

(Model.)

J. DESMOND.
STEAM INJECTOR.

2 Sheets—Sheet 1.

No. 330,682.

Patented Nov. 17, 1885.

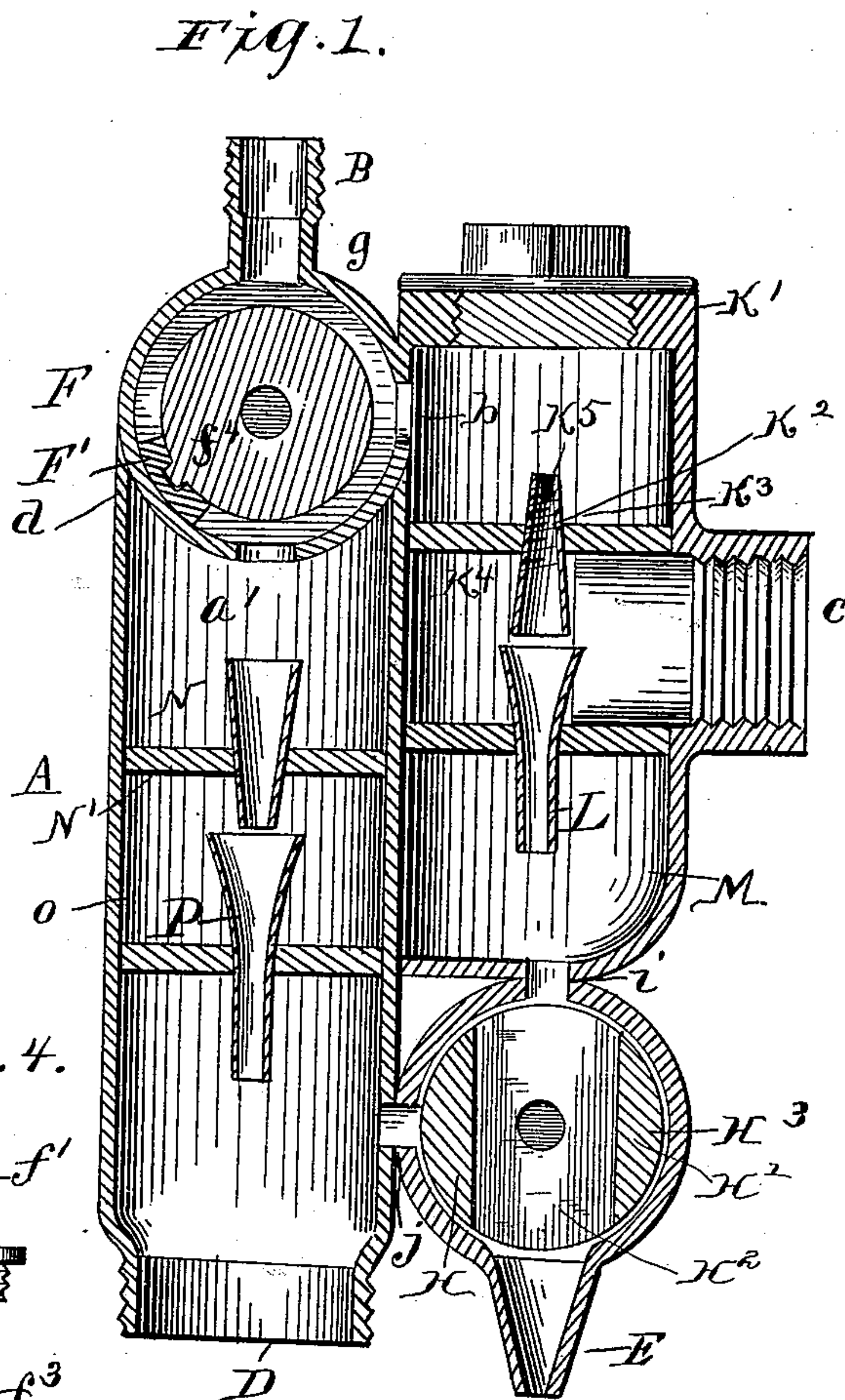
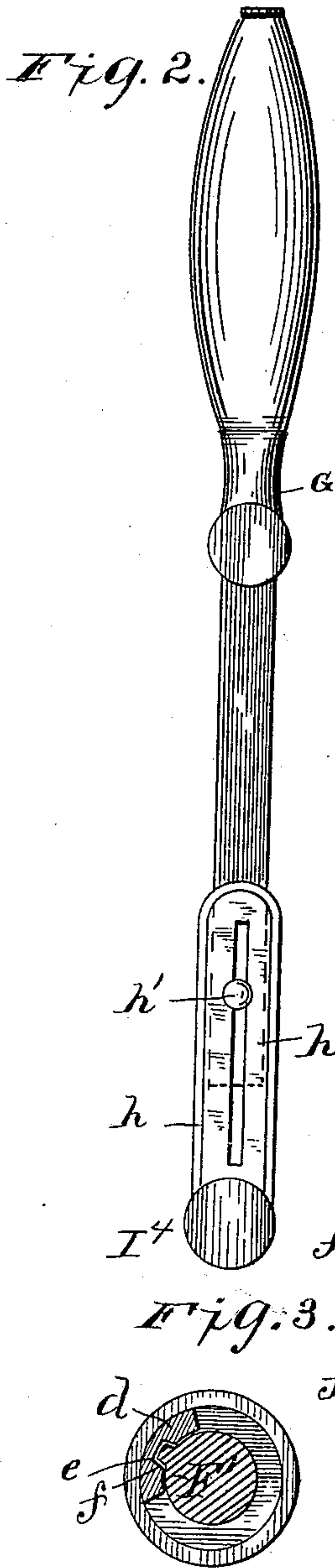


Fig. 4.

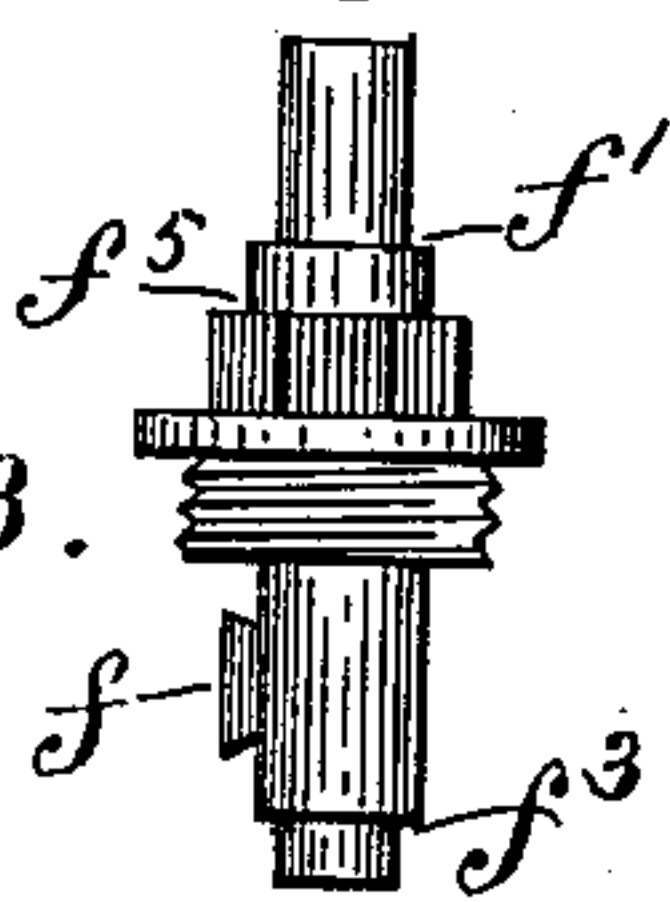


Fig. 3.

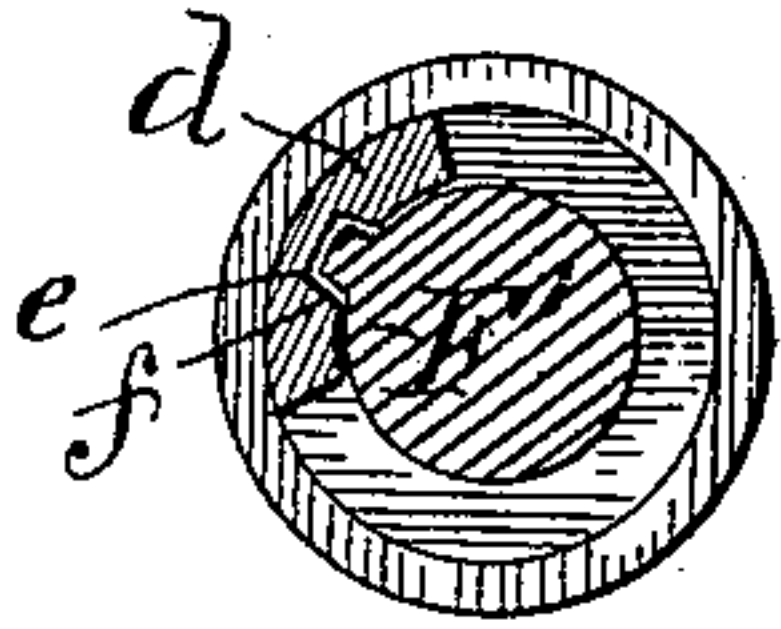
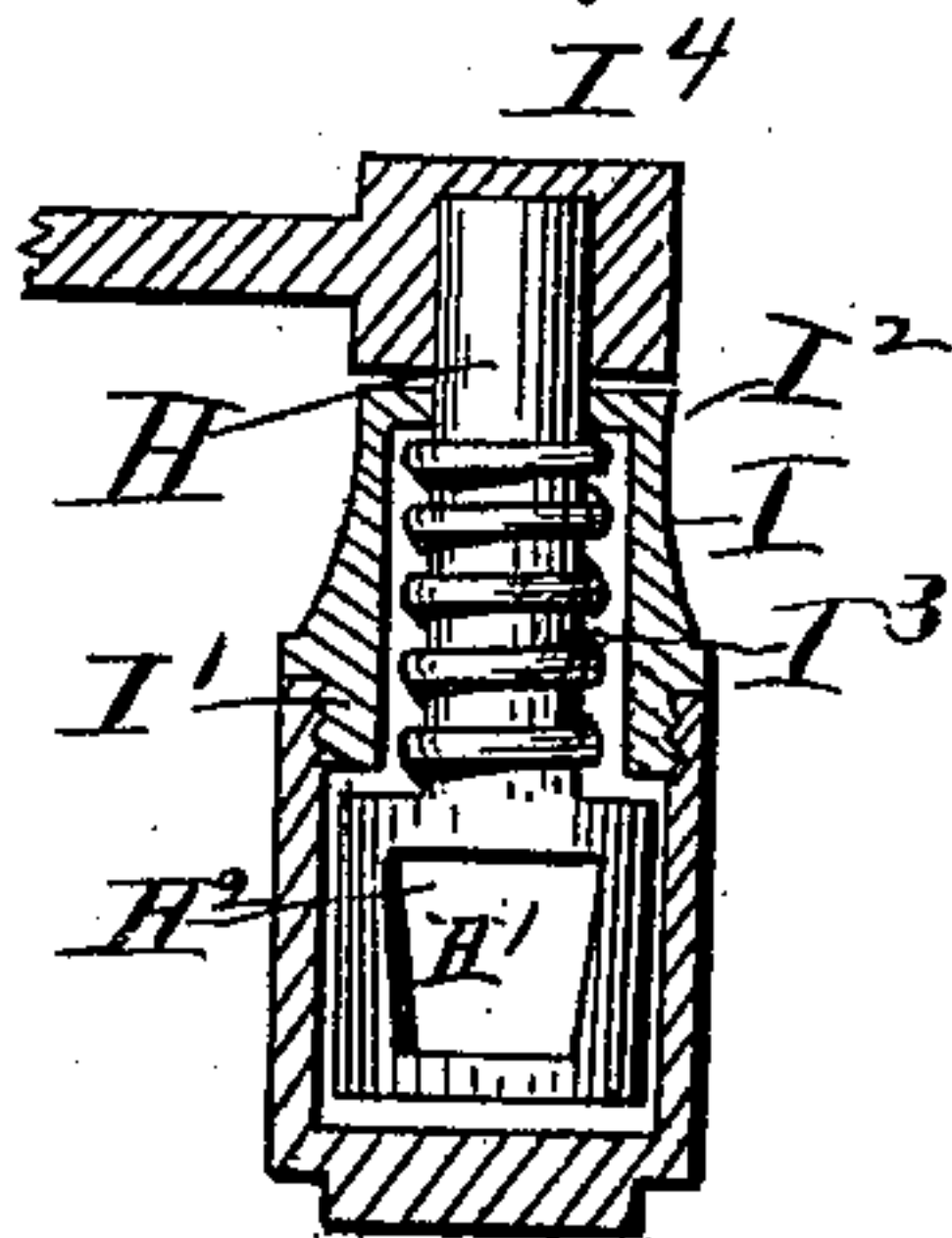


Fig. 5.



Witnesses

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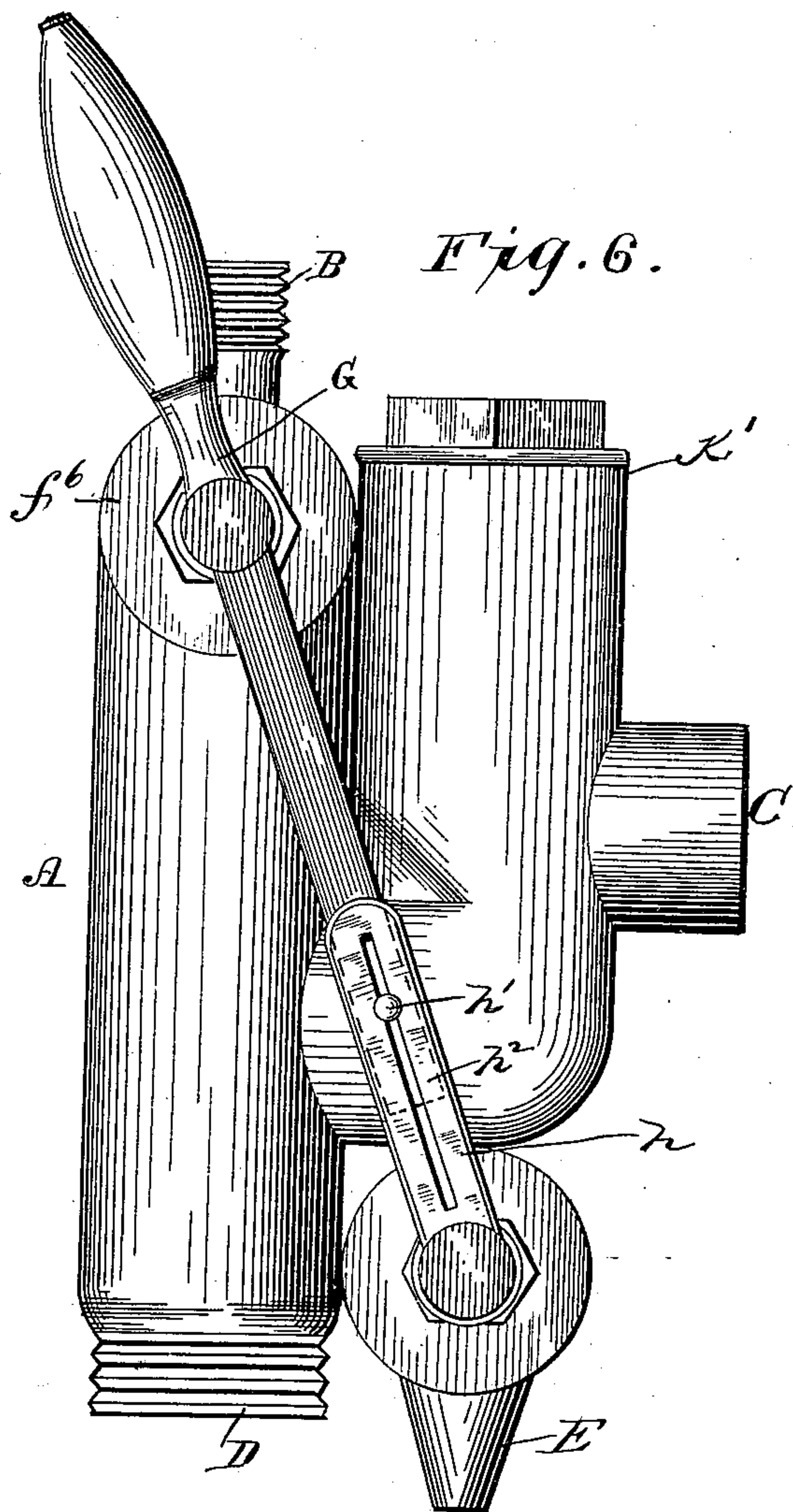
(Model,)

2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

JOHN DESMOND, OF TOLEDO, ASSIGNOR OF TWO-THIRDS, BY MESNE ASSIGNMENTS, TO JOHN V. KENNEDY, OF CLEVELAND, OHIO.

STEAM-INJECTOR.

SPECIFICATION forming part of Letters Patent No. 330,682, dated November 17, 1885.

Application filed October 21, 1884. Serial No. 146,105. (Model.)

To all whom it may concern:

Be it known that I, JOHN DESMOND, a citizen of the United States of America, residing at Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Steam-Injectors, of which the following is a specification, reference being had therein to the accompanying drawings.

My improvement in steam-injectors consists in the novel arrangement of its chambers connected by tubes and valves, in the peculiar construction of the valves and slide-lever for operating them, and in the combination and arrangement of the parts, substantially as hereinafter more fully shown and described.

In the accompanying drawings, Figure 1 is a longitudinal sectional elevation, Figs. 2, 3, 4, and 5 are detail views, and Fig. 6 is a side elevation, of my invention.

In carrying out my invention I cast integral the metallic chamber A, comprising several partitioned-off compartments, the steam-nozzle B, the water-supply nozzle C, the water-outlet nozzle D, and the overflow-pipe E, and construct the valve-seat F with apertures *a* and *b*.

The valve F', a cross-section of which is shown in Fig. 3, consists of the metallic slide *d*, conformed to the interior contour of the valve-seat, and having recess *e*, for reception of tongue *f* of journal *f'*, the metallic slide *d* being caused to register as a valve with the steam-port *g* and apertures *a* and *b* (see Fig. 1) by means of said journal *f'*, actuated by means of the slide-lever G, through which it projects. The journal *f'* is provided with the shoulder *f*³, (see Fig. 5,) which is adapted to a coincident recess, *f*⁴, in its valve-chamber, and is also provided with a corresponding shoulder, *f*⁵, which, in conjunction with the screw-cap *f*⁶, retains the journal actuating the valve mechanism in its precise position therein.

The slide-lever G is constructed in sections, the handle-section being jointed to the longitudinally-slotted section *h* by means of pin *h'*, having an enlarged head projected through the guide-bar *h*² of the slotted section *h*, the pin *h'* being rigidly connected to the handle-section of the slide-lever. The slotted con-

nection *h'* of the slide-lever has rigidly secured thereto the valve-rod H, having integral therewith the valve H', which is adapted as to size to fit the valve-seat of valve-chamber H³, and is provided with the transverse aperture H², which is designed to register with the ingress-port *i*, the egress-port *j*, and the overflow-pipe E of the valve-chamber H³.

The screw-cap I, which rotates freely on the valve-rod H, which projects through a central orifice therein, is threaded at I', and adapted to a coincident female screw provided in the interior part of valve-chamber H³. The screw-cap I is provided with a recess and a shoulder at I², for reception of spiral spring I³, which is designed to hold the screw-cap tightly against the hollow cap I⁴ of the slotted section *h* of the slide-lever G, and thus to prevent any leakage at that point, the hollow cap I⁴ and valve-rod H being rigidly secured together.

The operation is as follows: The valve *d* is caused to register with the steam-port *a*, thus admitting steam from the steam-supply pipe through nozzle B and port *g*, which finds outlet through steam-port *b* into chamber K, which is closed by screw-cap K', and which chamber has a threaded orifice provided in its dividing-wall K², wherein tube K³, having male screw K⁴ and screw-driver slot K⁵, is inserted, the screw-driver slot K⁵ being designed to enable it to be tightly screwed into the threaded orifice. Steam having been first admitted, as aforesaid, thereupon simultaneously with the opening of steam-port *g* and closing of the port *b*, the slide-valve H' is caused to close the overflow-pipe E, and hence the steam forces water flowing from a conduit connected with a well through nozzle C and tube L into chamber M, and thence through aperture *i* into valve-chamber H³, and the water thereupon passes through aperture *j* and ascends to valve-chamber F, whereupon the steam-valve *d* is caused to close the outlet-port *b* and open the outlet-port *a*, when the water is forced through tube N provided in the partition-wall N', from thence into chamber O, and from thence through tube P into the outlet-nozzle D, having suitable connection with the steam-boiler.

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

- 5 1. A steam-injector consisting of metallic chamber A, comprising inclosed compartments connected by tubes, valves *d* and *H'*, and slide-lever G, substantially as shown and described.
2. The combination of chamber A, having compartments, connecting-tubes, nozzles, and
10 an overflow-pipe, with valves F and *H'*, operated by a slide-lever, G, substantially as shown, and for the purpose described.
3. The combination of the valve *H'*, spiral spring *I*³, and slide-lever G, having cap *I*⁴, for
15 making a tight joint, substantially as shown and described.

4. A steam-injector operated by a slide-lever in connection with valves and compartments connected by tubes, said lever consisting of two sections, one of said sections carrying a pin entering a slot of the other section, substantially as shown, and for the purpose described. 20

In testimony whereof I affix my signature in presence of two witnesses.

JOHN DESMOND.

Witnesses:

J. NOTA MCGILL,
H. J. SCHNEIDER.