

No. 773,872.

PATENTED NOV. 1, 1904.

F. KNACKSTEDT.

STEAM TRAP.

APPLICATION FILED JUNE 8, 1904.

NO MODEL.

Fig. 1.

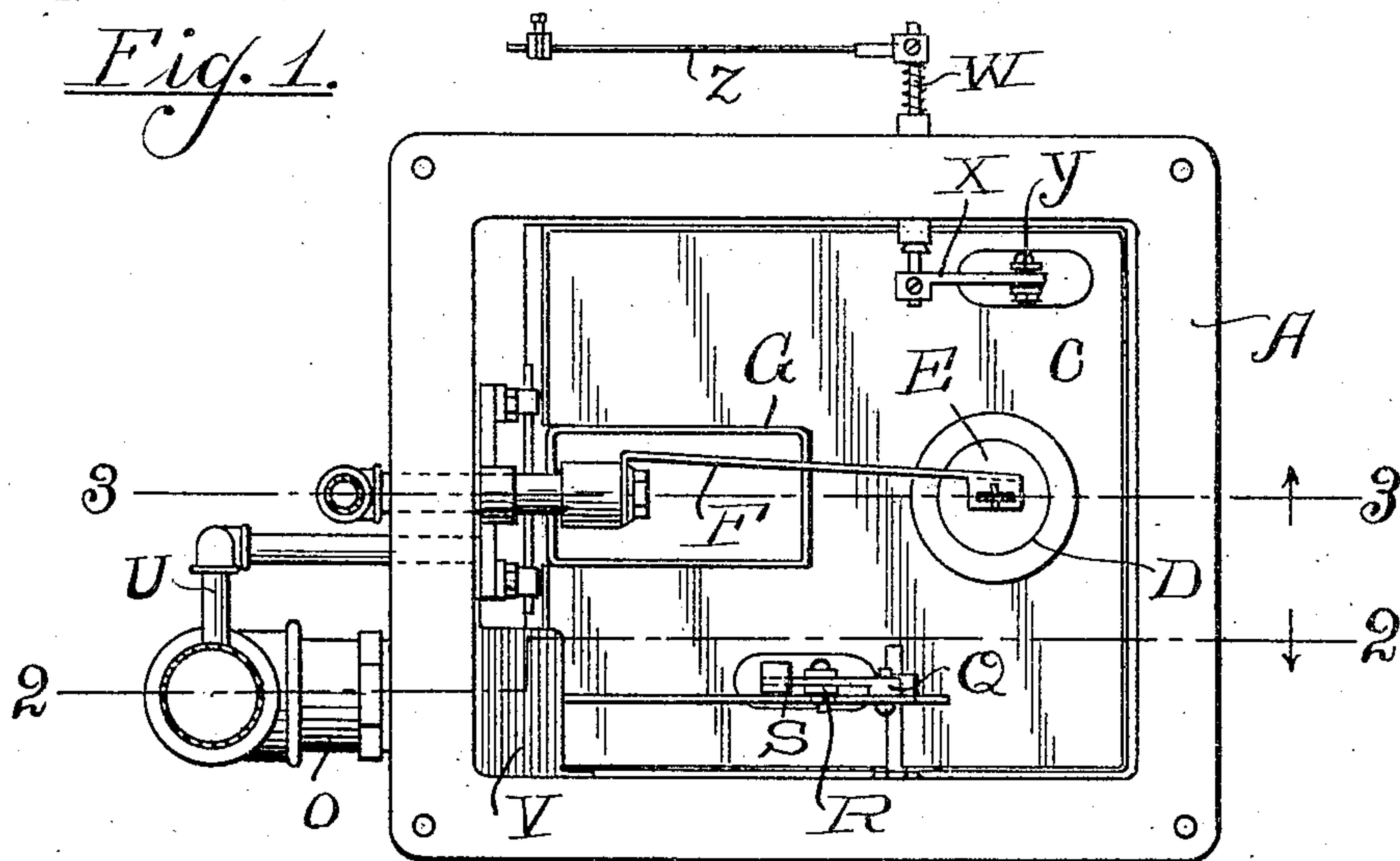


Fig. 2.

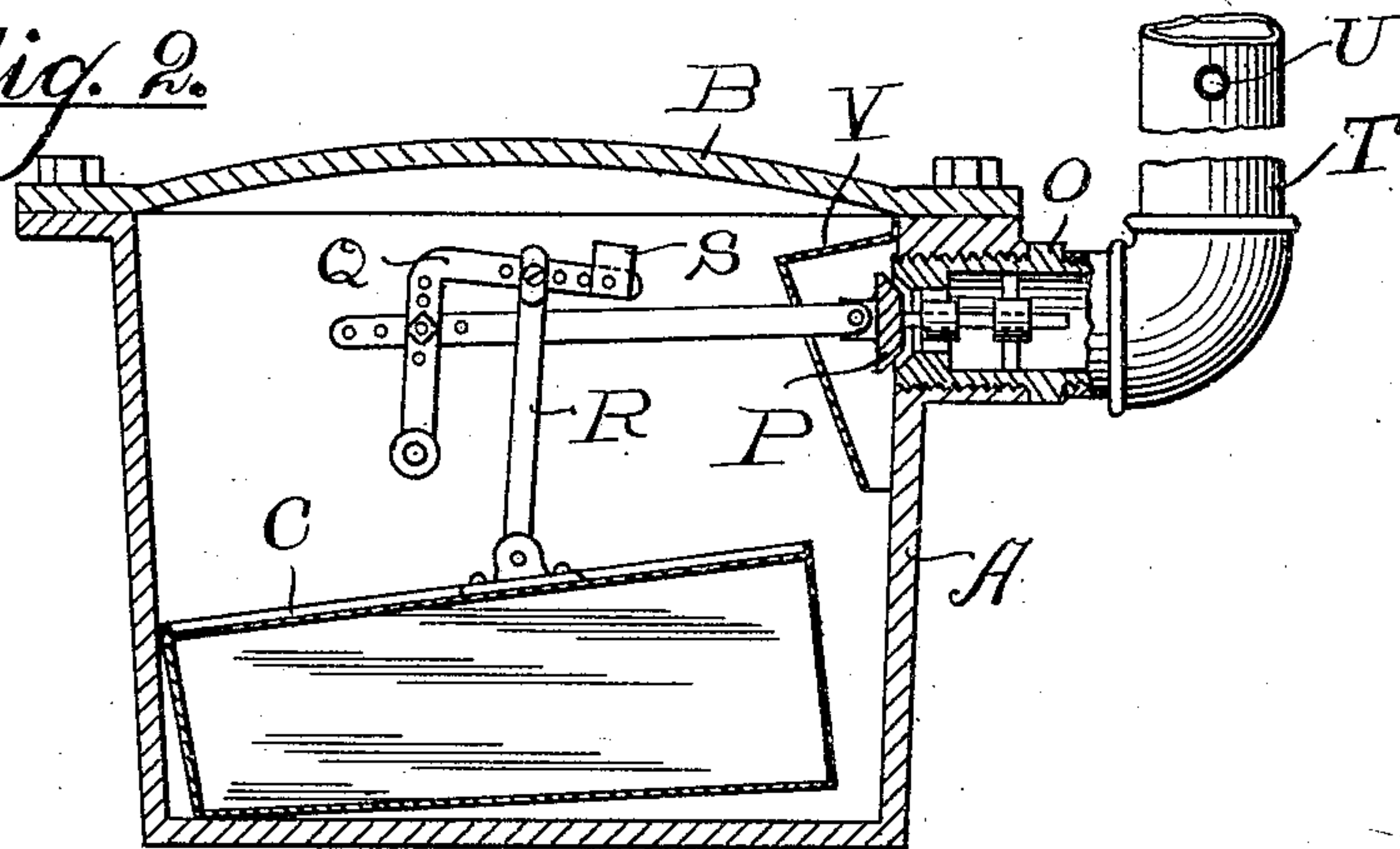
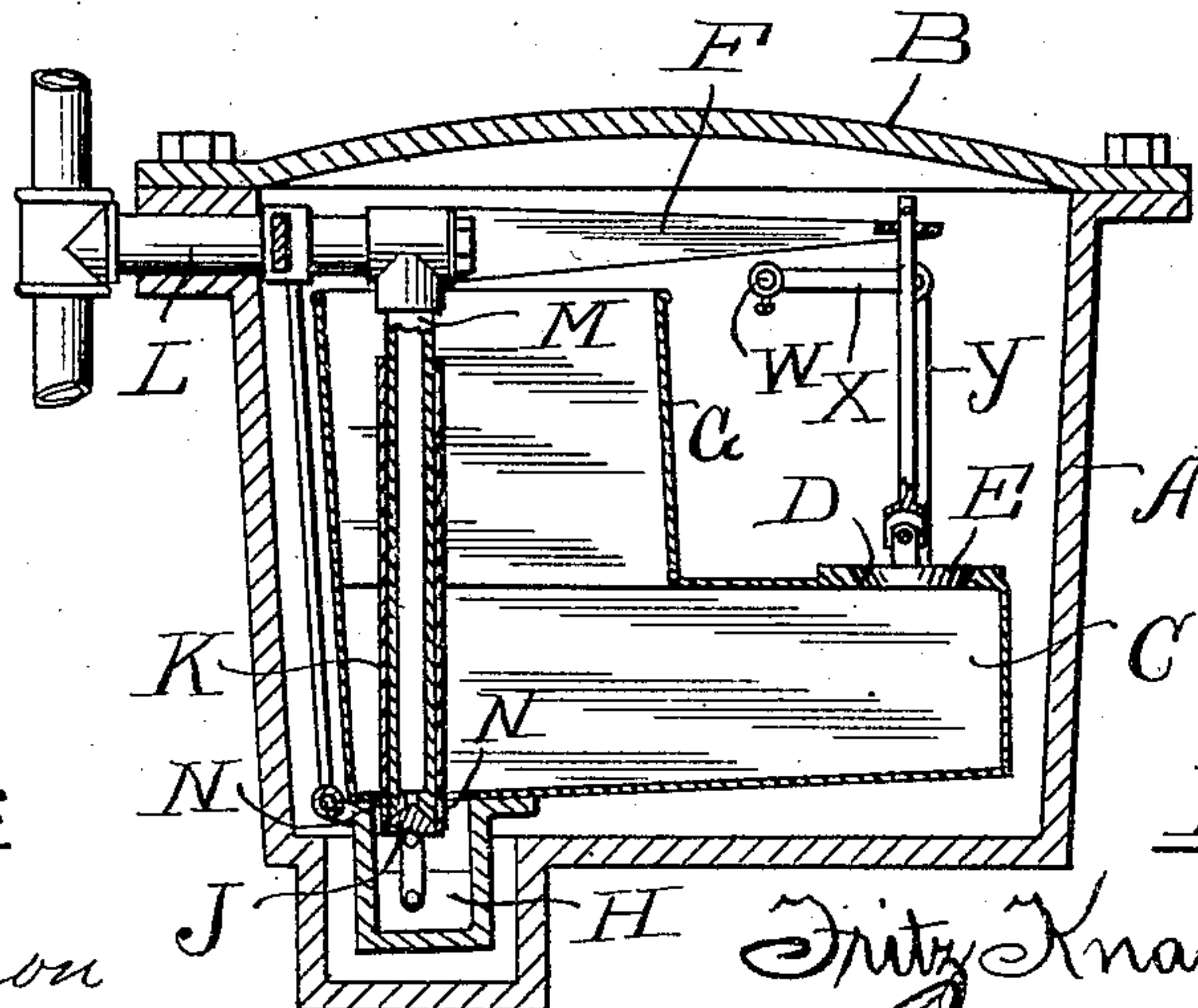


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

FRITZ KNACKSTEDT, OF CHICAGO, ILLINOIS.

STEAM-TRAP.

SPECIFICATION forming part of Letters Patent No. 773,872, dated November 1, 1904.

Application filed June 8, 1904. Serial No. 211,679. (No model.)

To all whom it may concern:

Be it known that I, FRITZ KNACKSTEDT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Steam-Traps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a novel construction in a steam-trap, the object being to provide a simple and efficient device of this character; and it consists in the features of construction and combinations of parts hereinafter fully described and claimed.

In the accompanying drawings, illustrating my invention, Figure 1 is a top plan view of a steam-trap constructed in accordance with my invention, the cover being removed. Fig. 2 is a vertical section of same on the line 2 2 of Fig. 1. Fig. 3 is a vertical section on the line 3 3 of Fig. 1.

Referring now to said drawings, A indicates a casing having a cover B. The said casing A is rectangular, and in the same a rectangular float C is pivotally mounted at one end. In the upper wall of said float is an opening D, which is controlled by a valve E, the stem of which is hung in the free end portion of an arm F and is vertically movable in the same. At one end of said float is an extension G, which rises to a point adjacent the upper end of the casing A and which forms an overflow through which the water collecting in said casing enters the said float at intervals. In the bottom of said float below said extension G is a well H, in the bottom of which a valve J is pivotally mounted, the latter being located in the bottom of a tube K. Entering said casing at the middle of one end thereof is a drain-pipe L, from which a branch M extends downwardly and fits telescopically in said tube K, the lower end of said branch pipe M forming a seat for the valve J. In said tube K are a plurality of perforations N, surrounding the valve J, through which the water enters said tube. The said valve J is operated by the upward movement of the float to shut off the flow through said pipe M. The said arm F

is secured at one end to said pipe L. Entering said casing A, adjacent the pipe L, is a pipe O, connected with the exhaust or condenser of a steam plant and through which water from condensed steam enters said casing A. The mouth of said pipe O is controlled by a valve P, which is connected, by means of a link, with one arm of an L-shaped lever Q, which is pivoted on an arm on said casing, the free end portion of said lever being connected with said float by means of link R, said float being thus connected with said valve P in such a manner that when said float is at the lower limit of its movement said valve P is closed and when said float rises said valve P is opened. The said connection between said valve P and the said float is so made as to permit of considerable lost motion, so that when said float is at the lower limit of its movement the valve P will not be entirely closed thereby, but is closed by means of a weight S on the free end of said L-shaped lever Q. Connected with said pipe O is a stand-pipe T, in which water from condensed steam collects when said valve P is closed, and from said stand-pipe above the probable height of the collected water column a small pipe U extends into said casing to equalize the steam-pressure in the latter with that of the system.

The operation of my device is as follows: Water from condensed steam enters said casing A through the pipe O, the float C being at the lower limit of its movement and the valve P being partially opened by the pressure of the water thereon and against the action of the weight S, which effects the final closing movement of said valve when the float reaches the lower limit of its movement. Such water is deflected downwardly by means of the deflecting-plate V, disposed over the mouth of said pipe O. As the water rises in said casing A the float C is raised, and during its upward movement the opening D is closed by the valve E, and the latter is then carried upward with said float. The further upward movement of said float causes the valve J to become seated on the lower end of the pipe M, thereby sealing the latter and at the same time stopping further upward movement of said float. The water continues to rise until it

overflows the extension G. Upon overflowing the extension G the water will cause said float to sink, and during its downward movement the valves J and E will obviously be
 5 opened, thus opening the drain and admitting water to the float through said opening D. The steam-pressure in said casing now forces the water out in an obvious manner until the level of water in the float is less than the level
 10 in the casing, whereupon said float again begins its upward movement, this operation being repeated at regular intervals and at each operation a given volume of water being discharged.

15 To enable the engineer to ascertain the total amount of condensed water passing through the trap in a given time, the said float may be connected with any suitable indicator by means of the shaft W, having a crank-arm X,
 20 which is connected, by means of a link Y, with said float, the outer end of said shaft being connected, by means of an arm Z, with the register.

I claim as my invention—

25 1. In a steam-trap, a casing, a valve-controlled inlet for water from condensed steam, a steam-inlet, a pivoted float, connection between the valve controlling the water-inlet

and said float for partially controlling said valve, a weight partially actuating said valve, 30 a water-outlet extending into said float, a valve carried by the latter and controlling said outlet, and an open extension on said float through which the water collecting in said casing overflows into said float. 35

2. In a steam-trap, a casing, a valve-controlled inlet for water from condensed steam, a steam-inlet, a pivoted float, connection between the valve controlling the water-inlet and said float for partially controlling said 40 valve, a weight partially actuating said valve, a water-outlet extending into said float, a valve carried by the latter and controlling said outlet, an open extension on said float through which the water collecting in said casing over- 45 flows into said float, an opening in said float below the upper end of said extension, and a valve mounted in the path of said opening and adapted to close the same when said float rises.

In testimony whereof I have signed my 50 name in presence of two subscribing witnesses.

FRITZ KNACKSTEDT.

Witnesses:

RUDOLPH WM. LOTZ,
 W. B. SNOWHOOK.