

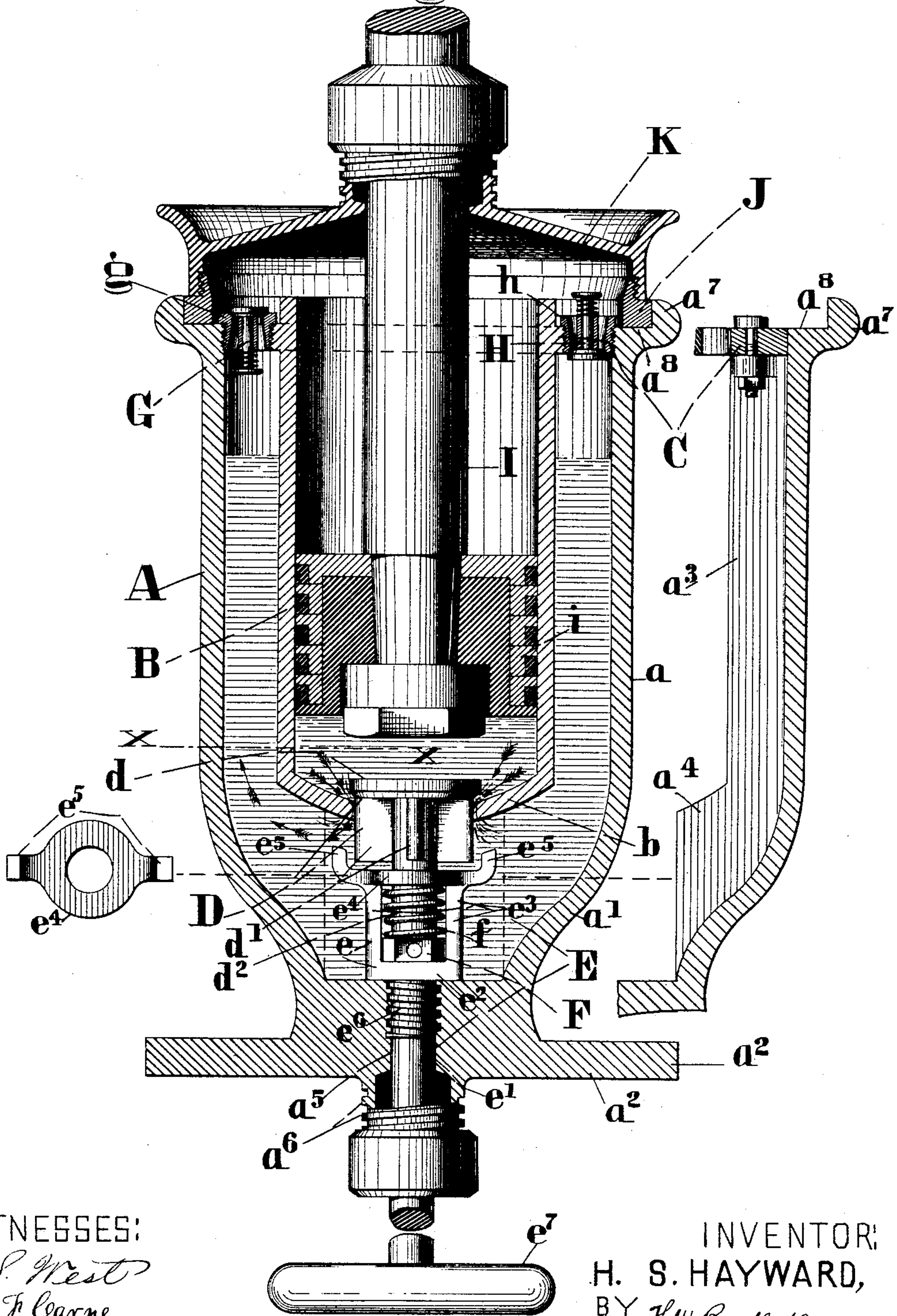
H. S. HAYWARD.

DASH POT.

No. 262,040.

Patented Aug. 1, 1882.

Fig. 1.



WITNESSES:

T. S. West
Wm J. Carne

INVENTOR:

H. S. HAYWARD,

BY *H. W. Beadle & Co.*

ATTYS.

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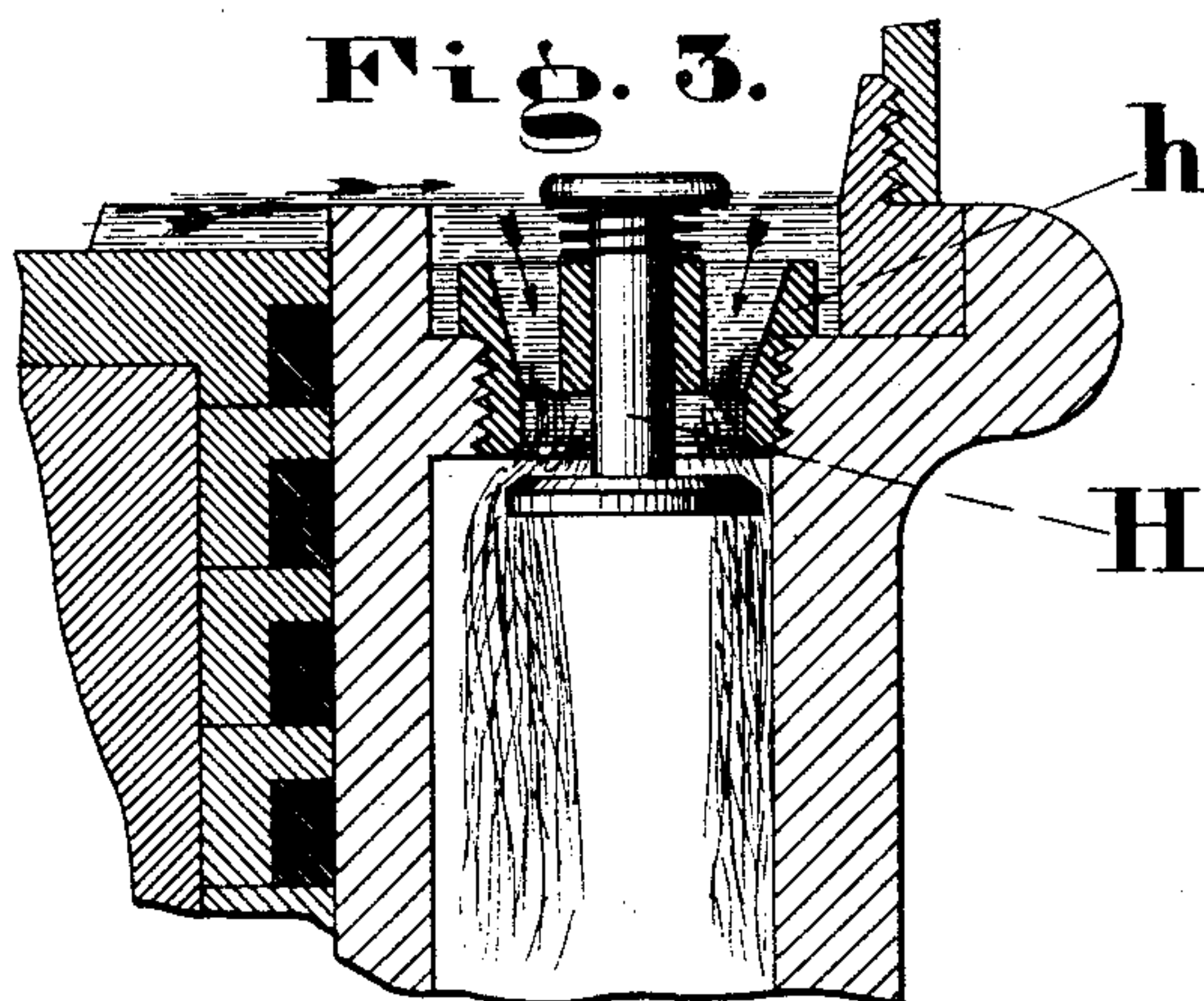
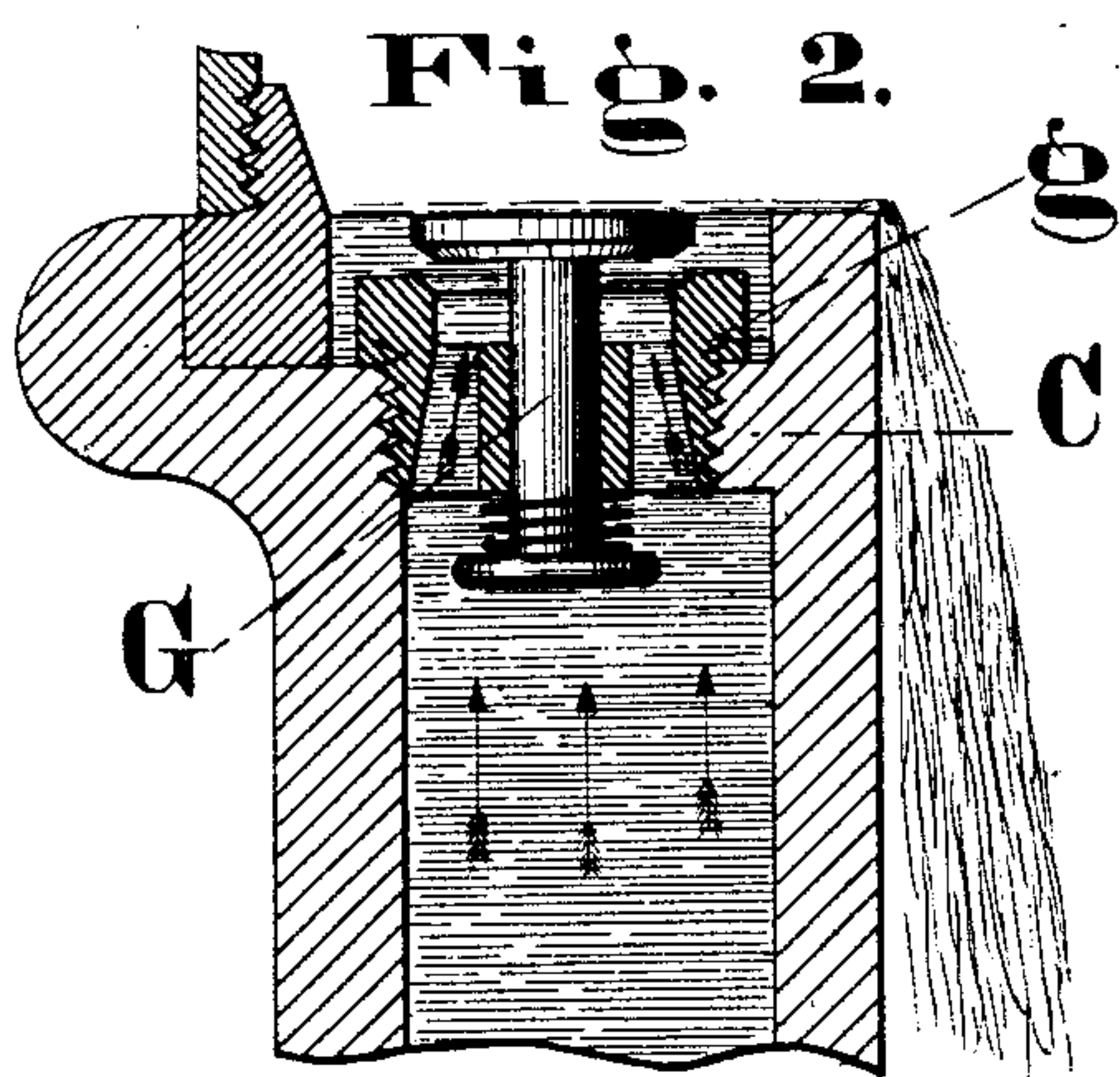
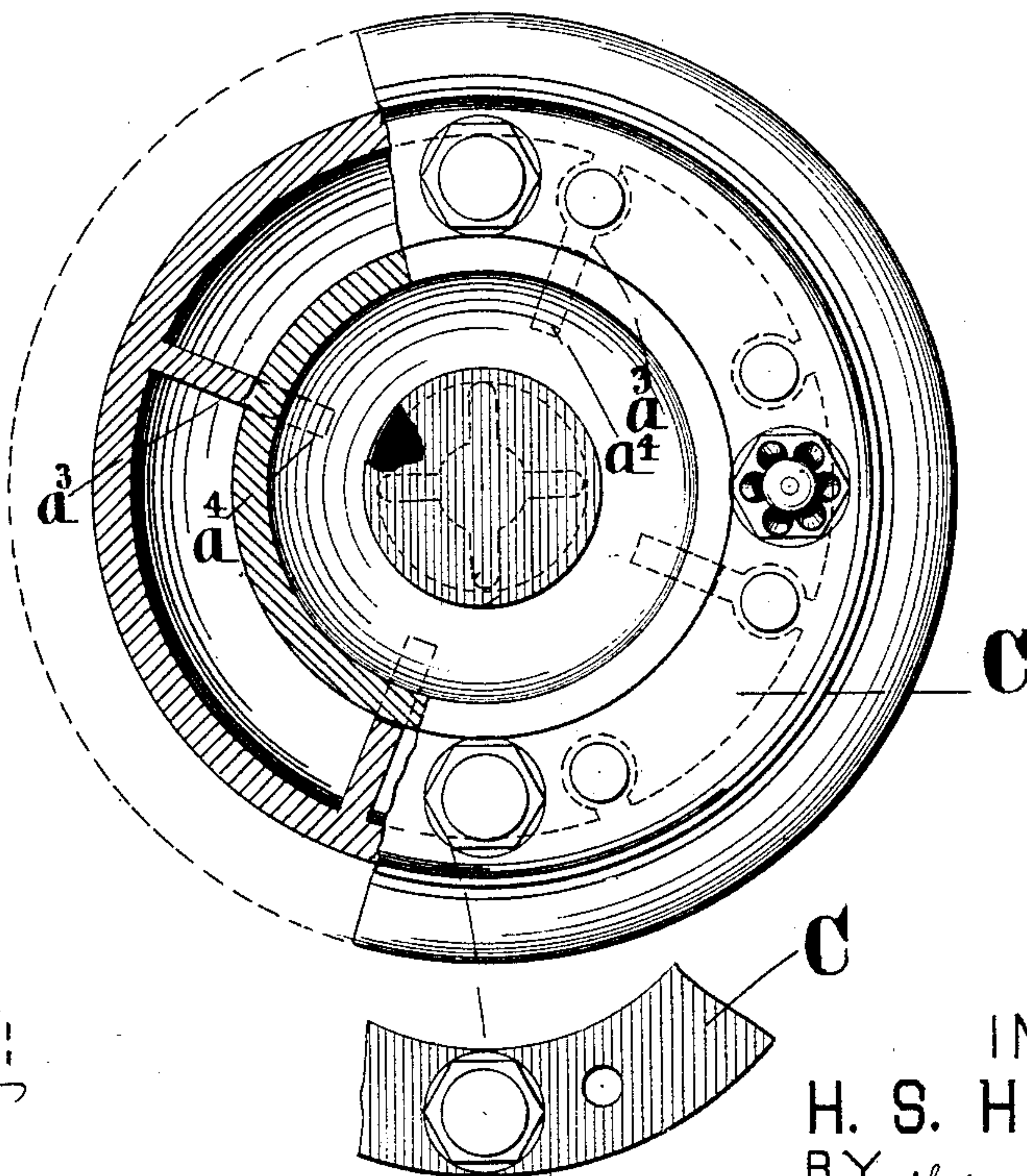


Fig. 4.



WITNESSES:

J. S. Mead
Wm. J. Carne.

INVENTOR:

H. S. HAYWARD,

BY *H. W. Beadle & Co.*

ATTYS.

UNITED STATES PATENT OFFICE.

HENRY S. HAYWARD, OF JERSEY CITY, NEW JERSEY.

DASH-POT.

SPECIFICATION forming part of Letters Patent No. 262,040, dated August 1, 1882.

Application filed May 8, 1882. (No model.)

To all whom it may concern:

Be it known that I, H. S. HAYWARD, of Jersey City, county of Hudson and State of New Jersey, have invented new and useful Improvements in Dash-Pots; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

This invention consists mainly in the combination of the valve portion of a dash-pot with an adjusting device of special construction, adapted for use by the engineer to determine the area of opening exposed by the valve when seated for the passage of the fluid.

It consists, further, in the combination of the main valve for controlling the flow of the fluid with certain auxiliary valves for disposing of any excess of fluid above the normal quantity.

It consists, further, in certain details of construction, which, in connection with the foregoing, will be fully described hereinafter.

In the drawings, Figure 1 represents a vertical sectional elevation of my improved dash-pot; Figs. 2 and 3, enlarged sectional views of the auxiliary valves; and Fig. 4, a top view with the cover removed, and with a portion cut away on the line *x x*, Fig. 1.

To enable others skilled in the art to make my improved dash-pot and to properly use the same, I will proceed to describe fully its construction and manner of operation.

A, Fig. 1, represents a cast-iron receptacle having a body portion, *a*, of cylindrical form and a base portion, *a'*, of conical form, with a supporting-flange, *a''*, as shown.

a³ a³, Figs. 1 and 4, represent radial ribs of flanges, extending inward from the receptacle A a proper distance, each of which is provided with a projecting portion, *a⁴*, as shown.

a⁵ represents one wall of an opening extending through the base portion of the dash-pot, the upper portion of which opening is provided with screw-threads, as shown.

a⁶ represents a threaded extension adapted to form, in connection with other parts, a stuffing-box in the usual well-known manner.

a⁷ represents a rim extending about the periphery of the receptacle at its upper end, which is provided with a bearing-shoulder, *a⁸*, adapted

to support the sustaining-ring J of the cover-plate hereinafter referred to.

B represents an inner vessel, of cylindrical form, which is open above, but closed below, with the exception of a central opening, as shown. This vessel is adapted in size and shape to snugly fit within the radial ribs *a³*, its base portion *b* resting upon and being supported by the projecting portions *a⁴*, as shown.

C, Fig. 4, represents a ring cast as a flange on the inner receptacle, B, and adapted to fill the space between the inner wall of the receptacle A and the outer wall of the vessel B, which flange or ring is provided with two or more openings adapted to receive the auxiliary valves hereinafter referred to. This ring rests upon the upper ends of the ribs *a³*, and is strongly secured thereto by means of bolts, as shown.

D represents a valve having the bearing portion *d*, adapted to control the flow of the fluid through the opening in vessel B, the guiding wings or ribs *d'*, and the shank or rod *d²*, as shown.

E represents an adjusting device consisting of a frame portion, *e*, and a shank or rod portion, *e'*, as shown.

e² represents the base-piece of the frame portion, which has a bearing upon the upper surface of the base portion of the receptacle A when the adjusting device is in its lowest position, as shown in Fig. 1, leaving a certain amount of opening at all times to prevent engine-valve from being kept from its seat by excessive cushioning.

e³ e³ represent vertical arms rising from the base-piece, which support an annular cap-piece, *e⁴*, having vertical projections *e⁵ e⁵*, as shown.

e⁶ represents a threaded portion at the upper end of the shank or rod *e'*, and *e⁷* a handle-wheel at the lower end of the same, by means of which the entire adjusting device may be revolved when desired.

F represents a sleeve or collar surrounding the lower end of the shank *d²*, and united thereto by means of a connecting-pin, as shown.

f represents a spring surrounding the shank *d²*, the lower end of which bears upon the upper surface of the sleeve F, and the upper end of which bears against the lower surface of the cap-piece *e⁴*, as shown.

G, Fig. 2, represents an auxiliary valve, of any proper construction, supported by a bearing-ring, *g*, which is itself held in the ring plate or flange C in any proper manner, which valve is adapted to open in an upward direction, as shown. H, Fig. 3, also represents an auxiliary valve, of any proper construction, supported by a bearing-ring, *h*, the ring itself being held in the ring or flange plate C in any proper manner, which valve is adapted to open in a downward direction, as shown. The auxiliary valve G is adapted to resist a high pressure—say that of forty pounds; but the valve H is adapted to yield under a low pressure—say that of ten pounds. If desired, two or more valves of each kind may be employed, and these may be located on opposite sides, as indicated in Fig. 4.

I represents the piston or plunger, provided with the metallic packing *i*, as shown, which is adapted to move freely in a vertical direction within the vessel B in the manner well understood.

J represents a ring supported and held by the bearing-shoulder *a*³ of the receptacle A, which ring is provided upon its exterior surface with screw-threads, as shown.

K represents a cover-plate, of any proper construction, having an internal threaded portion adapted to engage with the corresponding portion of the ring J, as shown.

The operation is substantially as follows: The general operation of the dash-pot is like others of its class. By the descent of the piston the fluid contained in the vessel B is forced through the valve-opening below into the space upon the outside of the vessel, the resistance of the fluid to this displacement serving finally to arrest the movement. By the ascent of the piston the fluid is drawn again into the vessel. The special operation of the adjusting mechanism is as follows: When the parts are in the position shown in Fig. 1 the base-piece *e*² of the adjusting device rests upon the upper wall of the base portion of the receptacle A, so that movement in a downward direction is impossible. The lower end of the shank or rod *d*² of the valve D rests upon this base-piece, and is thus held also from downward movement. From this it follows that the bearing portion *d* of the valve is in its lowest position. Consequently the least requisite area of opening is exposed for the passage of the fluid. If it is desired to increase the area of opening when the valve seats itself, the hand-wheel is turned in the proper direction to elevate the base-piece *e*² of the frame portion the proper distance. In consequence of this adjustment the shank of the valve cannot descend so far, and hence a greater area of opening will be exposed by the bearing portion *d*. By means of the projections *e*⁵ the upward movement of the adjusting de-

vice is so limited that the valve-opening can never be entirely closed by it. When the piston ascends the valve D rises against the action of the spring *f* and permits the flow of the fluid from the outer space to the inner. When the piston begins to descend the valve D is quickly forced to its bearing, both by the reaction of the spring *f* and by the downward pressure of the fluid, so that only the predetermined area of opening is exposed for the escape of the latter.

The operation of the auxiliary valves G and H is as follows: If, from leakage or other causes, an excess of fluid shall accumulate in the vessel B below the piston, the same will, by the descent of the piston, be forced through the valve G into the chamber above the ring C, as shown in Fig. 2, and by the ascent of the piston through the valve H into the space between the vessel B and the receptacle A, as shown.

Some of the advantages of the described construction are as follows: By means of the adjusting device the area of opening for the escape of the fluid may be regulated at will by the engineer whenever change is desired. By means of the valves the dash-pot is adapted to adjust itself automatically to the changes that may occur in the quantity of the fluid.

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

1. In combination with a receptacle, A, and a vessel, B, having a valve-opening in the lower part of the vessel, as described, a valve, D, and mechanism E, substantially as described, located below the valve, for adjusting the position of the valve to increase or diminish the area of opening for the passage of the fluid, as set forth.

2. In combination with the valve D, having the shank *d*², the adjusting device having the frame portion and shank portion capable of vertical movement, substantially as described.

3. In combination with the valve D, having the shank *d*², the sleeve F and spring *f* for giving the valve its downward movement.

4. In combination with the valve, the adjusting device E, having the frame portion *e*, with base-piece *e*², vertical arms *e*³, cap-piece *e*⁴, with projection *e*⁵, and the shank portion, with screw-threads, as described.

5. In combination with the main valve D, the auxiliary valves G and H, substantially as and for the purpose described.

This specification signed and witnessed this 4th day of May, 1882.

H. S. HAYWARD.

Witnesses:

J. H. ELLIOTT,
C. A. SCHANZE.