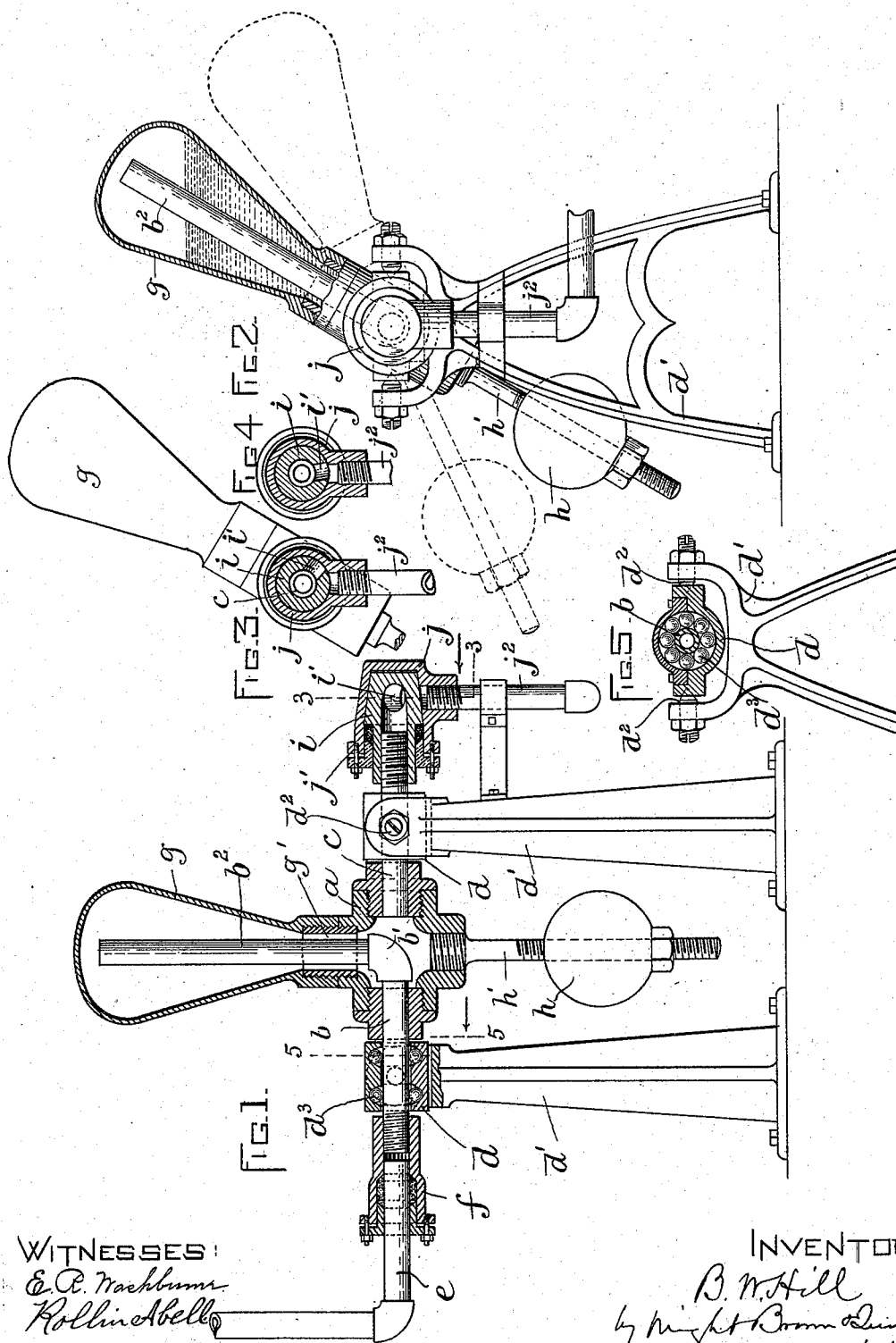


(No Model.)

B. W. HILL.
STEAM TRAP.

No. 550,886.

Patented Dec. 3, 1895.



UNITED STATES PATENT OFFICE.

BURTON W. HILL, OF SOMERVILLE, ASSIGNOR OF ONE-HALF TO THE NEW ENGLAND DRESSED MEAT AND WOOL COMPANY, OF BOSTON, MASSACHUSETTS.

STEAM-TRAP.

SPECIFICATION forming part of Letters Patent No. 550,886, dated December 3, 1895.

Application filed April 12, 1895. Serial No. 545,431. (No model.)

To all whom it may concern:

Be it known that I, BURTON W. HILL, of Somerville, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Steam-Traps, of which the following is a specification.

This invention has for its object to provide a simple and effective steam-trap which is normally closed and is adapted to be operated by the weight of an accumulation of water of condensation to open an outlet and permit the escape of said water.

The invention consists in the improved construction which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a longitudinal section of a steam-trap embodying my improvements. Fig. 2 represents an end elevation of the same, the water-receptacle being shown in section. Fig. 3 represents a section on line 3 3 of Fig. 1, the valve being closed. Fig. 4 represents a similar section showing the valve open. Fig. 5 represents a section on line 5 5 of Fig. 1.

The same letters of reference indicate the same parts in all the figures.

In the drawings, *a* represents a casing, which may be constructed in any suitable manner and is provided with tubular trunnions *b* and *c*, projecting from its opposite ends, said trunnions being rigidly affixed to the casing and journaled in bearings *d d*, supported by standards *d' d'*. The outer end of the trunnion *b* is provided with means whereby it may be connected with a fixed steam-pipe *e*, said means being preferably a stuffing-box *f*, rigidly secured to the trunnion *b* and closely fitting but formed to slip or turn upon the fixed pipe *e*. To the inner end of the inlet-trunnion *b* is connected by an elbow *b'* a pipe *b²*, extending at right angles with the trunnion *b* and projecting into a water-receptacle *g*, which is affixed to and projects from one side of the casing *a*, the interior of said receptacle communicating through a neck *g'* with the interior of the casing *a*, so that water discharged into the receptacle through the trunnion *b* and pipe *b²* will flow into and fill the casing. The receptacle *g* is normally held in the ele-

vated position shown in Fig. 1 and in full lines in Figs. 2 and 3 by means of a weight *h*, adjustably mounted on an arm *h'*, affixed to the casing *a* and projecting from the opposite side thereof from the receptacle *g*.

To the outer end of the trunnion *c* is affixed a valve-plug *i*, preferably of the tapering form shown in Fig. 1, said plug having an outlet-port *i'*, communicating with the outlet-trunnion *c* and extending through one side of the plug.

j represents a fixed valve-casing formed to inclose and closely fit the plug *i* and provided with a stuffing-box *j'*, forming a steam-tight joint around the neck of the valve-plug. With said casing is connected an outlet-pipe *j²*, which may extend to any suitable point.

The operation is as follows: When the receptacle *g* is empty, it is held in the raised position shown in the drawings, the valve-plug *i* being thus held out of communication with the outlet-pipe *j²*, as shown in Fig. 3. The water of condensation discharged by the pipe *b²* accumulates in the interior of the casing and in the receptacle *g* until the accumulation becomes sufficiently heavy to overcome the weight *h* and depress the receptacle, as indicated in dotted lines in Fig. 2, thus opening the valve *i*, as shown in Fig. 4. The accumulation of water is therefore allowed to escape through the outlet-pipe *j²*. As soon as enough water has escaped to enable the weight *h* to assert itself the receptacle *g* is again raised, thus closing the valve *i*.

I am aware that it is not new to employ a reservoir normally held in an elevated position by a weight and connected with a valve which is opened by the weight of an accumulation of water in the reservoir and closed by the action of a weight when sufficient water has escaped. My construction, however, embodies certain improvements over anything of which I am aware in the prior state of the art, said improvements being as follows: First, it has a steam-joint receiving a steam-pipe *e*, said joint being exposed, so that it can be readily reached for repairs; second, the receptacle *g* is in position to discharge all the water contained in it by gravitation when the receptacle is depressed to open the valve; third, the valve and its casing are readily ac-

cessible at one end of the apparatus and can be easily repaired and adjusted, as occasion may require.

5 I prefer to provide the bearings d d with antifriction-balls d^3 , interposed between said bearings and trunnions, the bearings being mounted on centers d^2 d^2 , affixed to the stand-

ards d' .

I claim—

10 1. A steam-trap comprising a casing having a chamber projecting from it on one side and communicating with its interior, and a weighted arm projecting from the opposite side; a steam-inlet pipe entering one side of
15 the casing and secured thereto and having a branch extending at right angles to it and opening into the chamber; an outlet-pipe entering the side of the casing opposite the inlet-pipe and secured in the casing, said pipe
20 carrying a valve; bearings for the inlet and outlet pipes which constitute trunnions for the casing to turn on; and a fixed valve-casing or seat.

2. A steam-trap comprising a casing hav-

ing a chamber projecting from it on one side 25 and communicating with its interior, and a weighted arm projecting from the opposite side; a steam-inlet pipe entering one side of the casing and secured thereto and having a branch extending at right angles to it and 30 opening into the chamber; a stuffing-box on the outer end of said inlet-pipe and receiving a fixed steam-pipe; an outlet-pipe entering the side of the casing opposite the inlet-pipe and secured in the casing, said pipe carrying 35 a valve; bearings for the inlet and outlet pipes which constitute trunnions for the casing to turn on; and a fixed valve-casing or seat.

In testimony whereof I have signed my 40 name to this specification, in the presence of two subscribing witnesses, this 8th day of April, A. D. 1895.

BURTON W. HILL.

Witnesses:

C. F. BROWN,

A. D. HARRISON.