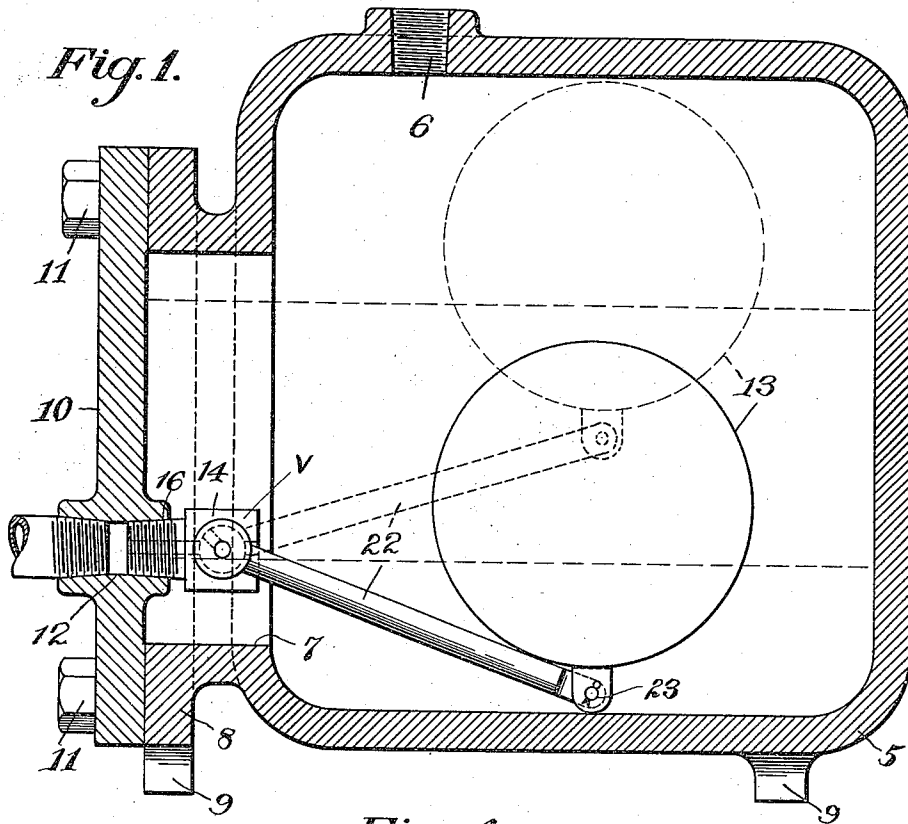
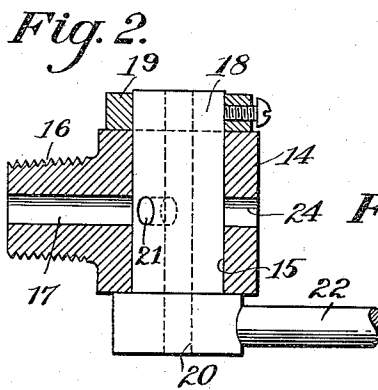
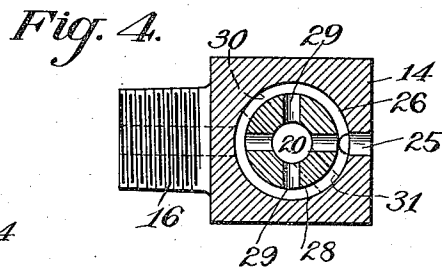
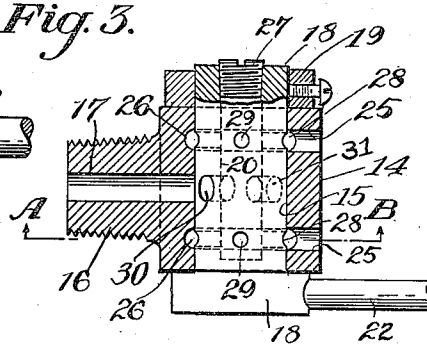


G. W. DE LANCEY.
STEAM TRAP.
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1,150,503.

Patented Aug. 17, 1915.



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UNITED STATES PATENT OFFICE.

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STEAM-TRAP.

1,150,503.

Specification of Letters Patent.

Patented Aug. 17, 1915.

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To all whom it may concern:

Be it known that I, GEORGE W. DE LANCEY, a citizen of the United States, residing in the borough of Brooklyn, county of Kings, city and State of New York, have invented new and useful Improvements in Steam-Traps, of which the following is a specification.

This invention relates to steam traps in which the level and the discharge of the waters of condensation are controlled through an outlet by a float controlled valve, and it is the object of the invention to provide improved balanced valve mechanism for steam traps which is simple and cheap in construction, durable and efficient in operation. With this object in view I provide a suitable casing having an inlet and an opening in one side adapted to be closed by a removable plate, said plate having a discharge outlet. A valve casing having a longitudinal bore has a centrally and laterally projecting screw threaded nipple to engage in the discharge outlet, said nipple having an orifice or port communicating with the bore in the valve casing. Rotatably mounted in the bore of the valve casing is a valve plug having a longitudinal bore with which communicates a transverse port located substantially central of the plug and which port is adapted to be placed in communication with the outlet port in the valve casing nipple and to which plug a float is suitably connected. The valve casing with the valve plug is located within the trap casing and is so constructed that the waters of condensation have entrance to the bore of the valve at opposite ends. A transverse port is also provided opposite to and in line with the outlet port of the valve plug so that the pressures of the water entering at opposite ends of the valve bore and passing out through the outlet port in the valve and valve casing will be counterbalanced by the force of the water entering the other transverse port and thereby balancing and permitting of the easy operation of the valve.

In the drawing accompanying and forming a part of this specification, Figure 1 is a sectional side elevation of a steam trap illustrating an embodiment of my improved valve mechanism applied thereto. Fig. 2 is a sectional plan view of an embodiment of my valve mechanism. Fig. 3 is a sectional plan view of another embodiment of my

valve mechanism; and Fig. 4 is a cross sectional view taken on the line A—B of Fig. 3 and looking in the direction of the arrows.

Similar characters of reference designate like parts throughout the different views of the drawing.

In the embodiment of my invention illustrated in the drawing, I have shown the same in connection with a trap casing 5 of suitable shape and size adapted to be supported upon feet 9 which may be integral therewith and having an inlet 6 and an opening 7 formed with a laterally projecting flange or wall 8 closed by a plate 10 removably secured by bolts 11 passing there-through and engaging in the flange 8. The cover has an outlet 12 for the discharge of the waters of condensation of the trap. The level of the waters of condensation in and the discharge thereof from the trap casing is controlled through the outlet 12 by valve mechanism (designated in a general way by V) controlled by a float 13.

The embodiment of the valve mechanism shown in Fig. 2 of the drawing consists of a valve casing 14 having a bore 15 extending longitudinally therethrough and a screw threaded nipple 16 projecting laterally and centrally from the casing adapted to engage in the outlet 12, the nipple having an opening 17 communicating with the bore 15 of the casing. Rotatably mounted in the bore of the casing is a valve plug 18 having a flanged head to abut against one end of the casing, and the plug being of such length as to project beyond the other end of the casing, a collar 19 on said projecting end abutting against the opposite end of the casing and secured thereto as by a set screw, said collar maintaining the valve plug in position in the valve casing. A bore 20 extends entirely through the valve plug and a transverse port 21 communicates with the bore and is adapted to be placed in register with the nipple opening 17. Fixed in the flange head of the valve plug is a rod 22 to which is connected the float 13, as at 23. It will be noted that the valve casing and valve is entirely within the trap casing and that the waters of condensation have access or entrance to both ends of the bore 20. The pressures of the water in the valve bore 20 and port 21 tend to force the valve plug to the side of the valve casing opposite the port 21 tending to retard the operation or rotation of the

valve plug by the float and to overcome and counterbalance the pressures through the port 21 I provide the casing with a port 24 which is in line with the nipple port 17.

5 In the embodiment of the invention shown in Figs. 3 and 4, the valve casing 14 has a pair of ports 25, 25 which are in line with semi-circular annular recesses or grooves 26, 26. The bore 20 in the valve 18 does not
10 extend entirely through the same and the open end is closed by a screw threaded plug 27. The valve plug also has circular annular recesses or grooves 28, 28 which are adapted to be in line with the grooves 26,
15 ports 29 in the valve plug communicating with the annular recesses 26 and 28 whereby the waters of condensation in the trap at all times have access or entrance to the bore of the valve plug. A port 30 communicating
20 with the bore 20 is adapted to be placed in register with the nipple port 17 as the float rises in the trap permitting of the discharge of the water from the trap through the outlet 12. To counterbalance any pressures on
25 the valve plug due to the pressure of the water through the port 30, I provide a second port 31 in the valve plug opposite to and in line with the port 30 thereby equalizing the pressures on the valve and permit-
30 ting the easy operation thereof.

It will be obvious that by removing the plate 10 the valve mechanism and float will be removed with said plate thereby permit-

ting ready access to the interior of the trap for cleaning or other purposes.

Having thus described my invention, I claim:

In a steam trap, the combination with a casing having a discharge opening, of valve mechanism to control the discharge of the
40 waters of condensation from the casing through said opening comprising a valve chamber having a bore extending longitudinally therethrough and having a nipple extending laterally and centrally therefrom,
45 said nipple having an outlet passage communicating with the bore of the chamber, a port in the valve chamber diametrically opposite to the outlet discharge in the nipple, a valve plug rotatably mounted in the bore
50 of the valve chamber having a longitudinal bore with a transverse port located centrally thereof adapted to be placed in register with the nipple outlet of the valve chamber, said
55 valve plug having a shouldered end to abut against one end of the valve chamber and being of such length so that the other end extends beyond the end of the valve chamber, a collar fixed to said projecting end of
60 the valve plug, and a float supporting stem fixed in the valve plug at one end of the valve chamber.

GEORGE W. DE LANCEY.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents Washington, D. C."