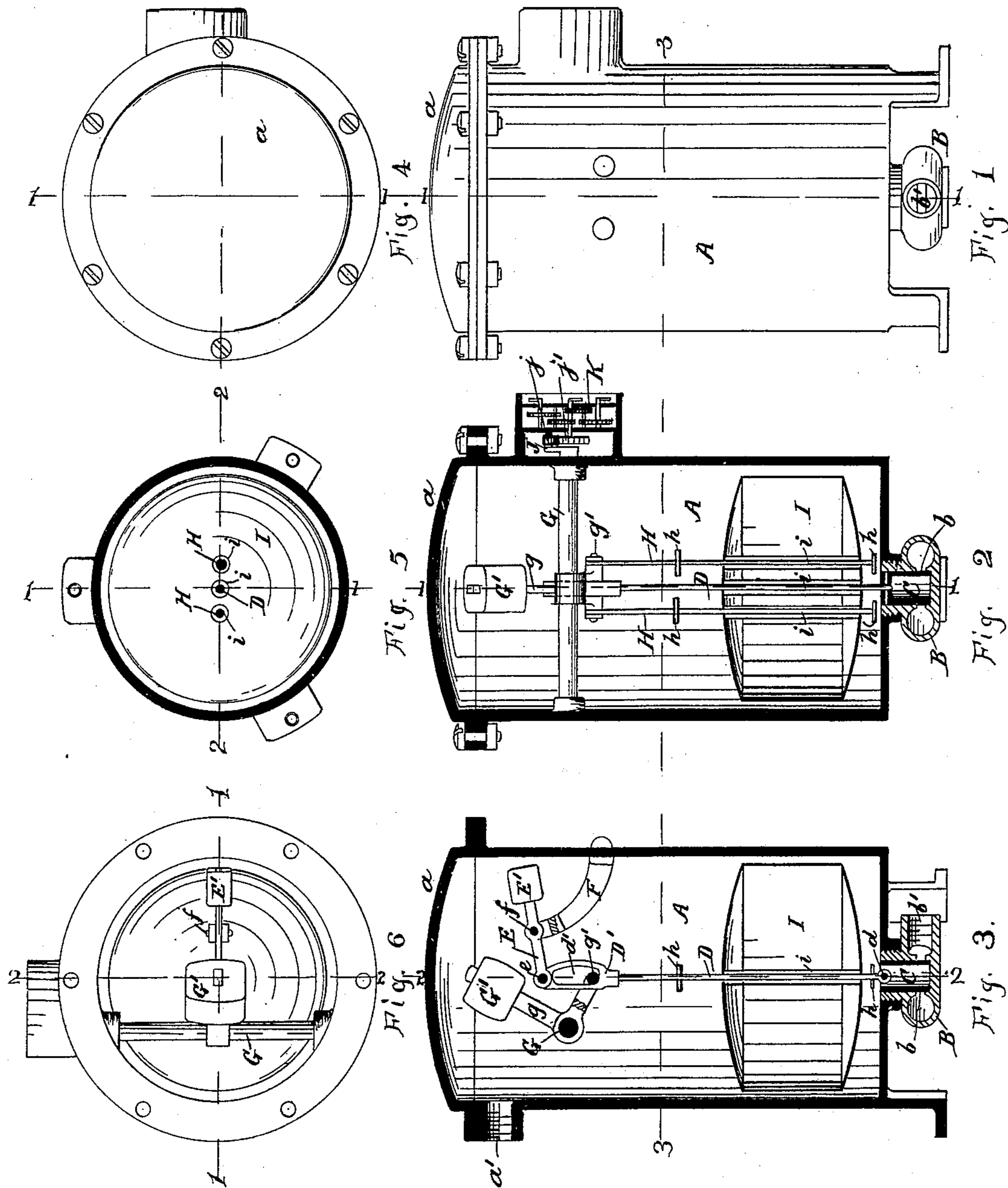


(No Model.)

G. GUNTZ.  
MEASURING STEAM TRAP.

No. 397,184.

Patented Feb. 5, 1889.



WITNESSES:

*C. Morris.*

*W. L. P. P.*

*Geo. Guntz.*  
INVENTOR

BY  
*Herbert W. Jenner.*  
ATTORNEY

# UNITED STATES PATENT OFFICE.

GEORGE GUNTZ, OF WILKES-BARRÉ, PENNSYLVANIA.

## MEASURING STEAM-TRAP.

SPECIFICATION forming part of Letters Patent No. 397,184, dated February 5, 1889.

Application filed March 29, 1888. Serial No. 268,815. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE GUNTZ, a citizen of the United States, residing at Wilkes-Barré, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Measuring Steam-Traps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to steam-traps; and it consists in the novel construction and combination of the parts, as hereinafter fully described and claimed, whereby the amount of condensed water expelled from the trap may be ascertained.

This trap is intended for use in connection with steam-heating coils for dwellings which are supplied from a centrally-located boiler common to all the dwellings included in the system. The amount of steam used by each separate dwelling may be approximated from the amount of condensed water expelled from the steam-trap in each dwelling.

In the drawings, Figure 1 is a side view of the trap. Fig. 2 is a vertical section taken on line 2 2 in Figs. 3 and 6. Fig. 3 is a vertical section on line 1 1 in Figs. 1 and 4. Fig. 4 is a plan view of the trap from above. Fig. 5 is a sectional plan view taken on line 3 3 in Figs. 1, 2, and 3. Fig. 6 is a plan view of the trap with the cover removed.

A is the inclosing-case of the trap, and *a* is a removable cover secured to the top of the case.

B is the valve-casing secured at the bottom of the case and provided with the annular orifice *b* and the discharge-opening *b'*.

C is a cylindrical discharge-valve sliding vertically in the casing B, and *a'* is the inlet-opening for steam and condensed water in the upper part of the inclosing-case A.

D is the valve-stem pivoted to the valve by the pin *d*, and D' is a plate provided with a slot, *d'*, which is secured to the upper end of the valve-stem.

E is a lever provided with the weight E' for counterbalancing the weight of the valve, its stem, and the slotted plate. The lever E is pivoted to the upper end of the said plate by the pin *e*.

F is a bracket secured to the case A and provided with the pin *f*, upon which the lever E is pivotally supported.

G is a rock-shaft journaled in the casing, and *g* is a bell-crank lever secured upon the said shaft and provided with the weight G' and the pin *g'*, which passes through the slot *d'*.

H H are vertical rods pivoted upon the ends of the pin *g'* and provided with the collars *h*.

I is a float provided with the vertical tubes *i*, sliding over the valve-spindle and the rods H.

J is a small crank upon the end of the rock-shaft outside the casing, and *j* is a pawl which operates the ratchet-wheel *j'* of the register K, which is provided with pointers, marked dial-plates, and toothed gearing, all of which are of ordinary construction, such as are in common use for gas-meters.

The operation of the device is as follows: The steam and condensed water enter by the inlet *a'* and the float rises as the water accumulates, and thereby raises the rods H by bearing against the upper collars *h*. This action also turns the bell-crank, but does not affect the valve-stem. When the weight G' passes the center of the rock-shaft, it overbalances suddenly and falls against the side of the case or against a stop secured thereto. The pin *g'* comes in contact with the top of the slot *d'* and pulls the valve C suddenly wide open. Each motion of the rock-shaft is indicated by the register, which is operated by the crank J. The condensed water now drains out through the open valve or is forcibly expelled by the pressure of the steam. The float descends and presses on the lower collars *h*. This turns the bell-crank, but does not close the valve until the weight G' passes the center of the rock-shaft, when the said valve is suddenly closed by the overbalancing-weight.

It will be seen that the movements of the valve are practically instantaneous, and that the same amount of condensed water will be expelled from the trap each time the valve is opened and the register operated.

What I claim is—

1. In a steam-trap, the combination, with an inclosing-case, of a discharge-valve, a bell-crank lever pivoted in the case and provided

with a weight, a slotted plate, and pin-connection interposed between said valve and lever, whereby the valve may be operated suddenly by said weight, a float, a rod provided with  
5 collars and arranged intermediate between the said float and bell-crank lever, whereby the said weight may be overbalanced each time said float reaches its highest and lowest positions, and a register actuated at each discharge of liquid from the case.  
10

2. In a steam-trap, the combination of an inclosing-case, a float in the case, a discharge-valve, a slotted plate secured to the said valve, a weighted bell-crank mounted on a  
15 rock-shaft and provided with a pin engaging with the slot in the said plate, a register operated by the motion of the rock-shaft simultaneously with the opening of the valve, and a rod provided with collars above and below  
20 the float and connected to the bell-crank, whereby an equal volume of water may be discharged at each opening of the valve.

3. In a steam-trap, the combination of an inclosing-case, a float in the case, a discharge-valve at the bottom of the case, a slotted  
25 plate, and a stem secured to the valve, a counter-balance for the weight of the said valve, its stem, and the plate, a weighted bell-crank mounted on a rock-shaft and provided with a  
30 pin engaging with the slot in the said plate, a register operated by the motion of the rock-shaft simultaneously with the opening of the valve, and a rod provided with collars above

and below the float and connected to the bell-crank, so that the water may be discharged  
35 intermittently in equal volumes.

4. In a steam-trap, the combination of an inclosing-case, a float in the case, a discharge-valve, a slotted plate secured to the said valve, a weighted bell-crank lever pivotally supported in the case and provided with a pin engaging with the slot in the said plate, and a rod connected to the said pin and provided with collars above and below the float, whereby the said valve may be intermittently  
45 opened and closed.

5. In a steam-trap, the combination of an inclosing-case, a float, a discharge-valve, a slotted plate, and a valve-stem secured to the valve, a counter-balance for the weight of the  
50 valve, its stem, and the plate, a weighted bell-crank lever pivotally supported in the case and provided with a pin engaging with the slot in the said plate, and the rods pivoted on the ends of the said pin and provided with  
55 collars above and below the float, so that the said valve may be opened and closed suddenly when the float reaches its highest and lowest points, substantially as and for the purpose set forth.  
60

In testimony whereof I affix my signature in presence of two witnesses.

GEO. GUNTZ.

Witnesses:

W. B. PRUNER,  
S. C. STRUTHERS.