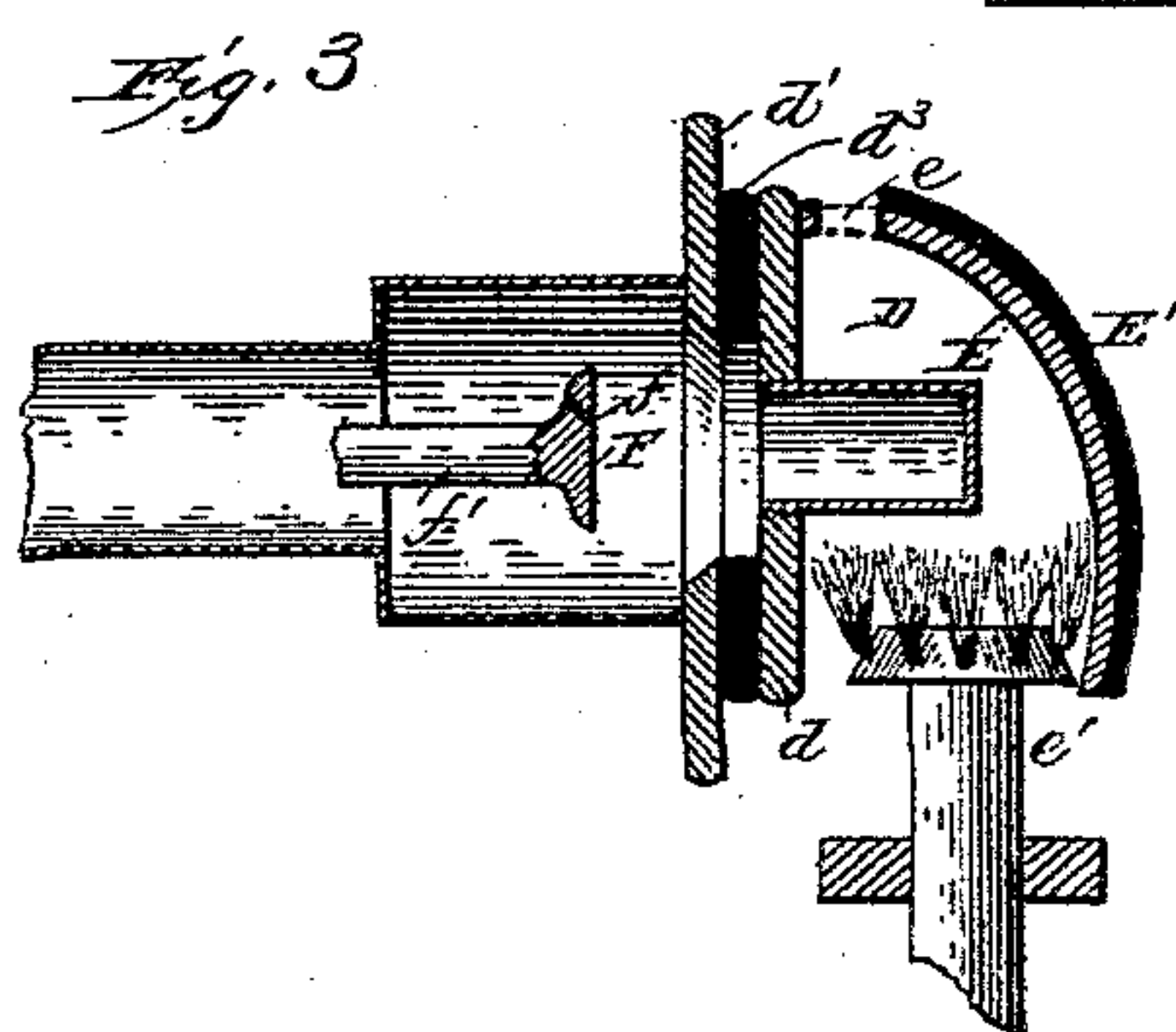
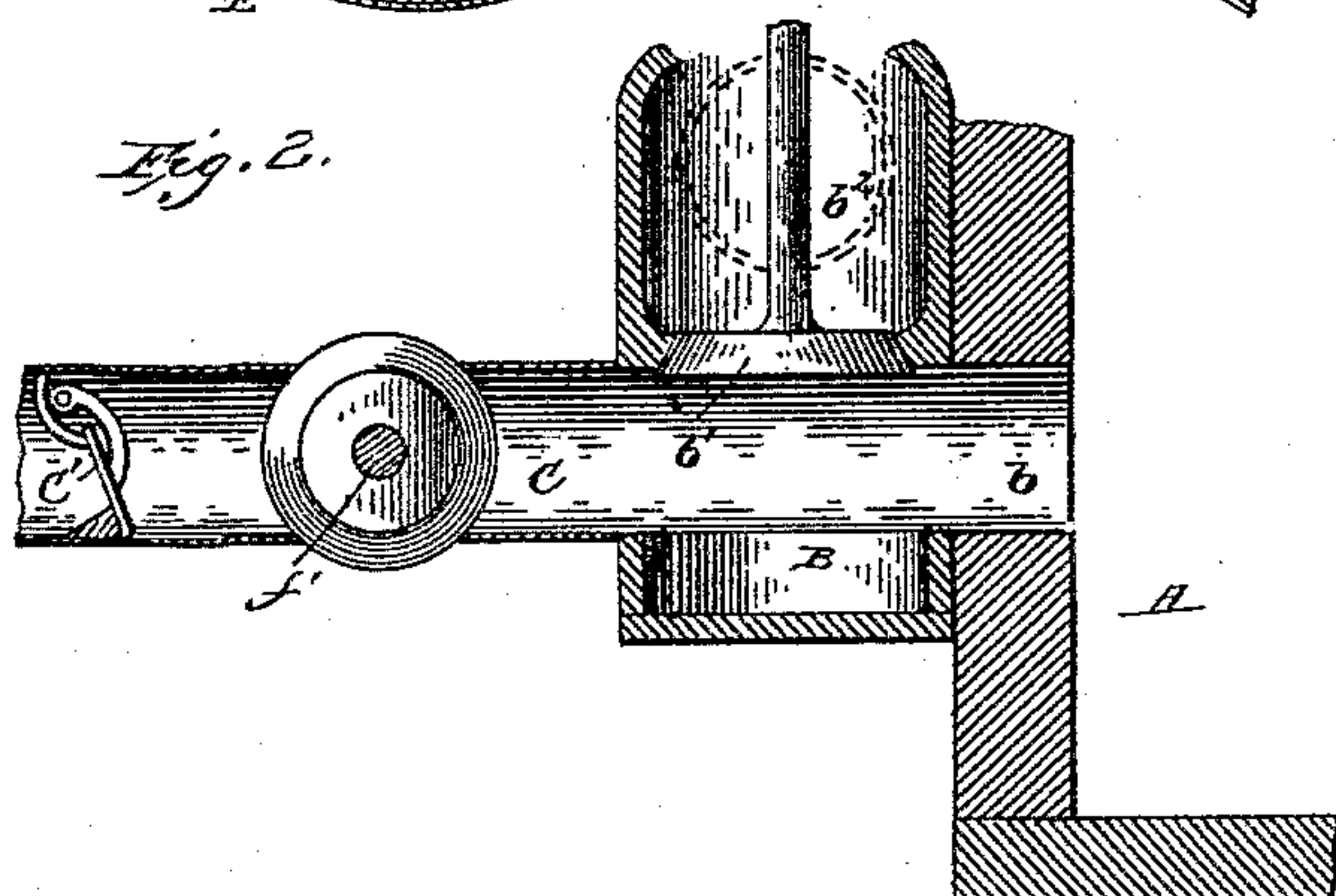
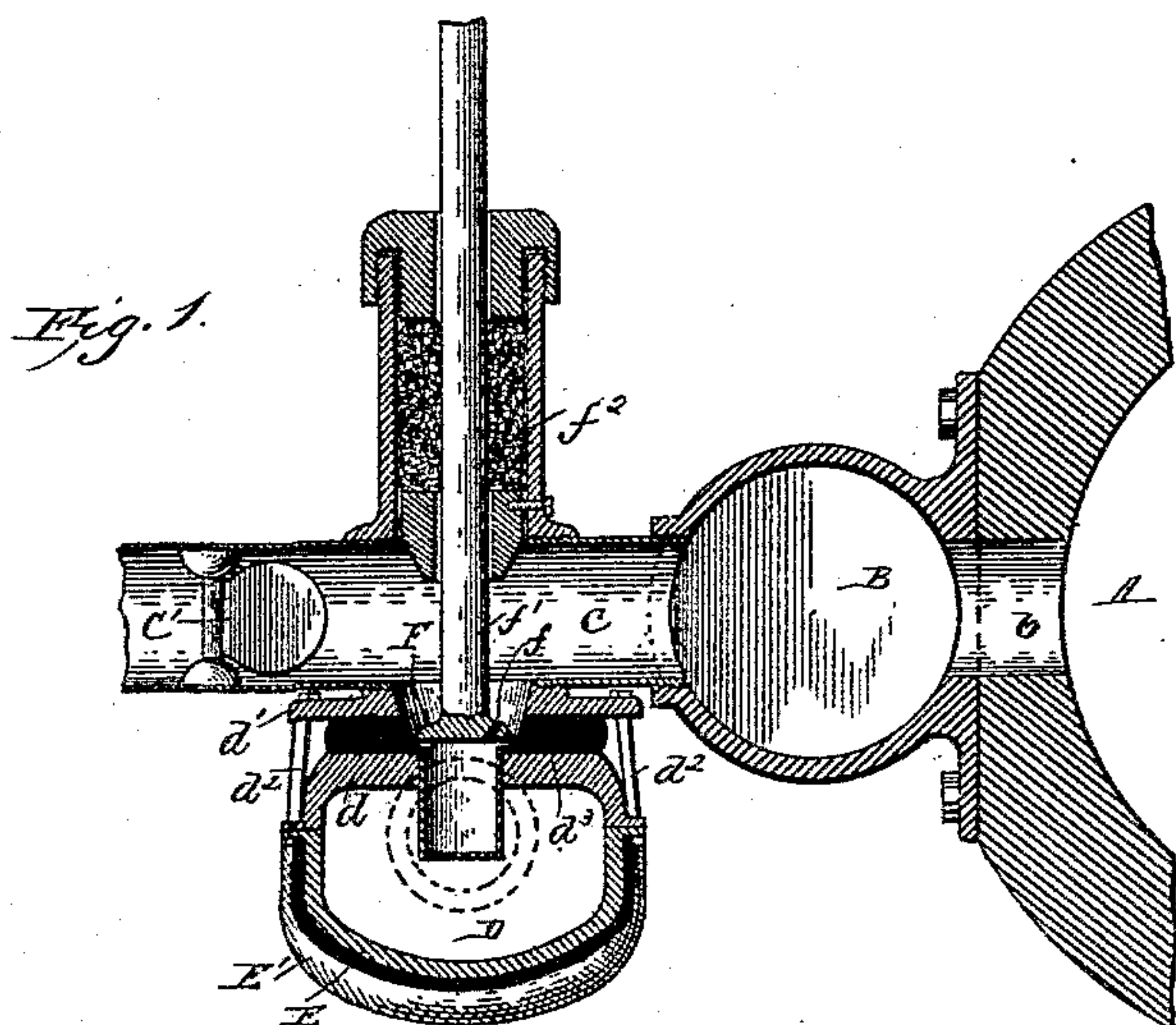


(No Model.)

L. C. & B. PARKER.
IGNITING APPARATUS FOR GAS ENGINES.

No. 401,204.

Patented Apr. 9, 1889.



WITNESSES

John Enders Jr.
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By *[Signature]* Attorneys.

UNITED STATES PATENT OFFICE.

LEWIS C. PARKER AND BEAUMONT PARKER, OF KANSAS CITY, MISSOURI.

IGNITING APPARATUS FOR GAS-ENGINES.

SPECIFICATION forming part of Letters Patent No. 401,204, dated April 9, 1889.

Application filed December 3, 1888. Serial No. 292,505. (No model.)

To all whom it may concern:

Be it known that we, LEWIS C. PARKER and BEAUMONT PARKER, citizens of the United States of America, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Igniting Apparatus for Gas-Engines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention pertains to certain new and useful improvements in gas-engine ignitors, having reference to that class of devices wherein a portion of the combustible mixture is compressed within the interior of a pipe or chamber the exterior of which is heated.

The invention comprises the details of construction, combination, and arrangement of parts, substantially as hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a horizontal sectional view of our improved ignitor. Fig. 2 is a vertical sectional view thereof on the line $x x$, Fig. 1, with parts removed. Fig. 3 is a sectional detail view on the line $y y$, Fig. 1.

Referring to the drawings, A designates the ordinary cylinder of a gas-engine wherein works a piston (not shown) which makes one power-stroke to two revolutions of the crank-shaft.

B is the exhaust-chamber secured to cylinder A, and communicating therewith through port b . A valve, b' , is disposed in the upper part of this exhaust-chamber, so as to open downward and permit the exhaust to pass out through an upper opening, b^2 . This valve is operated at the desired moment by suitable mechanism of ordinary construction. (Not shown.)

C is a pipe or chamber screwed into the exhaust-chamber B, and through it is drawn the charge of air and gas, a pivoted valve, C' , being used to prevent backward escape thereof.

The ignition-chamber D consists of a short pipe or tube secured to a plate or disk, d , which is held to a flanged collar, d' , of pipe C by means of bolts d^2 , a piece of asbestos or other non-conducting material, d^3 , being interposed between plate d and collar d' . A curved arm or shield, E, projects from the up-

per part of plate or disk d , and the same is provided with holes or apertures e for the escape of smoke from an ordinary burner, e' , disposed in close proximity to the ignition-chamber D. The shield E serves to confine the heat around said chamber, the same being provided with an outer covering of asbestos, E' .

A valve, F, is designed to fit over the inner open end of chamber D, and the same is provided with an inclined hole or port, f , extending therethrough. The stem f' of this valve is projected across pipe C and out through a suitable boxing, f^2 . This valve, like the exhaust-valve b' , is operated at the desired moment by suitable mechanism. (Not shown.)

The operation is as follows: The piston in starting on its charging-stroke will draw in a charge of gas and air through pipe C, at which time valve F is opened and so remains until the piston has made about one-fifth of its next or compression stroke, when said valve is closed over the ignition-chamber. During a portion of the balance of the compression-stroke a small jet of the mixture is being forced through port f into the ignition-chamber and is being quickly heated therein to a high degree. When the piston reaches the maximum of its compression-stroke, the valve F is opened and the compressed mixture in pipe C is exploded by coming in contact with the heated mixture in the ignition-chamber D and with said chamber. The mixture rushes into the cylinder when the piston makes its power-stroke. At the next or exhaust stroke the exhaust-valve b' is opened and the products of combustion permitted to escape.

By reason of the described arrangement the next incoming charge entirely clears pipe C, the ignition-chamber, and the exhaust-chamber, thus securing a pure fresh mixture for each successive charge.

We claim as our invention—

1. As an improvement in gas-engines, the combination, with the inlet pipe or chamber, of the exhaust-chamber and its valve, the ignition-chamber applied to one side of the inlet pipe or chamber, around and outside the inlet-arm of which is applied a plate or disk, and between which and a second plate is interposed asbestos covering, together with means for fastening in place the same, substantially as set forth.

2. As an improvement in gas-engines, the combination, with the valved inlet pipe or chamber having connection with an exhaust-chamber connected to the power-cylinder, of
5 the ignition-chamber applied to one side of the inlet pipe or chamber, and having a valve provided with a port, the apertured shield overhanging the ignition-tube, and the heating medium disposed below the ignition-tube
10 and having its flame within said shield, substantially as set forth.

3. The combination, with the inlet pipe or

chamber, of the plate or disk secured thereto, the interposed asbestos, the arm or shield having an asbestos covering, and the securing-bolts, substantially as described. 15

In testimony whereof we affix our signatures in presence of two witnesses.

LEWIS C. PARKER.
BEAUMONT PARKER.

Witnesses:

S. F. CLARK,
J. R. THOMAS.