

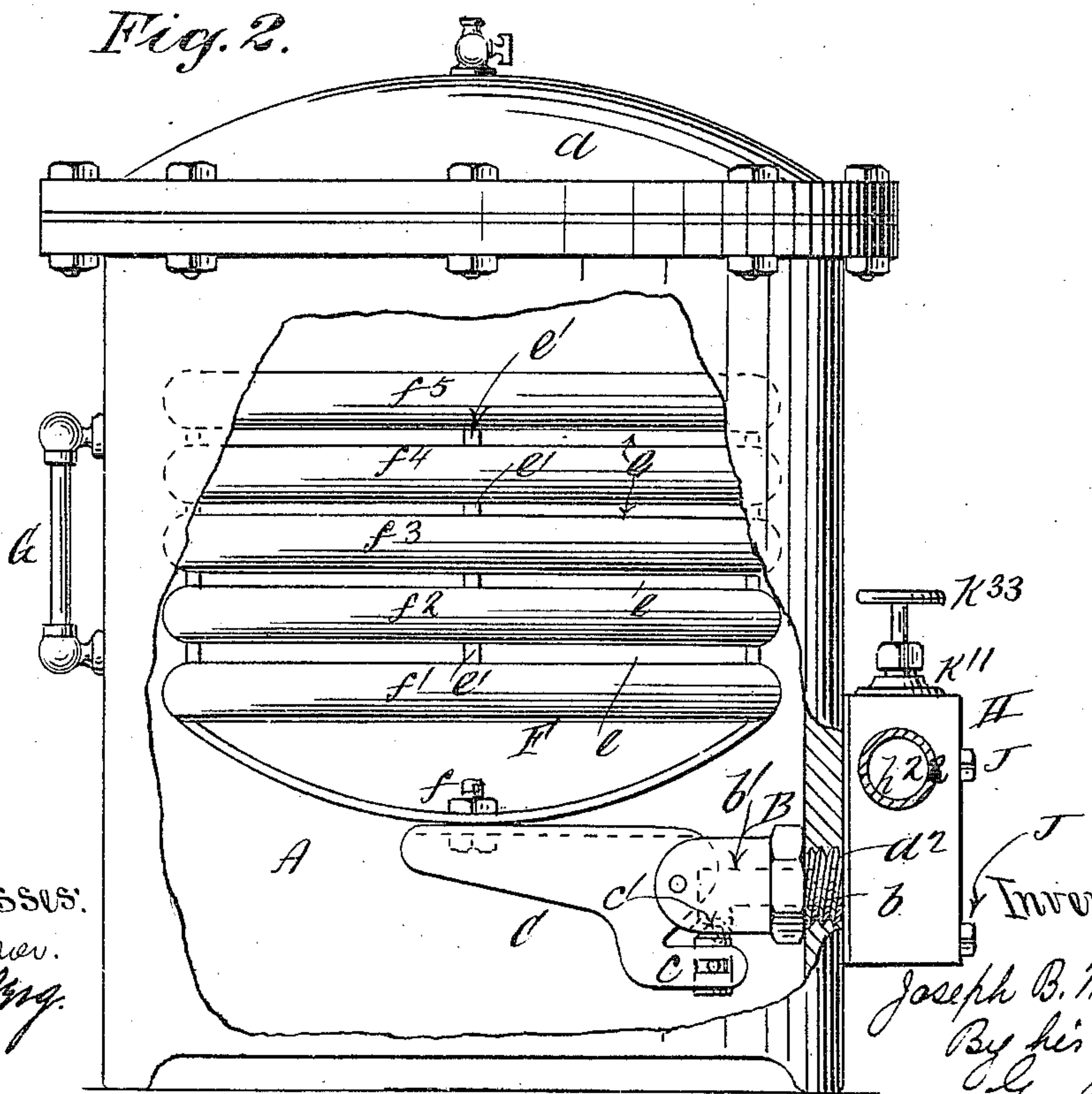
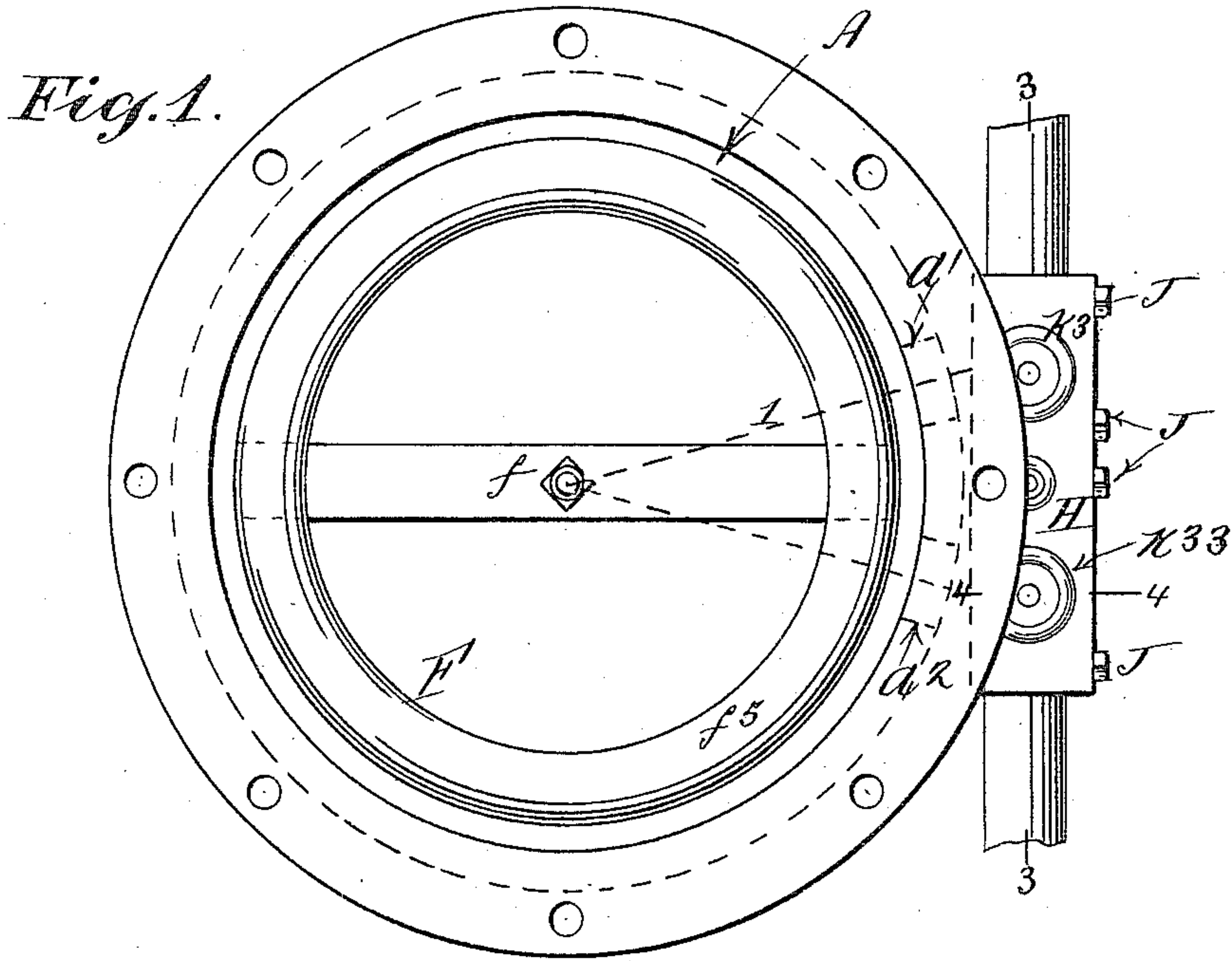
J. B. McKEOWN.
STEAM TRAP.

APPLICATION FILED MAR. 9, 1910.

985,362.

Patented Feb. 28, 1911.

2 SHEETS—SHEET 1.



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STEAM TRAP.

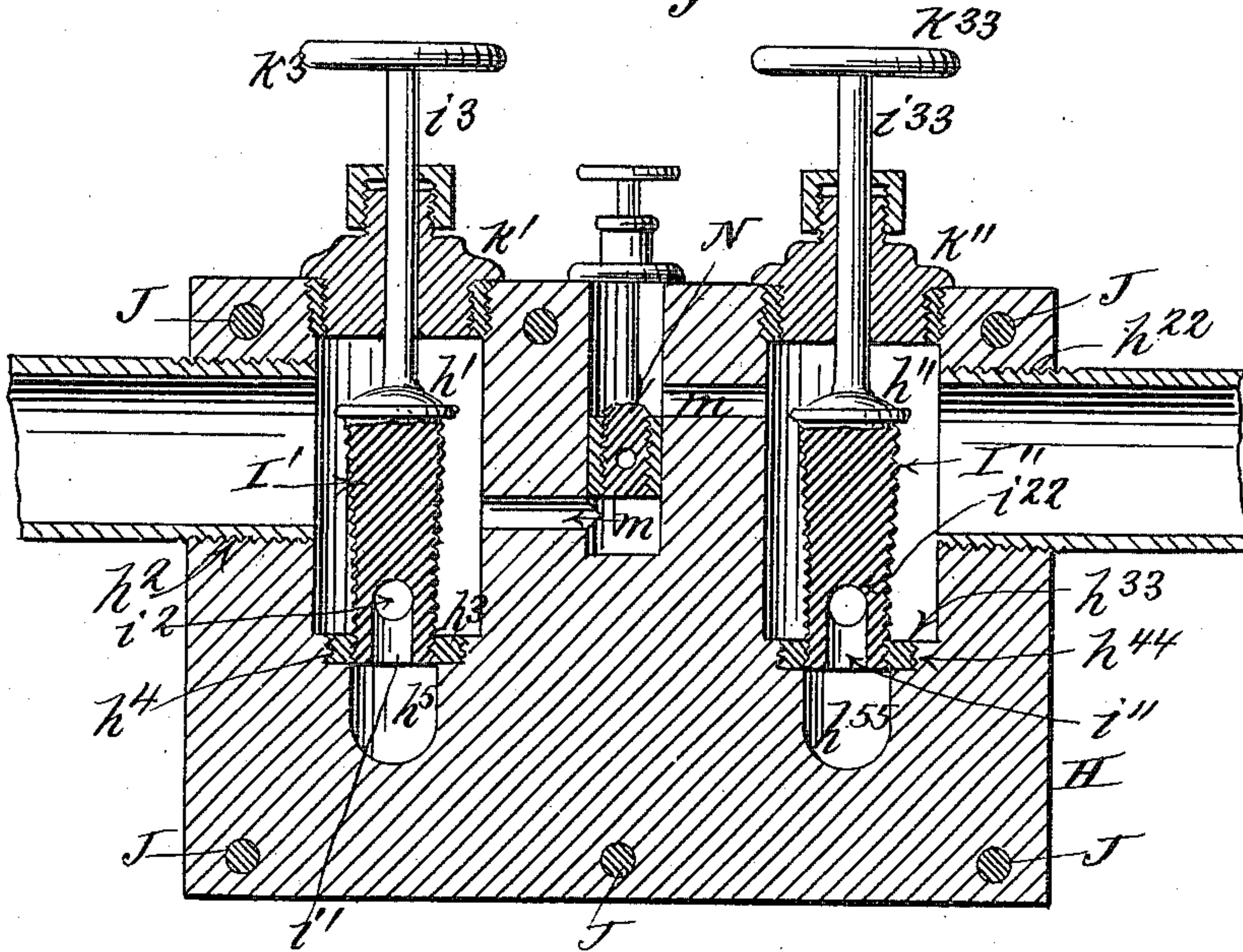
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2 SHEETS—SHEET 2.

Fig. 3.



UNITED STATES PATENT OFFICE.

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STEAM-TRAP.

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To all whom it may concern:

Be it known that I, JOSEPH B. McKEOWN, a citizen of the United States, residing in Union Hill, Hudson county, and State of New Jersey, have invented certain new and useful Improvements in Steam-Traps, of which the following is a specification.

My improvements relate to steam traps in which provision is made for the discharge of water of condensation from a water receptacle as herein set forth.

The invention consists in the specific construction and arrangement of parts hereinafter described and claimed, distinguishing features being the supporting of the float and outlet control mechanism entering within the water receptacle, so that the latter is self contained and may be removed laterally from the valve chest; the valve chest itself to which the water receptacle is detachably secured, said valve chest being reversible in character in that it is so formed and arranged that the inlet and outlet pipe connections may be made at either end as may be found most expedient.

In the accompanying drawings, Figure 1, is a plan of my improved steam trap with the cover removed; Fig. 2, is an elevation of the water receptacle the side of which is broken away in part to show the interior; Fig. 3, is a sectional elevation of the valve chest upon an enlarged scale taken on the plane of line 3—3— Fig. 1; Fig. 4, is a sectional elevation taken upon the plane of the line 4—4— Fig. 1; Fig. 5, is a vertical section of the float.

The water receptacle or tank A, may be of cylindrical or other desired form and is closed by a cover *a*. It is also preferably provided with a water gage G, by means of which the level of water within the tank may be ascertained. On one side near its bottom, the tank is formed with two port holes *a'*, *a''*, bored to center, as indicated by the radial dotted lines 1, 2, Fig. 1. These holes *a'*, *a''*, are both threaded and adapted to receive the threaded shank *b*, of the exit plug B, formed with the exit passage *b'*. Hence either of the port holes *a'*, or *a''*, may be utilized in arranging for the discharge of the liquid contents of the water receptacle A.

Pivotaly attached to the inner portion of the exit plug B, is the float lever C, the shorter and lower arm *c*, of which carries the valve *c'*, controlling the exit passage *b'*, in

the usual manner. Coupled to the other end of the lever C, by suitable links or connections *f*, is the float F, which is of peculiar construction in that it is composed of a plurality of sealed tubes or independent float chambers *f'*, *f''*, *f'''*, *f''''*, *f'''''*. Four or any desired number of these annular float chambers may be used, the floats being relatively adapted in size and capacity to the requirements of the water receptacle A. The float chambers are each preferably circular in cross section and sufficiently numerous (in view of the requisite displacement and buoyancy) and of such peripheral diameter to constitute essentially a cylindrical float within the center of which the water of condensation has free access and play. To facilitate the freedom of circulation the adjacent superposed annular float chambers are preferably separated more or less from each other to afford spaces *e*, *e'*, through which the water is free to flow. This may be accomplished by spacing and supporting blocks *e'*, interposed between the annular chambers *f'*, *f''*, *f'''*, *f''''*, or by resort to any other mechanical expedient as may be found most desirable.

It is to be noted in this connection that the float and exit controlling parts are entirely within and attached to the water receptacle, which is thus self contained in the sense that it can be removed bodily from the valve chest H, without disconnecting the exit plug B, float lever or other parts within the tank, it being only necessary to unscrew the stud bolts J, J, which bind it to the valve chest H, after which the water receptacle A, may be withdrawn from the valve chest H, laterally in any direction without disturbing the valve chest and its pipe connections. This is a matter of importance where space is circumscribed, especially where the water receptacle is situated against a wall.

The valve chest H, is formed with the valve chambers *h'*, *h''*, each formed with a threaded lateral passage *h''''*, *h'''''*, for pipe connections. These valve chambers *h'*, *h''*, and their accessories are duplicates in every particular. *h'''*, *h''''*, are brass bushings formed with internal and external screw threads and seated on the steps *h''''*, *h'''''*, formed in the body of the valve chest H. Below these bushings are the passages *h''''*, *h'''''*, connecting and coinciding with the holes *a'*, *a''*, in the side of the water receptacle A. *I'*, *I''*, are screw plug valves engaging with the inter-

nal threads of the bushings, which latter essentially perform the function of valve seats. The screw plug valves I' , I'' , are formed with axial lower passages i' , i'' , opening into lateral passages i^2 , i^{22} , extending through the screw plugs. The lower parts of the valve plugs are threaded to afford a loose running fit up to the level of the top of the lateral ports or passages i^2 , i^{22} , above which the plugs are slightly tapered to insure a close fit when the valve plugs are screwed down sufficiently to close said lateral openings. The stems i^3 , i^{33} , of the valve plugs I' , I'' , pass through caps k' , k'' , and are provided with the usual handles k^3 , k^{33} .

The valve chambers h' , h'' , are connected by means of a by-pass passage m , m , in which is interposed a screw plug valve N , similar in construction and operation to the valves I' , I'' . Normally this valve N is closed, being only opened when it is desired to disconnect the water receptacle A , from the valve chest H .

The practical operation of my apparatus will be readily understood. During normal conditions the by-pass valve N , is closed and the valves I' , I'' , are open. Either of the valves I' , I'' , may be used respectively as inlet and discharge valves, according to which of the holes a' , a^2 , in the side of the tank A , the exit plug B is connected with. In other words the valve chest is reversible in use, since the inlet or discharge pipes may be connected with either valve chambers, as may be found most convenient or expedient in running the pipe connections,—the position of the exit plug being regulated accordingly. This is an important advantage when the trap has to be installed in odd or circumscribed situations. When for any reason it is desired to remove the water receptacle A , the valves I' , I'' , are closed and the valve N is opened thereby insuring communication between the inlet and discharge pipes. The tap bolts J , J , may then be loosened and the tank raised vertically or

slid horizontally away from the valve chest without disturbing any of the pipe connections.

It is to be understood that my valve chest may be used in connection with expansion control and bucket control as well as with float control traps, as herein described by way of illustrating the practical application of this feature of my invention.

What I claim as my invention and desire to secure by Letters Patent is,

1. In a water receptacle of the character designated, the combination of the outlet control mechanism contained and supported therein, a valve chest containing inlet and discharge valves, chambers in which said valves are mounted, a by-pass connecting said chambers, a valve in said by-pass, and detachable means for securing the water receptacle to said valve chest, for the purpose described.

2. The combination of a water receptacle formed with duplicate port holes, outlet control mechanism in said water receptacle adapted to be connected with either of said port holes, a detachable valve chest formed with duplicate ports coinciding with those in the water receptacle, and also formed with duplicate valve chambers and passages, and duplicate valves in said valve chambers, whereby the inlet and outlet connections may be reversed in the manner and for the purpose described.

3. The combination of a water receptacle formed with duplicate port holes, outlet control mechanism in said water receptacle adapted to be connected with either of said port holes, a detachable chest formed with duplicate passages and ports coinciding with those in the water receptacle, and valves controlling said passages in the chest for the purpose and substantially in the manner described.

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Witnesses:

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