

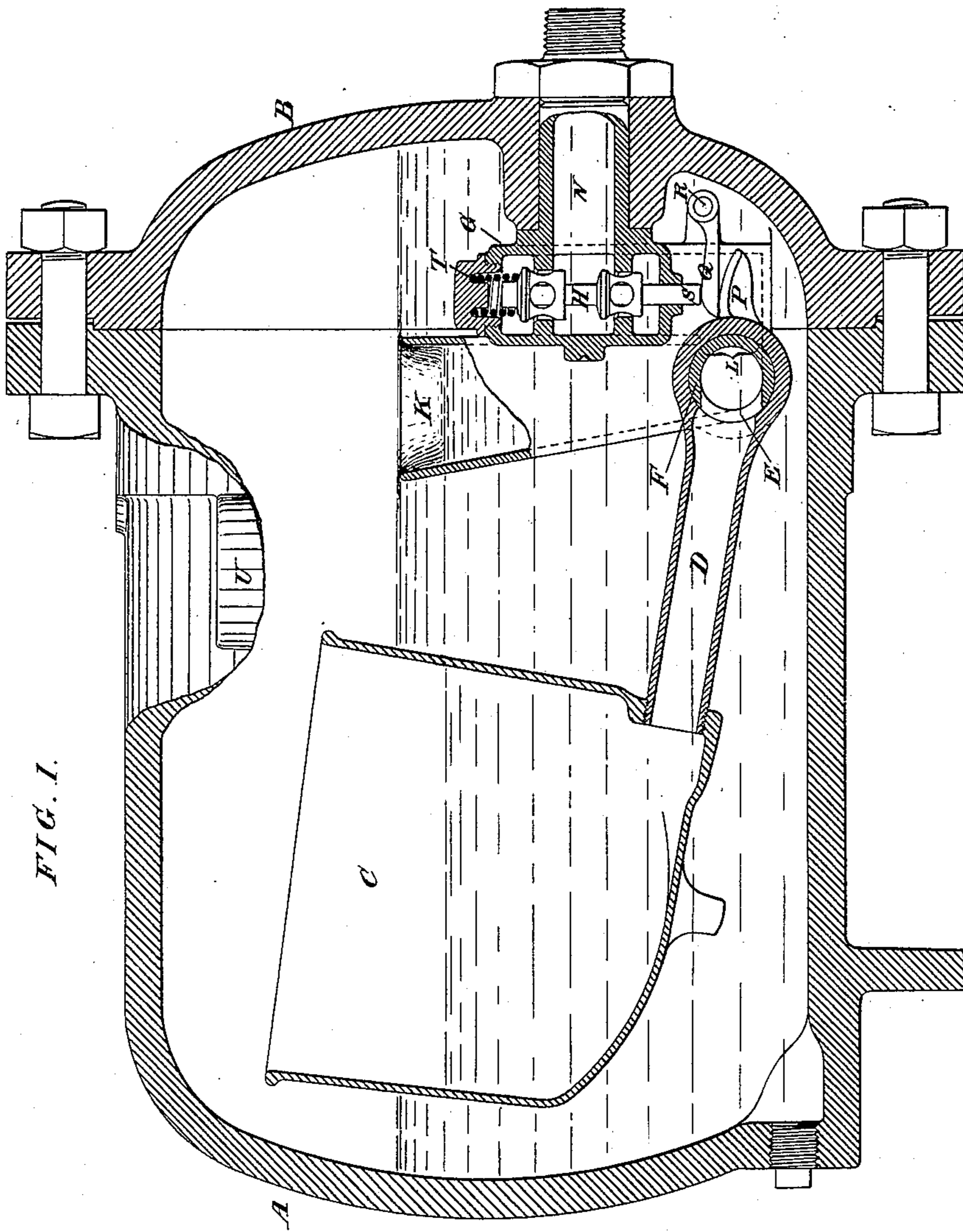
(No Model.)

2 Sheets—Sheet 1.

A. A. GOUBERT.  
STEAM TRAP.

No. 464,018.

Patented Dec. 1, 1891.



WITNESSES:

*H. Marler*  
*Edw. Graham*

INVENTOR

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BY

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ATTORNEY

(No Model.)

2 Sheets—Sheet 2.

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FIG. 3.

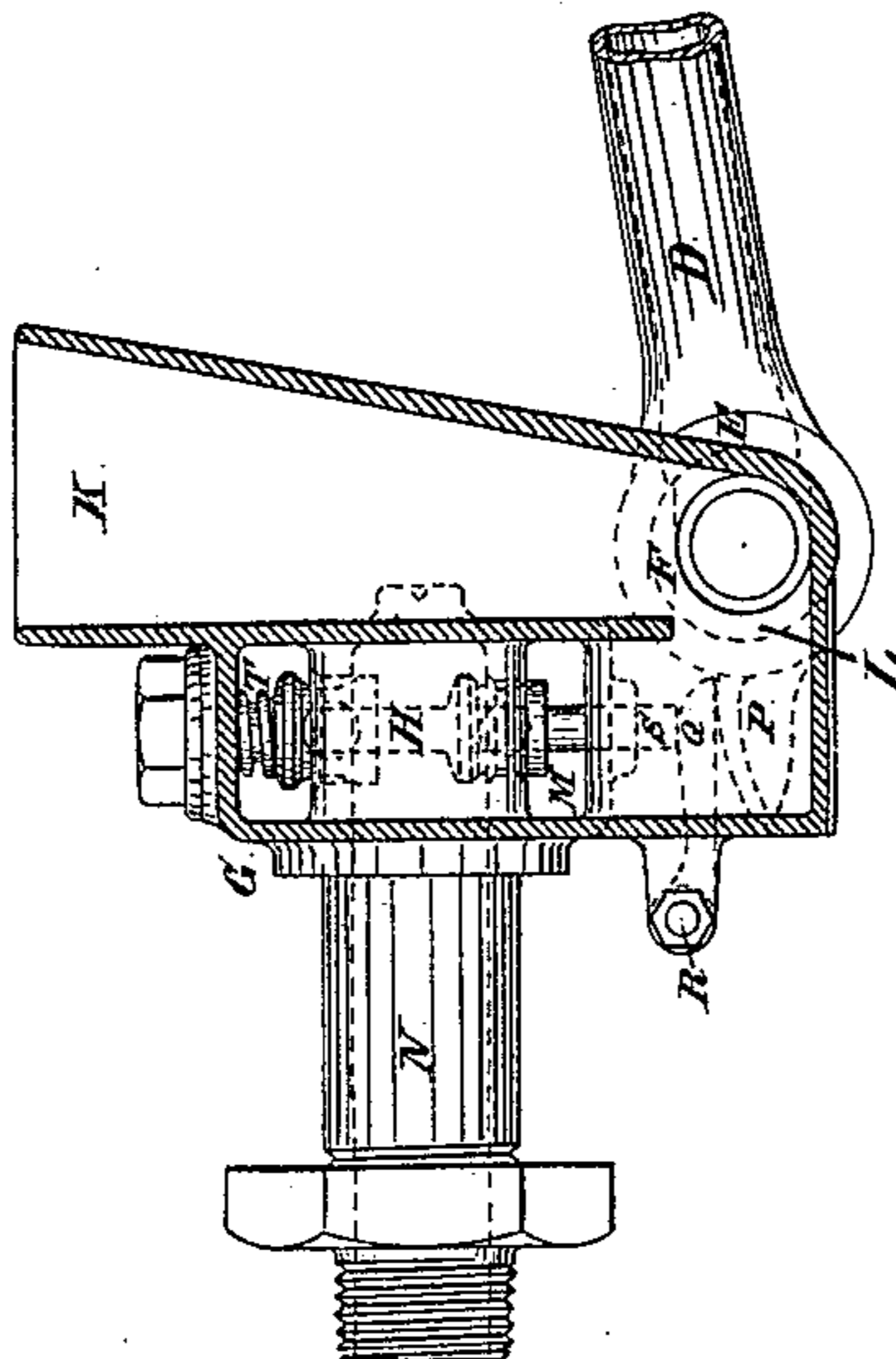
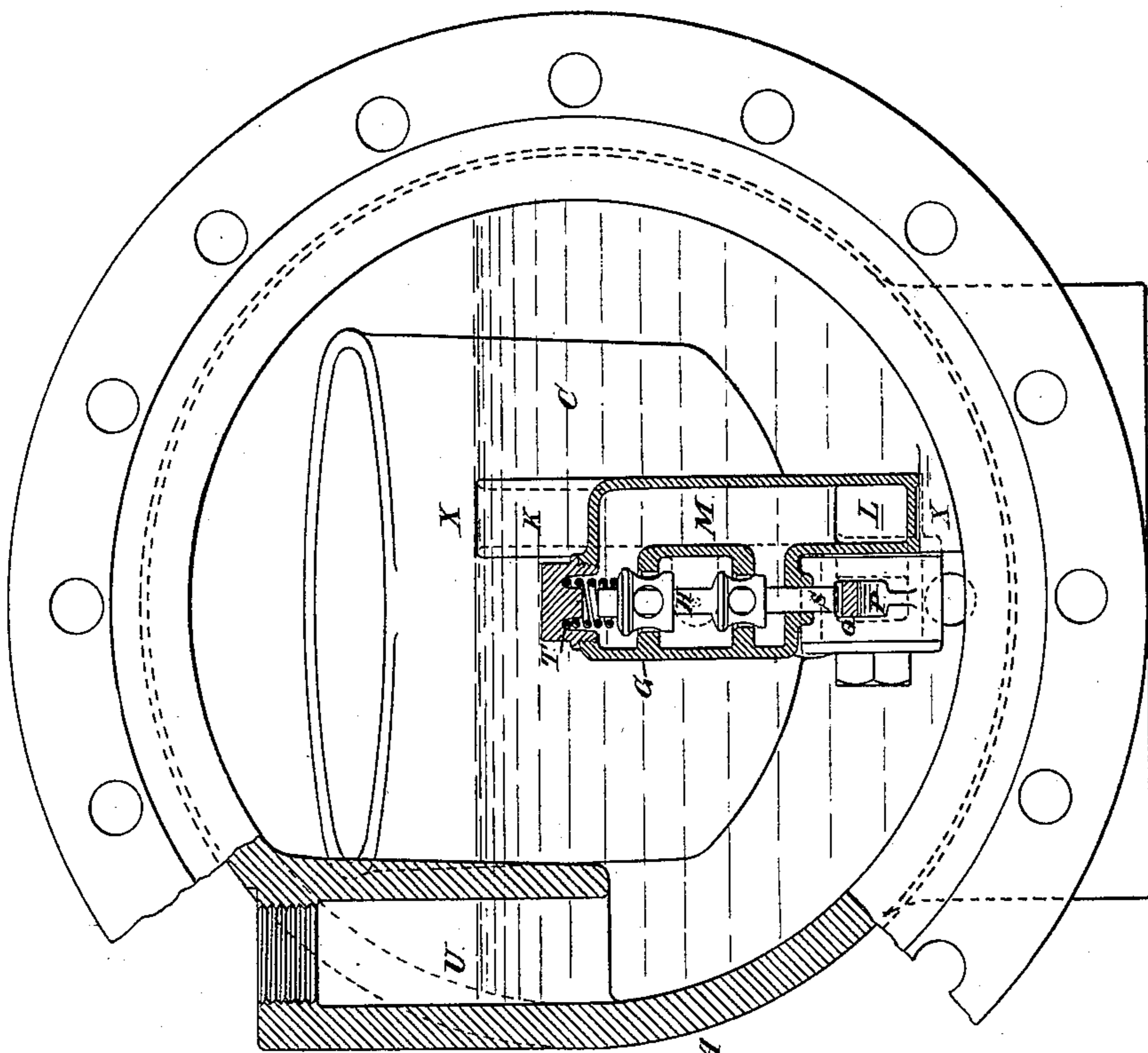


FIG. 2.



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# UNITED STATES PATENT OFFICE.

AUGUSTE A. GOUBERT, OF BROOKLYN, NEW YORK.

## STEAM-TRAP.

SPECIFICATION forming part of Letters Patent No. 464,018, dated December 1, 1891.

Application filed May 22, 1891. Serial No. 393,679. (No model.)

*To all whom it may concern:*

Be it known that I, AUGUSTE A. GOUBERT, residing at Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Steam-Traps, of which the following is a specification.

My invention relates to that class of steam-traps for the automatic discharge of the water of condensation in which the discharge-valve is actuated by means of an open float or bucket. In such traps as ordinarily made the valve remains closed until the water has risen to a sufficient height to overflow the edge of the bucket, filling the latter until its buoyancy is overcome, when, becoming submerged, it falls down suddenly, opens wide the discharge-valve, and the water in the bucket rushes out with all the force of the steam-pressure behind it and with a roar as of escaping steam, which is often noticed and found objectionable where such traps are used, until the bucket, being empty, rises. In such instance the rapidity of the discharge is so great that before the float has time to recover and close the valve, steam escapes, and it is then said that the trap blows steam. While that class of traps is the most reliable and the cheapest to manufacture, this very objectionable feature has caused the employment of closed floats, which, being filled with air, have considerable buoyancy, but are apt to collapse when in use under high pressures. In order to avoid these defects, I have devised a trap which is the subject of this application.

My invention consists in means for effecting the buoyancy of the float or bucket and its consequent action upon the discharge-valve in exact proportion to the amount of water entering the trap at all times.

It also consists in means for multiplying the power due to the weight of the bucket, so that its action is greatest at the time when the discharge-valve is closed with the pressure upon it, the range of motion being increased after the valve is raised from its seat and consequently renders it easy to move. This is of particular advantage where high steam-pressures are used, and the trap, designed as shown in the drawings, is calculated to work freely under a steam-pressure of two hundred pounds per square inch.

In the drawings, Figure 1, Sheet 1, is a longitudinal vertical section through the center of the trap. Fig. 2 is an end view with the bonnet removed and the valve-box shown in section. Fig. 3 is a view of the valve-box in section through the line X X of Fig. 2.

A is a casing of cylindrical shape, with spherical ends. B is the bonnet or end cover of the same.

C is an open float bucket made of such depth that its upper edge is always above the level of the water, so that it never can be submerged.

D is a hollow arm communicating at one end with the interior of the bucket C and at the other end through an opening E with the interior of the hollow trunnion F, upon which it is able to rotate.

G is a hollow valve-box having two seats for the partially-balanced valve H.

K is a vertical overflow-passage communicating through the hollow trunnion F and arm D with the interior of the bucket C, and also through the opening L at its lower end with the passage M, that communicates with the two openings of the double-seated valve H.

N is a hollow sleeve through which the water is discharged out of the trap.

P is a cam cast on or otherwise secured to the arm D.

Q is a toe or lifter moving freely upon the pin R, and which actuates the stem S of the valve H.

T is a spring pressing upon the toe of the valve H and serving to keep the latter to its seat.

U is the inlet admitting the water of condensation to the casing.

The operation of the trap is as follows: The casing A having been previously filled with water up to the level of the upper edge of the overflow K, the bucket C has risen on account of its buoyancy and allowed the valve H to close. If now the water of condensation arrives through the inlet U, it rises above the edge of K and overflows. The valve being closed, the water passes through the hollow trunnion F and the arm D into the bucket C until enough has entered C to overcome its buoyancy, when any additional amount causes it to sink proportionally, and the cam P, acting upon the toe Q, raises the stem S

and the valve H, allowing some of the water to discharge. As long as the amount of overflow is equal to the amount discharged the apparatus will remain stationary; but should  
5 the overflow be greater than the valve then discharges the water will back up into the bucket C and cause it to sink lower and open the valve more, while should the overflow decrease and the valve be sufficiently open  
10 to discharge a larger amount the water from the bucket C will return to the chamber K until a corresponding level is obtained, and the float, being lightened, rises, the valve closing in the same proportion, thus maintaining  
15 always an equilibrium between the parts and corresponding level of water in the respective chambers C and K, the discharge from the trap being at all times equal to the amount entering the casing. Another material ad-  
20 vantage of this arrangement is that the water level being constant the working of the trap is not affected by any accumulation of air within the casing.

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

1. In a steam-trap substantially such as described, an open float or bucket C, having its sides extended above the level of the water  
30 of condensation, the supply of the water to said float entering the same through a communicating passage K, leading to the water-level, the buoyancy of the float automatically

regulated by the height of the water in the communicating passage, said float also oper- 35  
ating a discharge-valve, so that the amount of discharge of water from the trap is equal to the amount entering the same at all times.

2. A steam-trap provided with a movable open float or bucket mounted upon a hollow 40  
lever-arm and having its sides extended above the level of the water of condensation at all times, a fixed open chamber or passage having its sides extended to the level of the water of condensation and communicating with 45  
the discharge-valve chamber, a connecting hollow trunnion upon which the float-arm rotates to permit the rise and fall of the float and forming a free passage between said float and chamber, and a discharge-valve automati- 50  
cally operated by the motion of said float.

3. In a steam-trap in which the movement of the float actuates a discharge-valve, the combination of a lever-arm D, trunnion F, rocking cam P, pivoted arm Q, and valve- 55  
stem S, relatively arranged as described, whereby the power due to the weight of the float is multiplied and its effect greatest when the discharge-valve is closed, the range of motion of the float being increased after the 60  
valve is raised to permit an easy movement thereof.

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Witnesses:

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