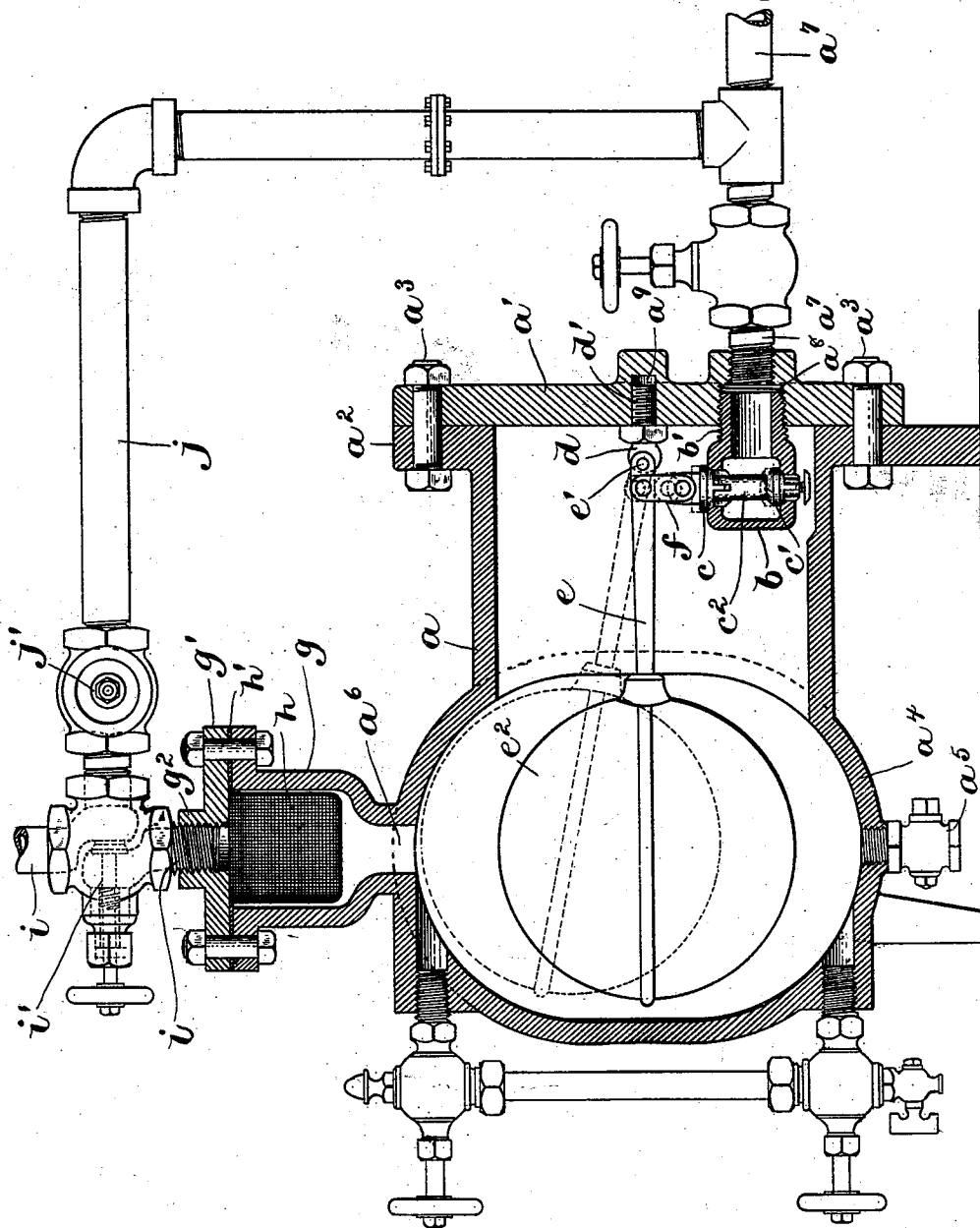


(No Model.)

G. S. BRAINERD.
STEAM TRAP.

No. 546,606.

Patented Sept. 17, 1895.



WITNESSES:

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UNITED STATES PATENT OFFICE.

GEORGE S. BRAINERD, OF BOSTON, MASSACHUSETTS.

STEAM-TRAP.

SPECIFICATION forming part of Letters Patent No. 546,606, dated September 17, 1895.

Application filed June 10, 1895. Serial No. 552,204. (No model.)

To all whom it may concern:

Be it known that I, GEORGE S. BRAINERD, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Steam-Traps, of which the following is a specification.

This invention relates to that class of steam-traps in which steam and water of condensation are received in a chamber having an outlet which is controlled by a valve and a float-lever in the chamber connected with the valve, the arrangement being such that a sufficient accumulation of water in the chamber to raise the float-lever will open the valve and permit the escape of a portion of the accumulation, the valve being constantly below the level of the water, so that the escape of steam is prevented.

The invention consists in the several improvements which I will now proceed to describe and claim.

The accompanying drawing represents a longitudinal vertical section of a steam-trap provided with my improvements.

In carrying out my invention I provide a receptacle for steam and water of condensation, said receptacle comprising a body or chamber section *a* and an end section or head *a'*, which is fitted to a face or seat formed on one end of the section *a* and is detachably secured to a flange *a²* on the section *a* by bolts *a³*. The section *a* is enlarged at one end to accommodate the float of the float-lever hereinafter described, the lower portion of said enlargement constituting a trough or depression *a⁴* in the lower portion of the chamber for the accumulation of sediment that may be contained in the water, said depression being provided with a valved outlet *a⁵*.

a⁶ is the inlet for steam and water, said inlet being located in the upper part of the enlarged portion of the section *a* and directly above the depression *a⁴*, so that the sediment and impurities carried by the water will naturally fall into the depression *a⁴*, which is located at a considerable distance from the outlet end of the receptacle. Hence the sediment is not liable to reach the outlet-valve hereinafter described.

a⁷ represents the outlet-pipe, which is screwed into an internally-threaded boss or

projection on the head *a'*. In the head *a'* are formed two screw-threaded sockets *a⁸* *a⁹*, opening upon the interior of the head, the socket *a⁸* being considerably larger than the socket *a⁹*.

b represents a valve-casing having a screw-threaded shank *b'*, which is formed to engage the screw-thread of the socket *a⁸*, so that the valve-casing is detachably connected with the head *a'* and may be applied to and removed from the receptacle therewith. The said casing is provided with two inlet-ports located, respectively, in its upper and lower portions, said ports being controlled by a vertically-movable valve composed of the two valve-heads *c c'* and the connecting-stem *c²*. Said heads *c c'* are formed to close the ports of the casing *b* when the valve is depressed and to open said ports when the valve is raised.

d represents an ear having a screw-threaded shank *d'*, the thread of which is formed to engage the thread of the socket *a⁹*, so that said ear is detachably connected with the head *a'*. To the ear *d* is connected at *e'* one end of the float-lever *e*, the other end of which is provided with the spherical float *e²*, which is preferably a hermetically-closed hollow ball of sheet metal or other suitable material, said float being located in the enlarged portion of the body-section *a*. The float-lever *e* is connected by a link *f* with the valve *b*, so that when the valve is raised by an accumulation of water, as indicated by dotted lines in the drawing, the valve will be raised and permit the escape of the water until the float-lever falls sufficiently to again close the valve, as shown in full lines. It will be seen that the connections of the float-lever and valve-casing to the removable end or head *a'* enable said parts to be very conveniently assembled outside of the main section *a*, so that the trap is made operative simply by the act of applying the head *a'* to the section *a*. The inlet *a⁶* communicates with a strainer-chamber or holder *g*, which is formed on said inlet and has a detachable cap or cover *g'*, between which and the holder *g* is interposed a flange *b'* of a strainer *h*, contained in the holder *g*. Said strainer may be of any suitable construction. For example, it may be of wire-cloth, pressed or otherwise formed. The cover portion or section *g'* of the strainer-

holder is provided with an internally-threaded neck g^2 , to which is screwed the supply-conduit i , through which the steam and water enter the trap. The detachable connection of the sections g and g' of the strainer-holder to each other enables the strainer to be readily removed to be cleaned and repaired. To provide for the escape of the water and steam when the strainer is being cleaned or repaired or when the trap is in disuse for any cause, I connect the conduit i with the outlet pipe or conduit a^7 by means of a by-pass j , which permits the steam and water to pass around the trap to the conduit a^7 without entering the trap, the conduit i being provided with a valve i' , whereby it may be closed, while the by-pass j is provided with a valve j' , whereby it may be opened when it is desired to discontinue the use of the trap. When the trap is working, the valve j' is closed and the valve i' is open.

I claim—

The improved steam-trap, comprising the chamber having the inlet a^6 and the outlet a^7 ,

the valve-casing within the chamber, the valve in said casing, the pivoted float-lever connected with the valve, the strainer-holder communicating with the inlet and composed of separable sections, the detachable strainer in said holder, the supply-pipe detachably connected with said holder, the by-pass connecting said supply-pipe with the outlet a^7 and provided with a valve whereby it may be opened and closed, the supply-pipe being also provided with a valve between the by-pass and the chamber i' whereby said pipe may be closed to discontinue the operation of the trap, the by-pass providing an outlet for the steam and water of condensation when the trap is not in operation.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 5th day of June, A. D. 1895.

GEORGE S. BRAINERD.

Witnesses:

C. F. BROWN,
A. D. HARRISON.