beyond said seats, and an end opening above the waste-port, in combination with two piston-valves, made rigid with each other, fitting the two seats and adapted to pass freely through the end opening and the actuating-stem of said valves and stops to limit their play, the distance between said valves being less than the distance between the extreme edges of the valve-seats and greater than the sum of the distance between their proximate edges and the length of either seat, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand, in the presence of two witnesses, at Chicago, Illinois, this 8th day of October, 1884.

PATRICK HARVEY.

Attest:

CHAS. S. BURTON,
FRANCIS W. PARKER.