

(No Model.)

P. FYFE.
STEAM TRAP.

No. 380,281.

Patented Mar. 27, 1888.

Fig. 1.

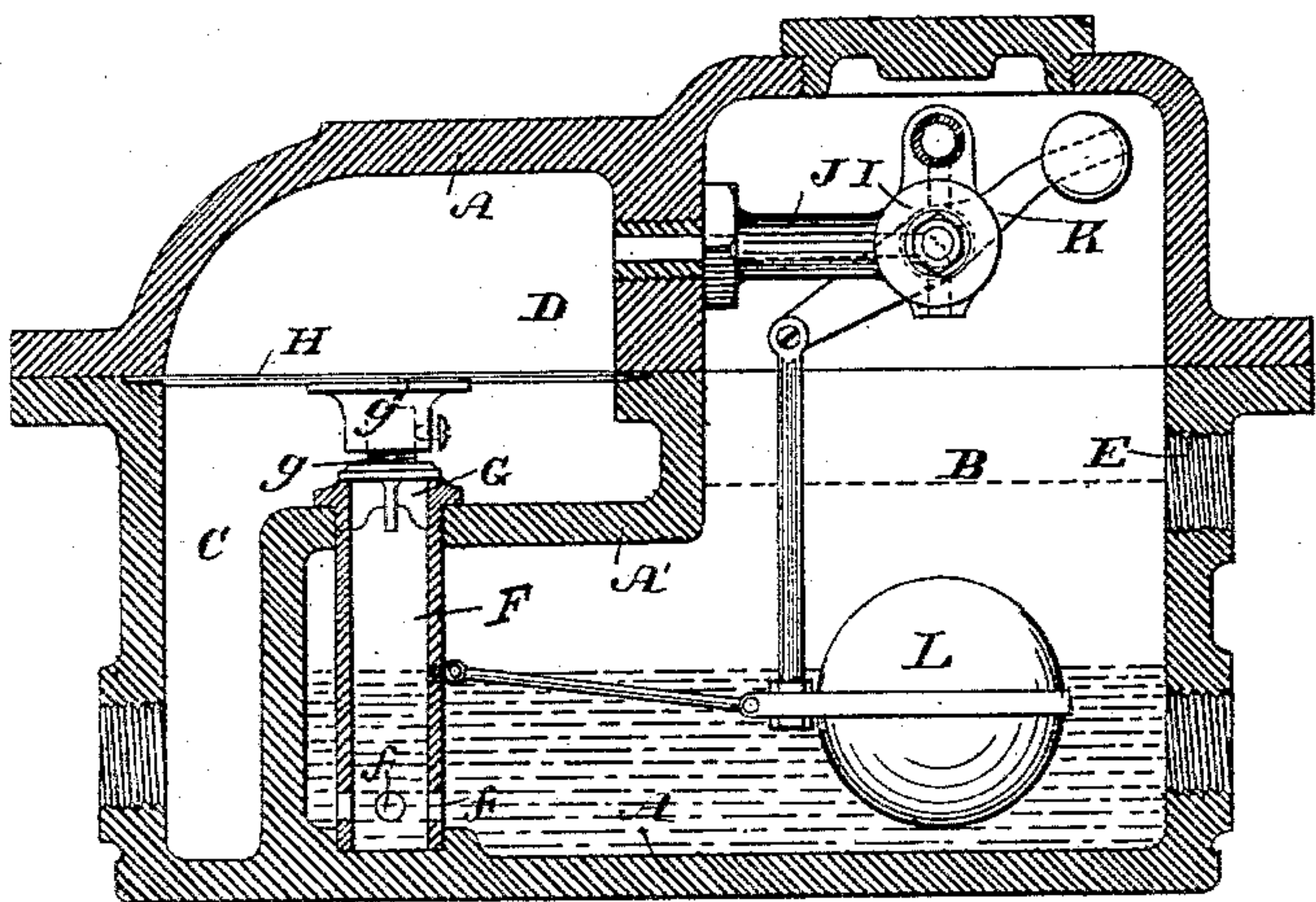


Fig. 2.

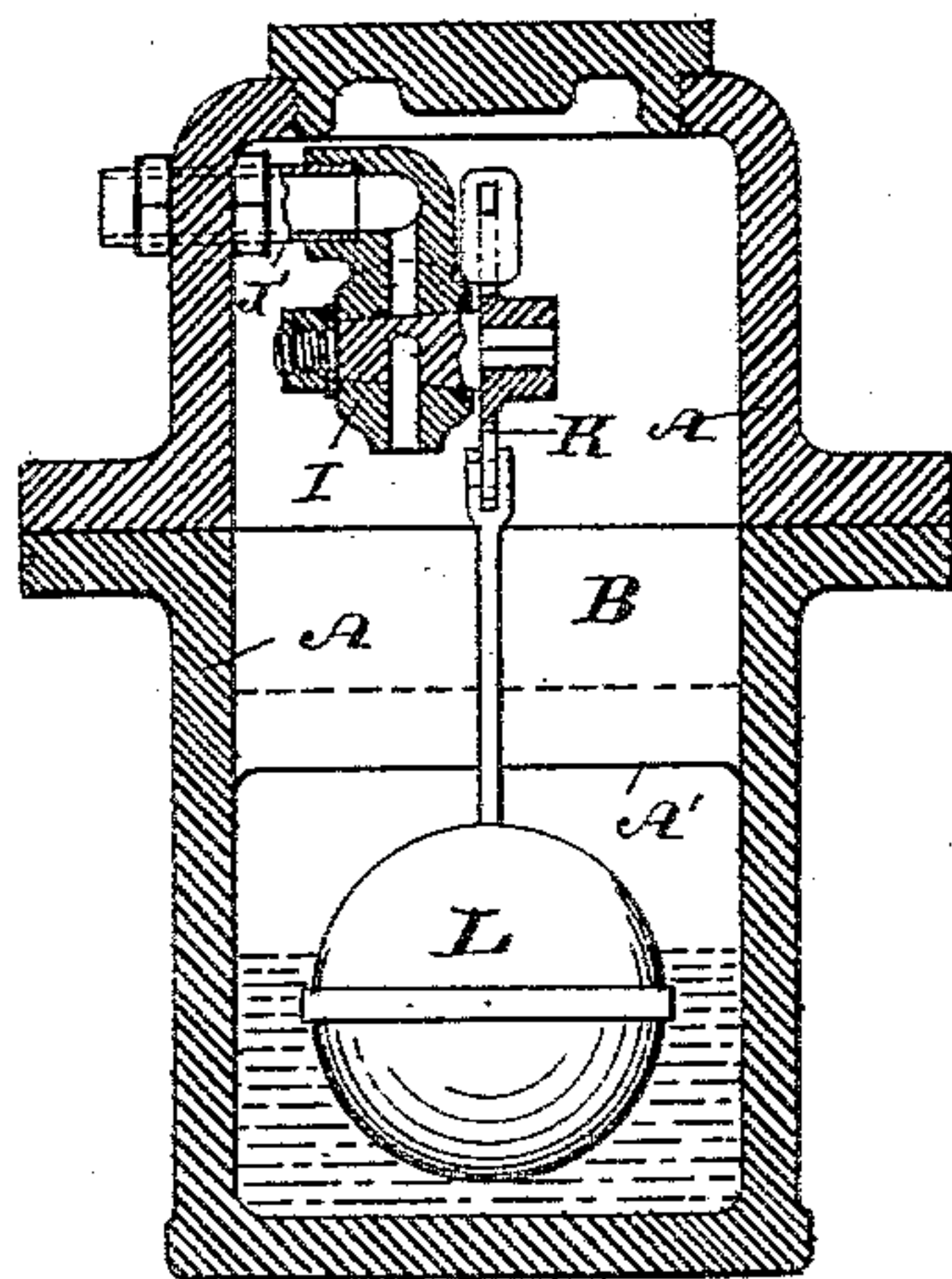
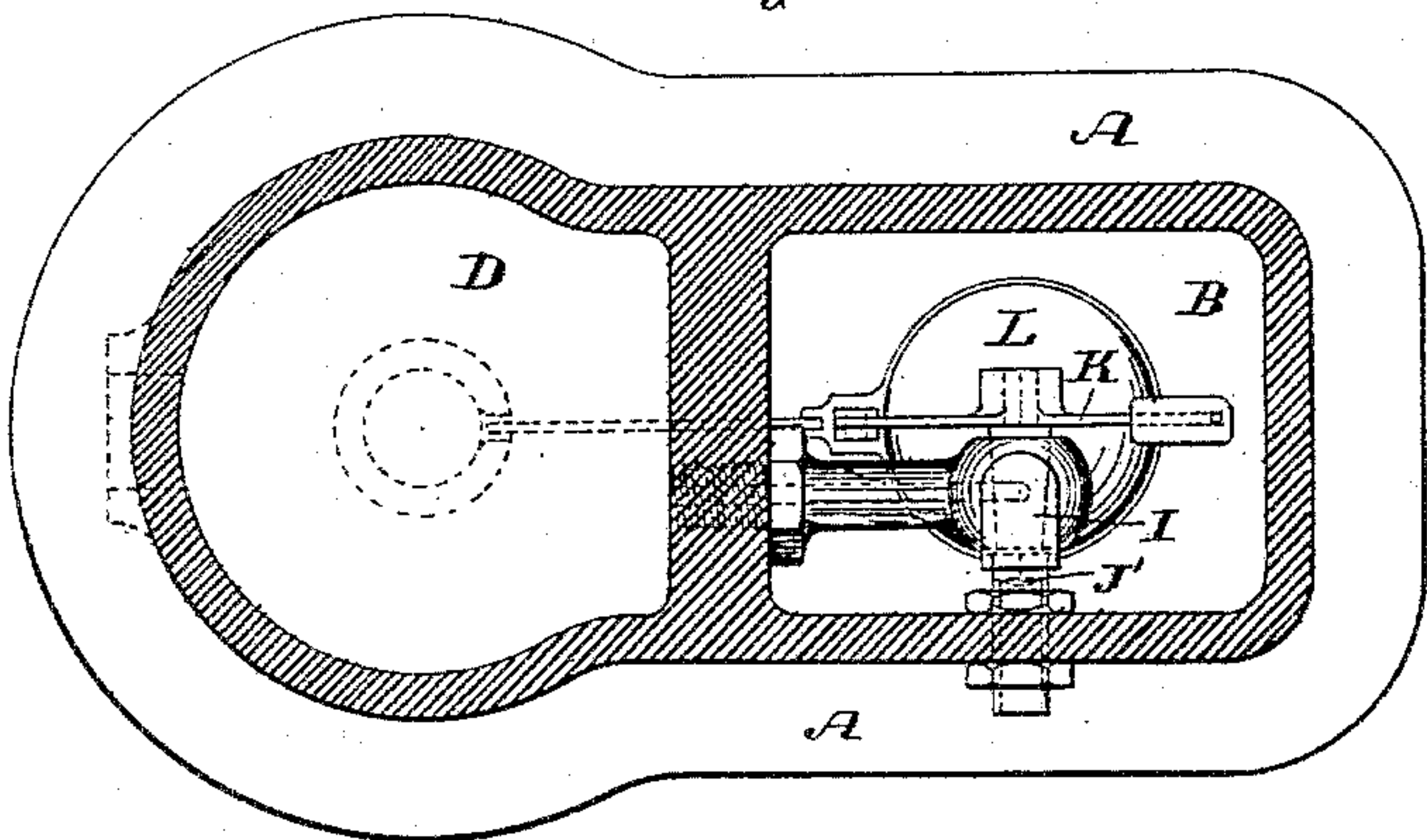


Fig. 3.



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UNITED STATES PATENT OFFICE.

PETER FYFE, OF GLASGOW, COUNTY OF LANARK, SCOTLAND.

STEAM-TRAP.

SPECIFICATION forming part of Letters Patent No. 380,281, dated March 27, 1888.

Application filed December 6, 1887. Serial No. 257,142. (No model.) Patented in England November 10, 1887, No. 15,345.

To all whom it may concern:

Be it known that I, PETER FYFE, a citizen of the United Kingdom of Great Britain and Ireland, residing at Glasgow, in the county of Lanark, Scotland, have invented new and useful Improvements in Steam-Traps, (for which Letters Patent No. 15,345 were granted to me in Great Britain November 10, 1887;) and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the manufacture or art to which it relates to make and use the same.

My invention relates to improvements in steam-traps, whereby such traps are rendered intermittent in action as regards the discharge of water accumulating therein, the water being automatically blown off at the full bore of the outlet-valve, instead of as in ordinary traps, a constant "drip," accompanied by the escape of steam, taking place.

As represented in longitudinal vertical section at Figure 1, in cross-section at Fig. 2, and in plan with the top part or cover removed at Fig. 3 of the annexed drawings, the improved steam-trap consists of a covered casing, A, which is divided by a web, A', and disk H into three compartments, B, C, and D, to the main one, B, of which the water and steam from the pipe or vessel to be drained is admitted by an inlet, E, while the second one, C, serves as an outlet for the water discharged from the first, and the third compartment, D, is intermittently and automatically placed in communication with the steam-space of the first-mentioned compartment, in the manner hereinafter described, for the purpose of operating the discharge-valves. Toward its lower end the web A' extends into the compartment C, and has fitted in it a tube, F, forming a seat for a valve, G, through which, when it is raised, the water in the compartment B is discharged, the water passing out by small orifices *f* in the lower end of the tube F. Between the compartments C and D an elastic disk or diaphragm, H, preferably of metal, is secured, and upon the admission of steam under pressure to the compartment D this disk H bears down upon a flanged piece, *g*', which is screwed or otherwise adjustably attached to the upper end of the valve-spindle *g*, and thereby closes the valve, while upon the discharge of the

steam from the compartment D and the pressure upon the disk H being relieved the valve is raised by the pressure of the steam upon the surface of the water in the compartment B, and permits of the escape of the water, which, being discharged under pressure, may be led to a point at a higher level. The alternate admission and discharge of the steam to and from the compartment D to control the operation of the valve G are effected by a three-way cock, I, placed in the pipe J, which constitutes the means of communication between the compartments B and D, the said cock I being operated by a lever, K, having attached to it a float, L, which rises and falls with the variation of level of the water accumulating in the trap. When the water-level in the trap is low and the float is in the position indicated at Fig. 1, the chambers B and D are in communication through the pipe J, the cock L being in a position to allow free passage of steam, and the discharge-valve G is kept closed; but upon the water rising to the level indicated by the dotted line the cock I is by the action of the float L and lever K turned to a position in which such communication is closed and the compartment D is open to the atmosphere, the steam in said compartment escaping through the cock I and a branch pipe, J'. The pressure upon the disk H being relieved, the valve G is opened and the water forced out of the trap until the level is reached, at which the float in sinking turns the cock I to close communication with the atmosphere and open communication between the compartments B and D. The valve G being thereupon firmly closed, the discharge of water ceases.

Having now particularly described the invention, what I desire to claim and secure by Letters Patent is—

1. In a steam-trap, the combination of the water and pressure chambers B D, the former provided with a discharge-valve, and having in it a float operating a cock or valve in a pipe communicating with the pressure-chamber, and the said chamber D having a disk or diaphragm bearing on the discharge-valve and acted on by variations of pressure produced by the operation of said cock, substantially as described.

2. In a steam-trap, the combination, with

the discharge-valve, of the pressure-chamber D, provided with a disk or diaphragm bearing on said valve, and a three-way cock, I, controlled by a float in the trap for operating
5 the said valve, substantially as hereinbefore described.

3. The combination, with a casing having ports, and a web with openings therethrough, dividing said casing into compartments, a
10 flexible diaphragm dividing one of said compartments between said openings, a float, and

valves in said openings adapted to be operated alternately by said diaphragm and float, for the purpose set forth.

In witness whereof I have hereunto set my hand and seal this 5th day of November, 1887.

PETER FYFE. [L. S.]

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