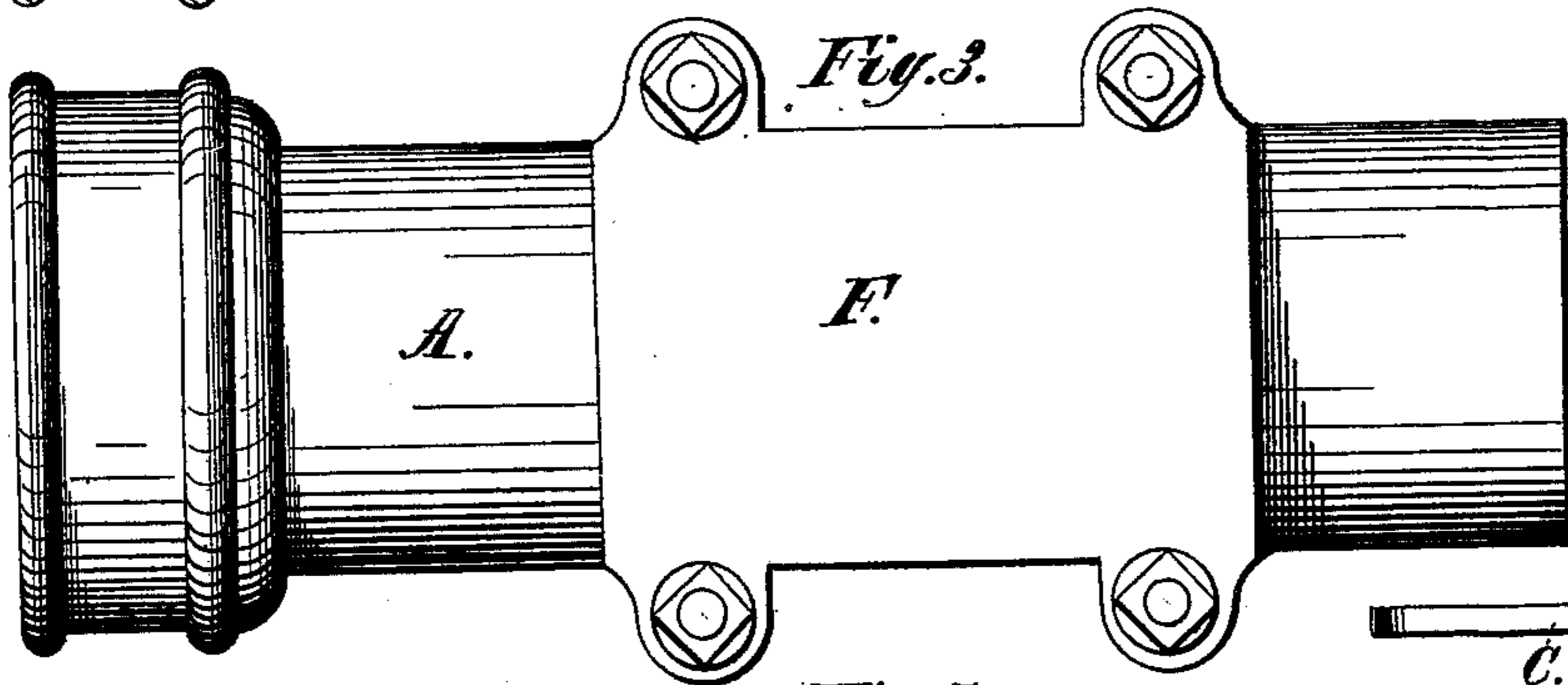
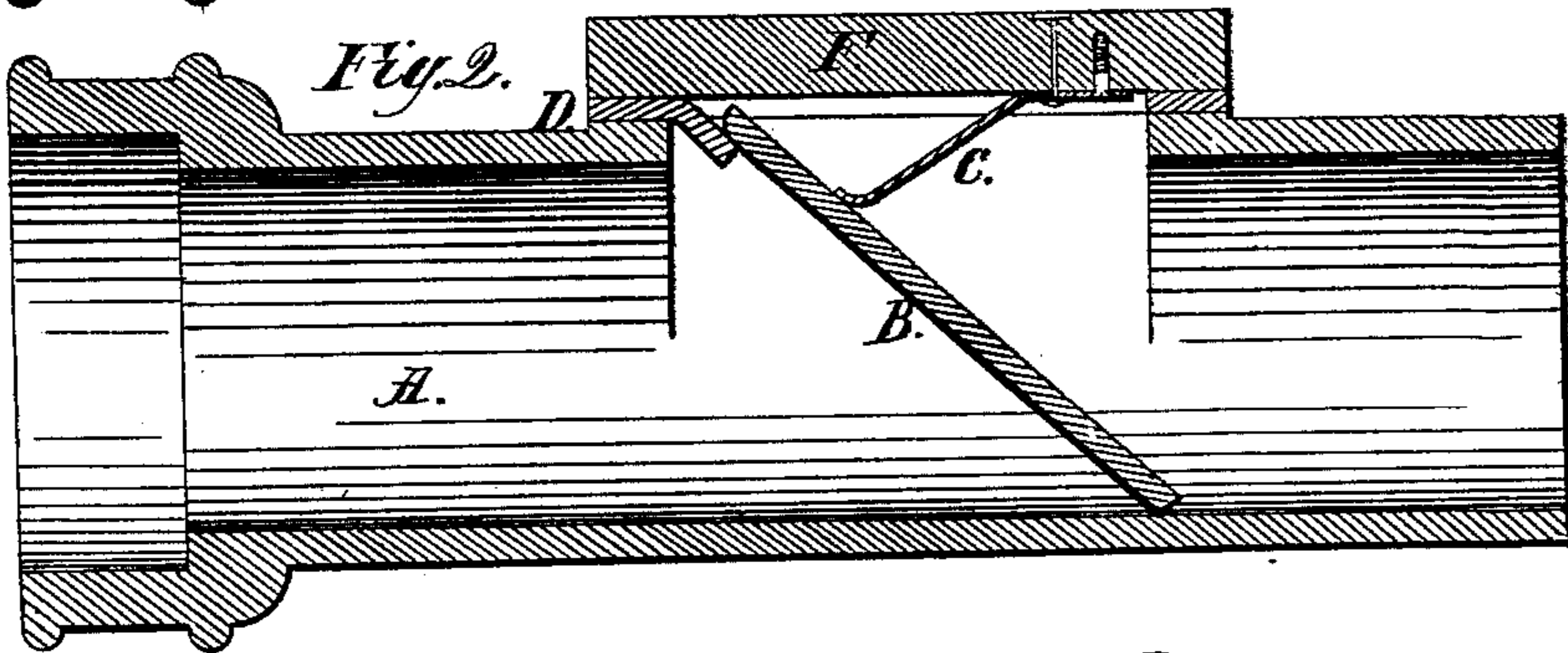
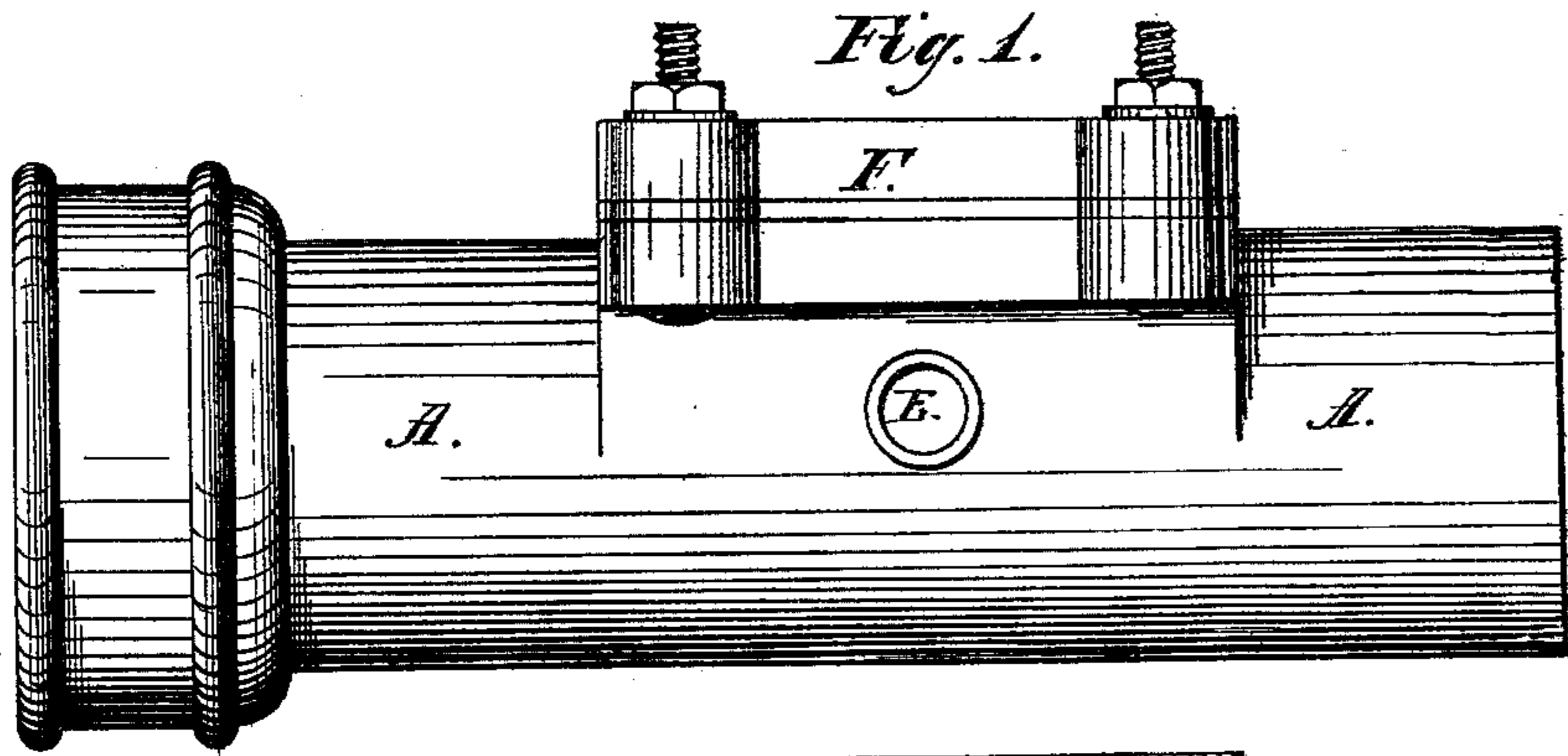


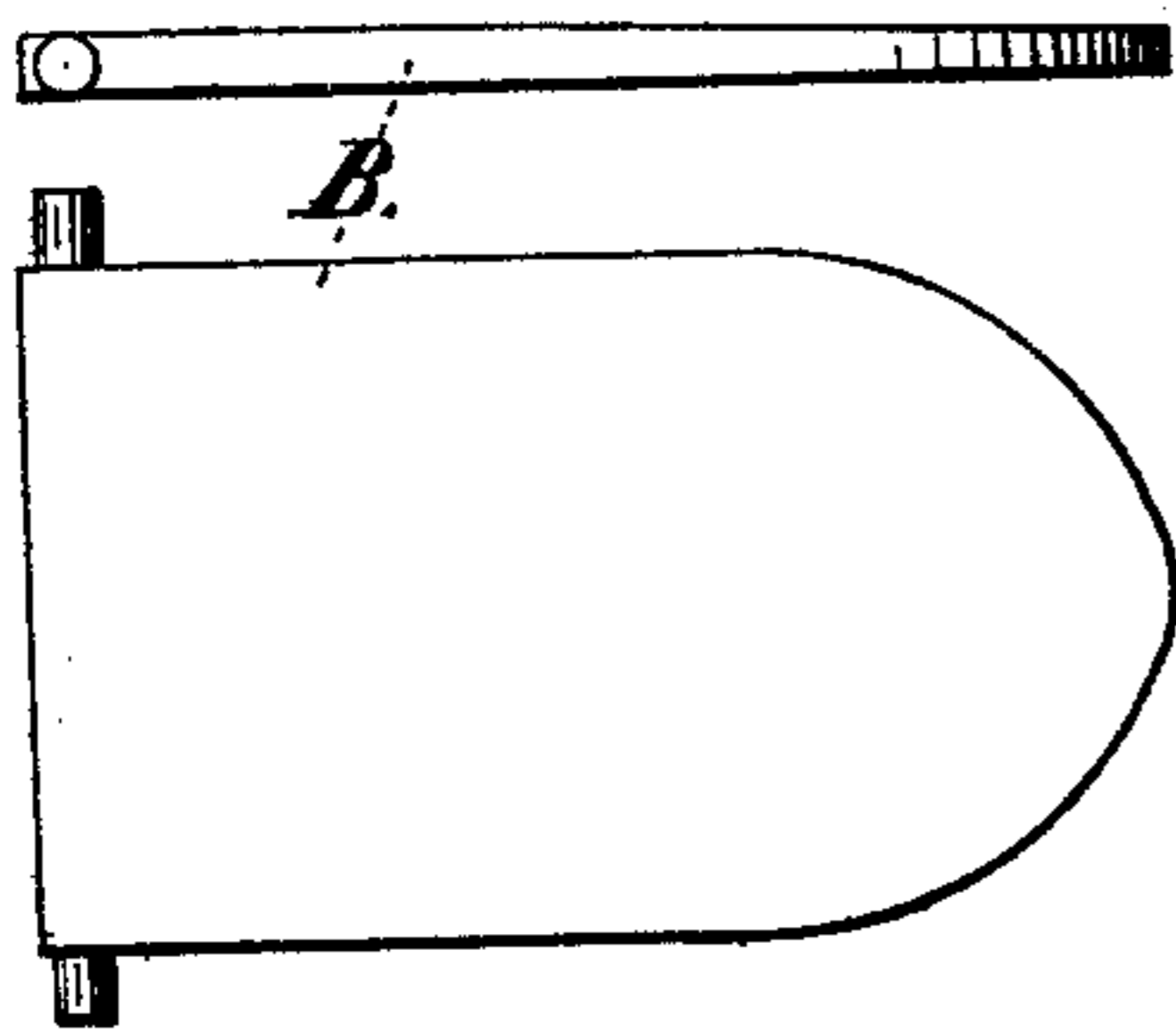
J. M. WOODWARD.  
VALVES FOR SEWERS.

No. 176,500.

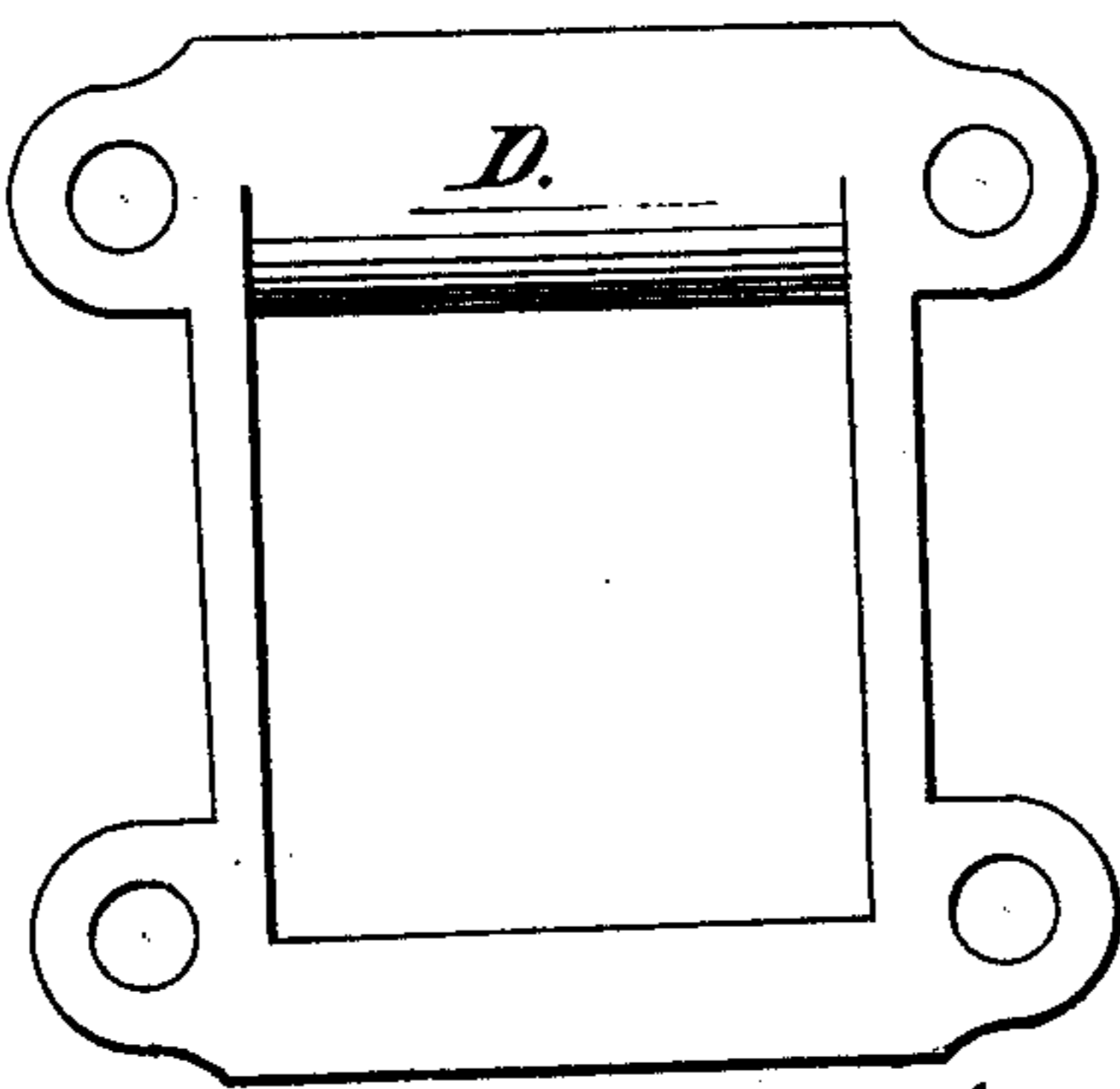
Patented April 25, 1876.



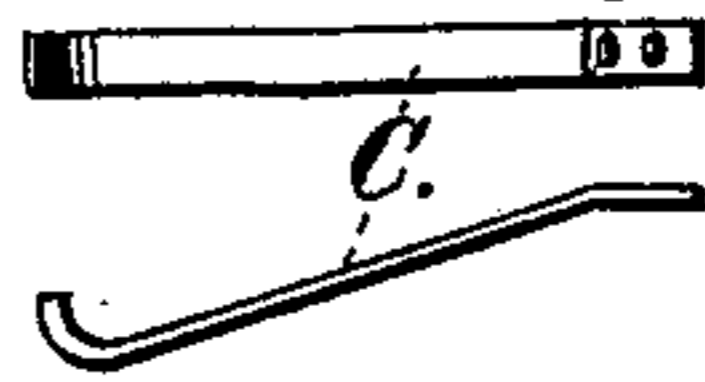
*Fig. 4.*



*Fig. 5.*



*Fig. 6.*



*Attest:*

*Arthur A. Thompson*  
*Frank T. Butler*

*Inventor:*

*Joby Marshall Woodward*

# UNITED STATES PATENT OFFICE.

JABEZ M. WOODWARD, OF BROOKLYN, NEW YORK.

## IMPROVEMENT IN VALVES FOR SEWERS.

Specification forming part of Letters Patent No. 176,500, dated April 25, 1876; application filed January 19, 1876.

*To all whom it may concern:*

Be it known that I, JABEZ M. WOODWARD, of 278 Clinton Street, Brooklyn, county of Kings, State of New York, have invented a Valve for Sewers, of which the following is a specification:

It will appear by the accompanying drawing that a short section of a common soil-pipe is used, upon and within which is engrafted what is believed to be a new and efficient means for excluding from buildings the mephitic sewage-gases which are the prolific cause of zymotic diseases.

In the accompanying drawing, Figure 1 is a side view. Fig. 2 is a central section; Fig. 3, a plan view. Fig. 4 represents a plan and side view of valve. Fig. 5 is a plan view of gasket; Fig. 6, a top view and side view of springs.

Similar letters of reference indicate corresponding parts.

A is a section of soil-pipe, opened at the top about twice the length of the diameter of its caliber, and as wide as its diameter. The inner sides are carried to the top from the center of the circle, as are also the outsides, to within three-eighths ( $\frac{3}{8}$ ) of an inch of the top, where the width is increased, so as to give a face at the top of at least three-eighths ( $\frac{3}{8}$ ) of an inch, and at or near each corner is a further projection to hold the screw-bolts. This outside section is three-quarters ( $\frac{3}{4}$ ) of an inch longer than the inside opening, and the side face-surfaces are connected at each end by like surfaces three-eighths ( $\frac{3}{8}$ ) of an inch wide, so as to form a continuous face-surface all around the opening, which, when planed off to a perfect level, is the face of the valve. A recess is made in each side face, near which, when in place, will be the upper end of the opening to receive the two rounded lugs of the clapper, hereinafter described, and three-sixteenths ( $\frac{3}{16}$ ) of an inch of the upper end valve-face is beveled at an angle of forty-five degrees, to sustain in place the lip of the gasket described under its designating letter further on.

B is a clapper of a peculiar form, slightly curved on its plane surfaces, square at one end, and elliptical at the other, to fit the half-circle of the soil-pipe when placed at an angle

of about forty-five degrees. The side edges above the half-circle are made to fit the vertical sides of the opening. Rounded lugs project one-eighth ( $\frac{1}{8}$ ) of an inch from each corner, which fit into recesses in the side faces of the valve. The surface between these lugs is slightly rounded to receive and work easily against the lip of the gasket hereinafter mentioned.

C is a spring, secured to the valve-cover, which impinges against the upper part of the top surface of the clapper, and is made sufficiently stiff to cause the clapper to press slightly upon the descending fluid, so that it will fill the spaces between the edges of the clapper and the walls of the soil-pipe, caused by the force of the fluid raising its lower end.

D is a lip of the valve-face gasket, which is inserted between the upper end of the clapper and the upper end opening in the soil-pipe. The under side of this lip rests on the beveled part of the valve-face, and the other side presses against the rounded section of the upper end of the clapper, following it in all of its movements, and performing the very important office of stopping the flow of sewage-gases over the top of the clapper into the soil-pipe above.

E is an opening out of either vertical side wall, for the purpose of attaching a ventilating-pipe, to be led through the roof, or to the outside of the building. This hole is located near the surface of the clapper when at rest, which is the precise point at which the sewage-gas is stopped, and through this opening is passed off into the outer air, without having to retrace any part of its traveled road against a pressing current.

F is the valve-cover, with projecting lugs at the sides to receive the screw-bolts, corresponding with the lugs described under letter A. Its use is too obvious to require a lengthy description. Its dimensions, the opening, and the valve-face, should be not less than three-eighths ( $\frac{3}{8}$ ) of an inch thick. Its under surface should be planed off level, and firmly screwed down upon the gasket which intervenes between it and the valve face.

The arrangement of all these things obvi-

ously points to one object. Placed below all the other water traps of a building, it will stop the flow of sewage-gas into the rooms without preventing the outflow of liquid to the full capacity of the soil or waste pipe to which it may be attached.

I claim specifically as my invention—

The combination of valve B with lips D of the gasket, spring C, and cover F, substantially as and for the purpose specified.

JABEZ MARSHALL WOODWARD.

Witnesses:

ARTHUR A. THOMPSON,

FRANK T. BUTLER.