

No. 660,585.

E. E. PARKER.
STEAM TRAP.

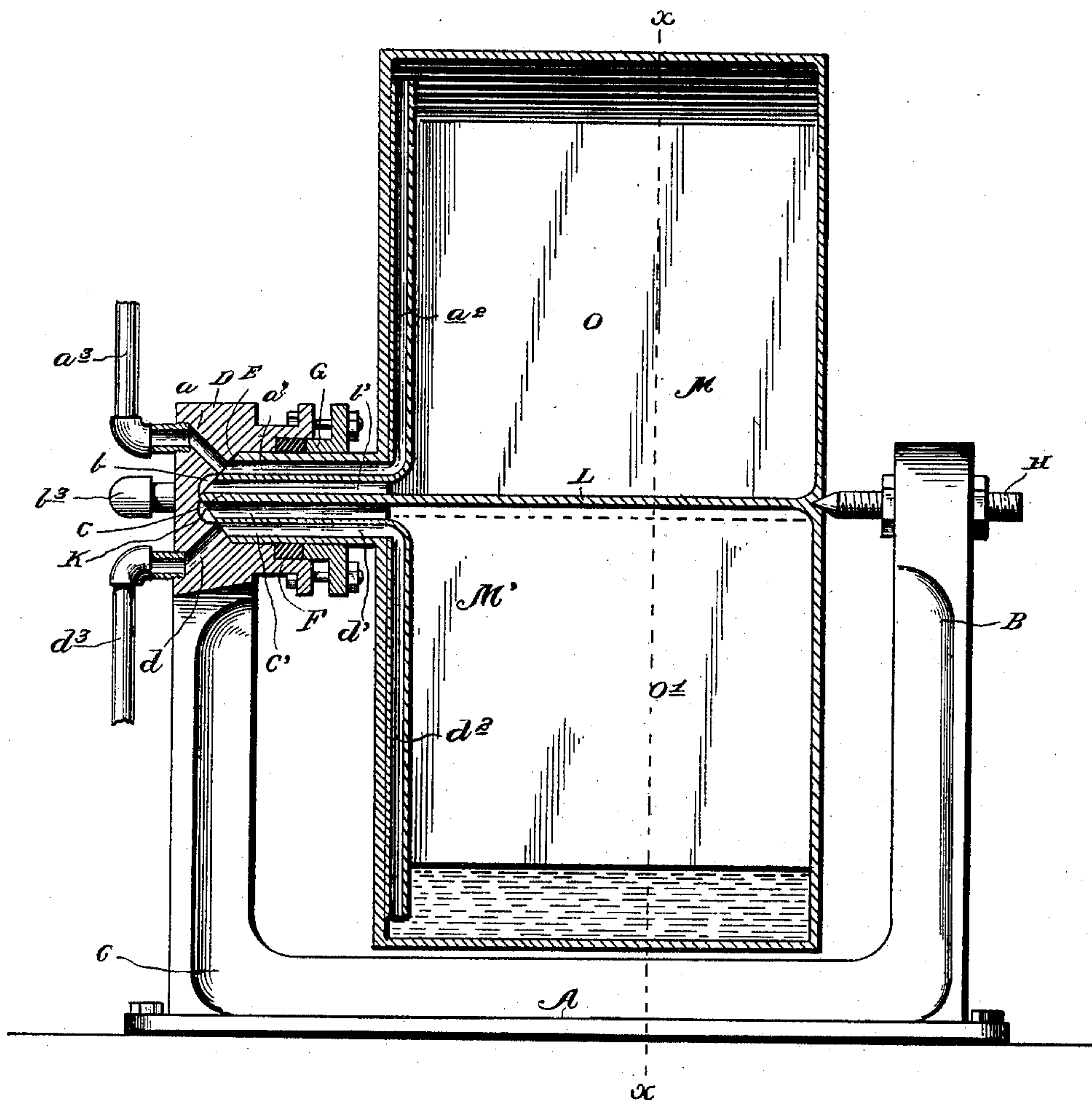
Patented Oct. 30, 1900.

(No Model.)

(Application filed Jan. 22, 1900.)

2 Sheets—Sheet 1.

Fig. 1.



Witnesses

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J. W. Garner

By *his* Attorneys,

Inventor

Edward E. Parker

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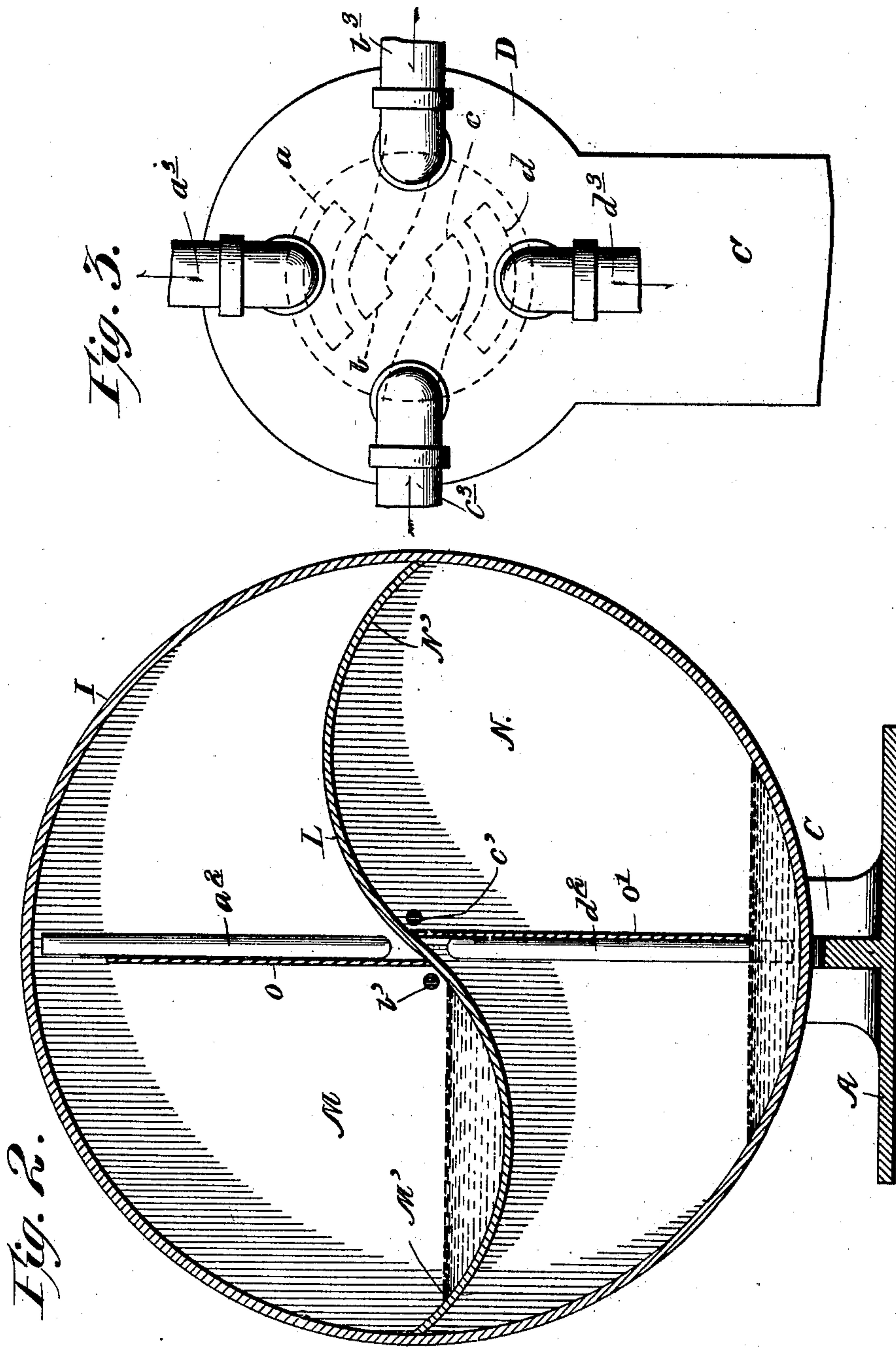
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2 Sheets—Sheet 2.



Witnesses
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UNITED STATES PATENT OFFICE.

EDWARD E. PARKER, OF WOBURN, MASSACHUSETTS.

STEAM-TRAP.

SPECIFICATION forming part of Letters Patent No. 660,585, dated October 30, 1900.

Application filed January 22, 1900. Serial No. 2,337. (No model.)

To all whom it may concern:

Be it known that I, EDWARD E. PARKER, a citizen of the United States, residing at Woburn, in the county of Middlesex and State of Massachusetts, have invented a new and useful Steam-Trap, of which the following is a specification.

My invention is an improved revoluble steam-trap designed for use in connection with heating systems and with steam-engines; and the object of my invention is to provide a steam-trap which is automatic in operation, is cheap and simple in construction, and which is adapted to take the water resulting from condensation from below the boiler-level or after steam-pressure has been reduced and return the same to the boiler.

To this end my invention consists in the peculiar construction and combination of devices hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical longitudinal central sectional view of a revolving steam-trap embodying my improvements. Fig. 2 is a transverse sectional view of the same, taken on the line X X of Fig. 1. Fig. 3 is a detail view illustrating the arrangement of the ports and communications therewith.

A bed-plate A is provided at its center with a pair of vertical standards B C, located at opposite ends of the bed-plate, the standard C being provided near its upper end with a head D, having a central conical opening E on its inner side, with which opening, at equal distances apart, communicate a series of four ports *a*, *b*, *c*, and *d*. A gland F is formed on the inner side of the said head and is provided with a suitable stuffing-box G. At the upper end of the standard B is a centering supporting-screw H. A cylindrical revoluble drum I is provided with a centrally-located trunnion K at one end, which has its bearing in the gland F and in the conical opening in the head D, and the opposite end of the drum is supported by the centering-screw H, as shown, and thereby the drum is permitted to rotate freely between the standards B C. Extending longitudinally throughout the drum and located centrally therein is a diaphragm L, which may be either in the form of a compound curve, as shown in Fig. 2, or in some

modified form, the said diaphragm serving to divide the drum into two chambers M N and the said diaphragm also forming two oppositely-arranged water-receivers M' N' in said chambers, respectively. Through the trunnion extend two pairs of ports *a'* *b'* and *c'* *d'*. A pipe or passage *a*² extends from the port *a'* to the chamber M at a point near the perimeter of the drum, and a similar pipe or passage *d*² connects the port *d'* with the chamber N at a point near the perimeter of the drum, the ports *b'* *c'* communicating, respectively, with said chambers at points near the center of the drum and on opposite sides of the diaphragm. The port *a* of the head communicates with the atmosphere through a pipe *a*³ either directly or through a safety-valve set at a slightly-increased pressure to that carried by the heating system, or said pipe may lead to some place where the steam is condensed. The port *b* communicates with a point of low pressure in the heating system or in the engine, as the case may be, through a pipe *b*³. The port *c* communicates with the steam-space in the boiler through the pipe *c*³, which admits high-pressure steam to said port, and the port *d* communicates with the boiler at a point below the water-line through the pipe *d*³.

The operation of my invention is as follows: Assuming that the drum is in the position illustrated in Fig. 1, the water of condensation is admitted through the port *b'* into the chamber M and accumulates in the receiver M', the port *a'* serving as a vent to permit the entrance of the water. While the water is accumulating in the receiver M' the water which has accumulated in the receiver N' and which by its weight has turned the drum through half a revolution is acted upon by the high-pressure steam through the port *c'* and is caused to be siphoned off and discharged into the boiler at a point below the water-line thereof through the port *d* and its connections. While the water is being discharged in this manner from one chamber and received into the other the drum is in practically-continuous rotation and its operation is entirely noiseless, thus obviating a serious defect heretofore existing in devices of this class.

My improved revolving steam-trap being

automatic in its operation requires practically no attention, and the simplicity of its construction enables it to be manufactured at low cost.

5 To facilitate the operation of the steam-trap, I provide longitudinally-disposed radial partitions O O', located, respectively, on opposite sides of the diaphragm L and extending from end to end of the drum and to with-
 10 in a suitable distance of the perimeter thereof. The function of these partitions is to confine the water of condensation while filling the receiver in a column or body on one side of the axis, so as by the gravity of said
 15 column or body of water to cause the drum to revolve more readily, as will be understood.

Having thus described my invention, I claim—

1. The combination with the revoluble
 20 drum having the chambers M, N, oppositely-faced water-receivers M', N', and the pairs of ports *a'*, *b'*, and *c'*, *d'*, communicating with said chambers respectively at the inner and outer portions thereof, of the head forming
 25 the bearing for the drum and provided with the ports *a*, *b*, *c*, *d*, for the purpose set forth, substantially as described.

2. In a steam-trap of the class described, the combination with fixed high-pressure, low-
 30 pressure, exhaust, and feed-water passages,

of twin interchangeable condensing and feed-water receptacles, mounted for simultaneous movement, adapted to successively occupy the same space, and capable of movement by a preponderance of weight in one of the re- 35
 ceptacles, each receptacle having a port for successive communication with the high-pressure and low-pressure passages, and each receptacle also having a second port for alternate communication with said exhaust and 40
 feed-water passages, substantially as described.

3. The combination with the revoluble drum having the chambers M, N, oppositely-faced receivers M', N', the pairs of ports *a'*, 45
b', and *c'*, *d'*, communicating with said chambers, respectively, at the inner and outer portions thereof, and the partitions O, O', in said chambers, for the purpose set forth, of the head forming the bearing for the drum, and 50
 provided with the ports, *a*, *b*, *c*, *d*, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

EDWARD E. PARKER.

Witnesses:

THOMAS MULKEEN,
 EDWARD SIMENDS.