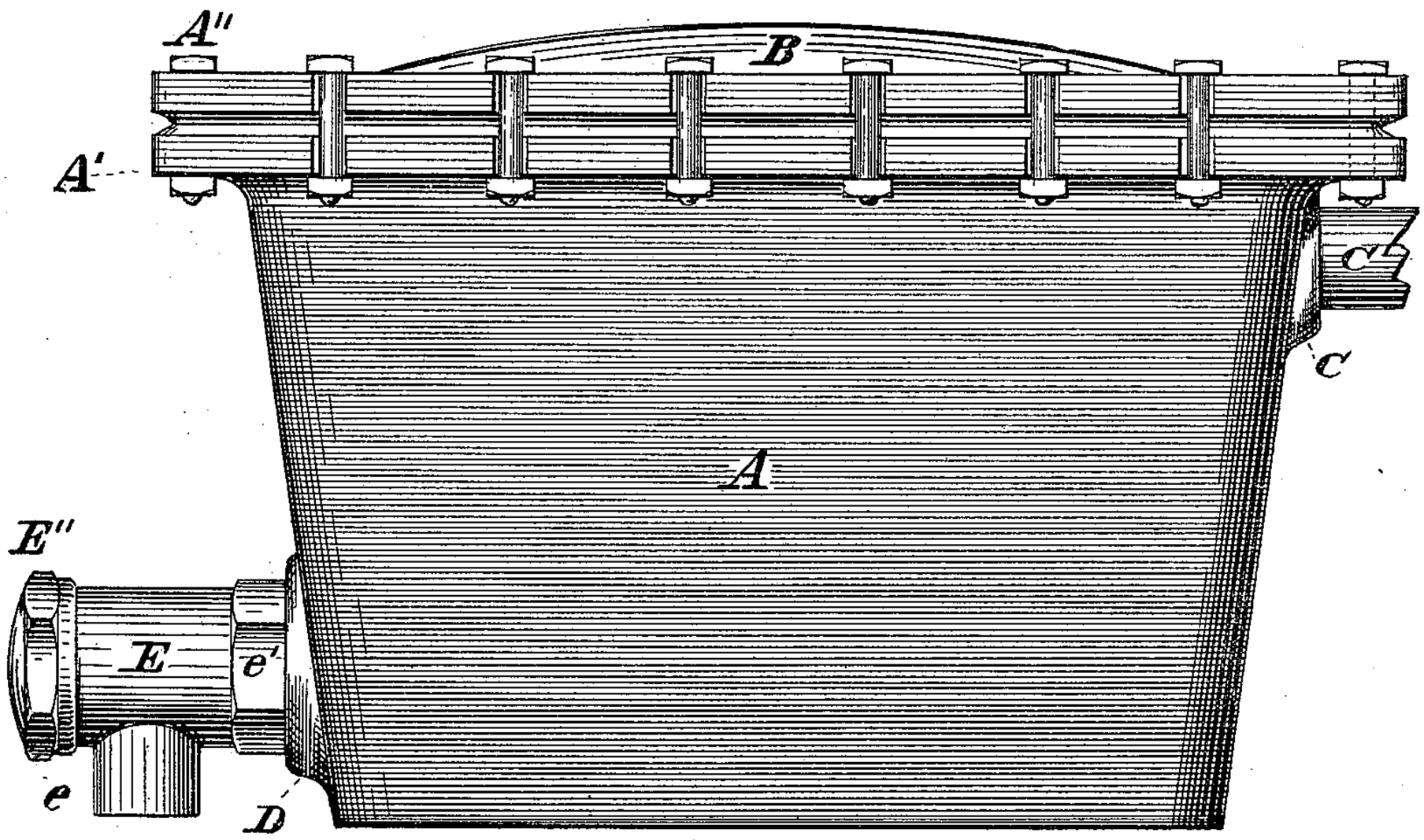
(No Model.) 2 Sheets—Sheet 1.

R. W. CLARK.

STEAM TRAP.

No. 466,324. Patented Jan. 5, 1892.

FIG. 1.



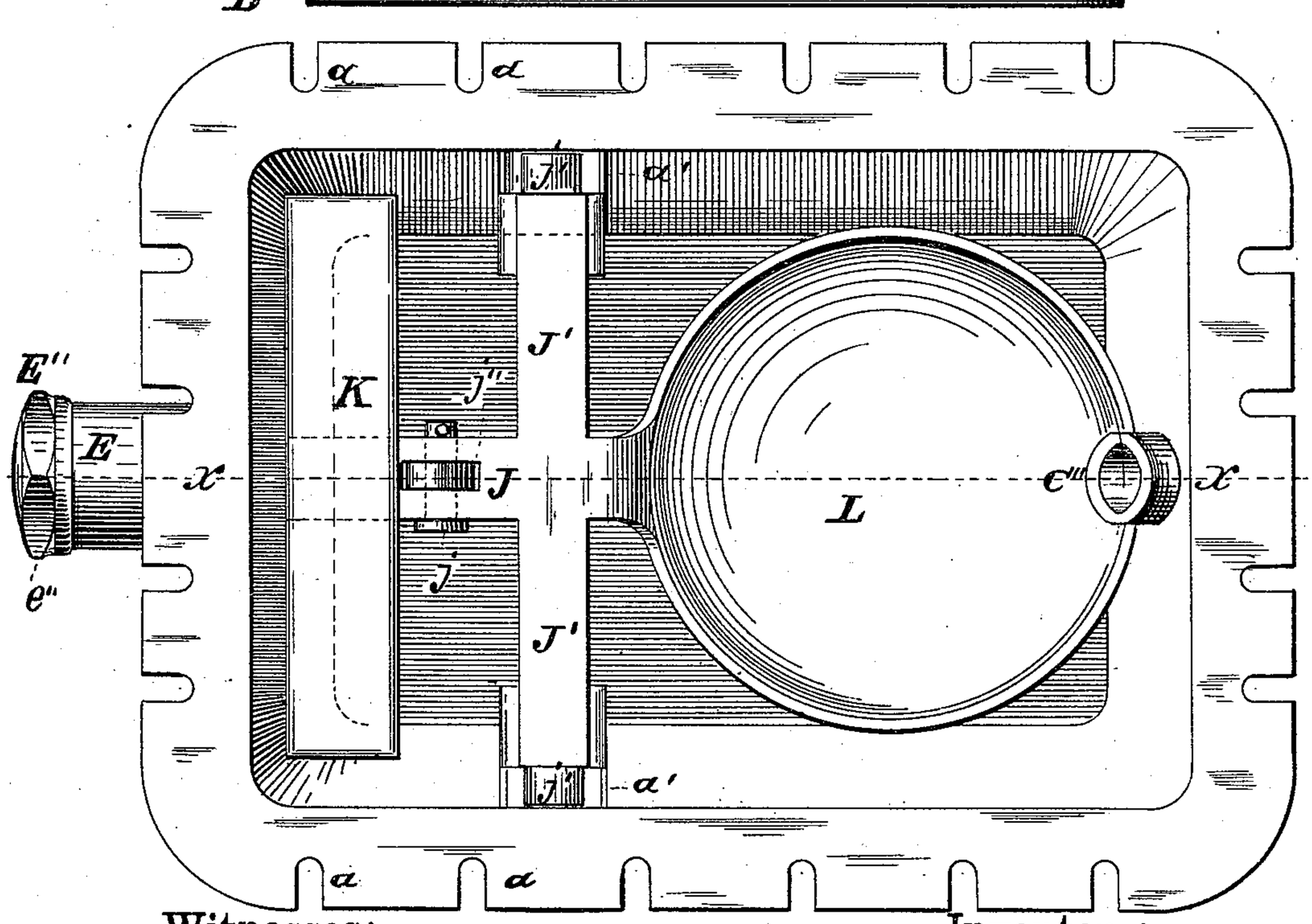


FIG. 2.

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(No Model.) 2 Sheets—Sheet 2.

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FIG. 3.

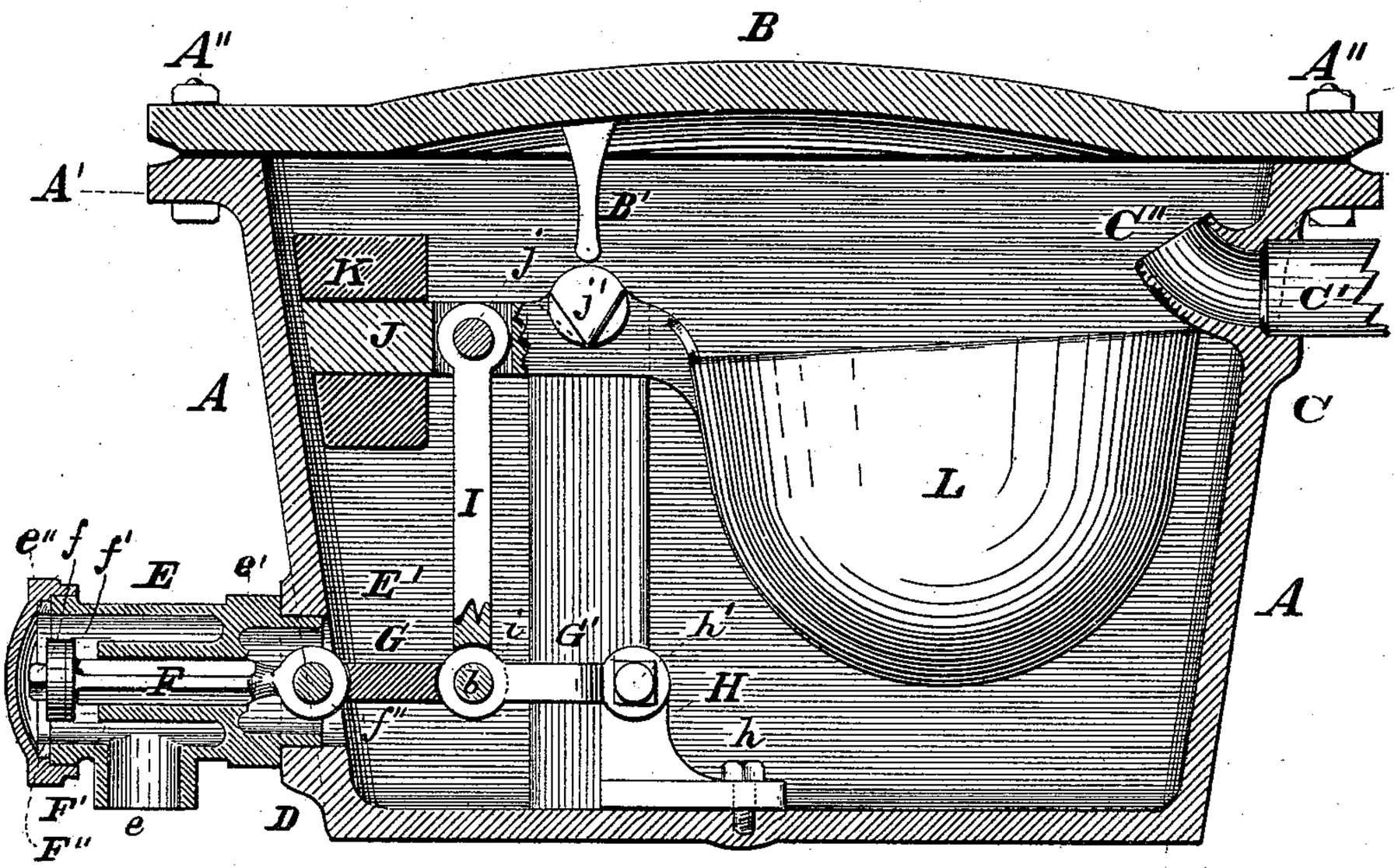
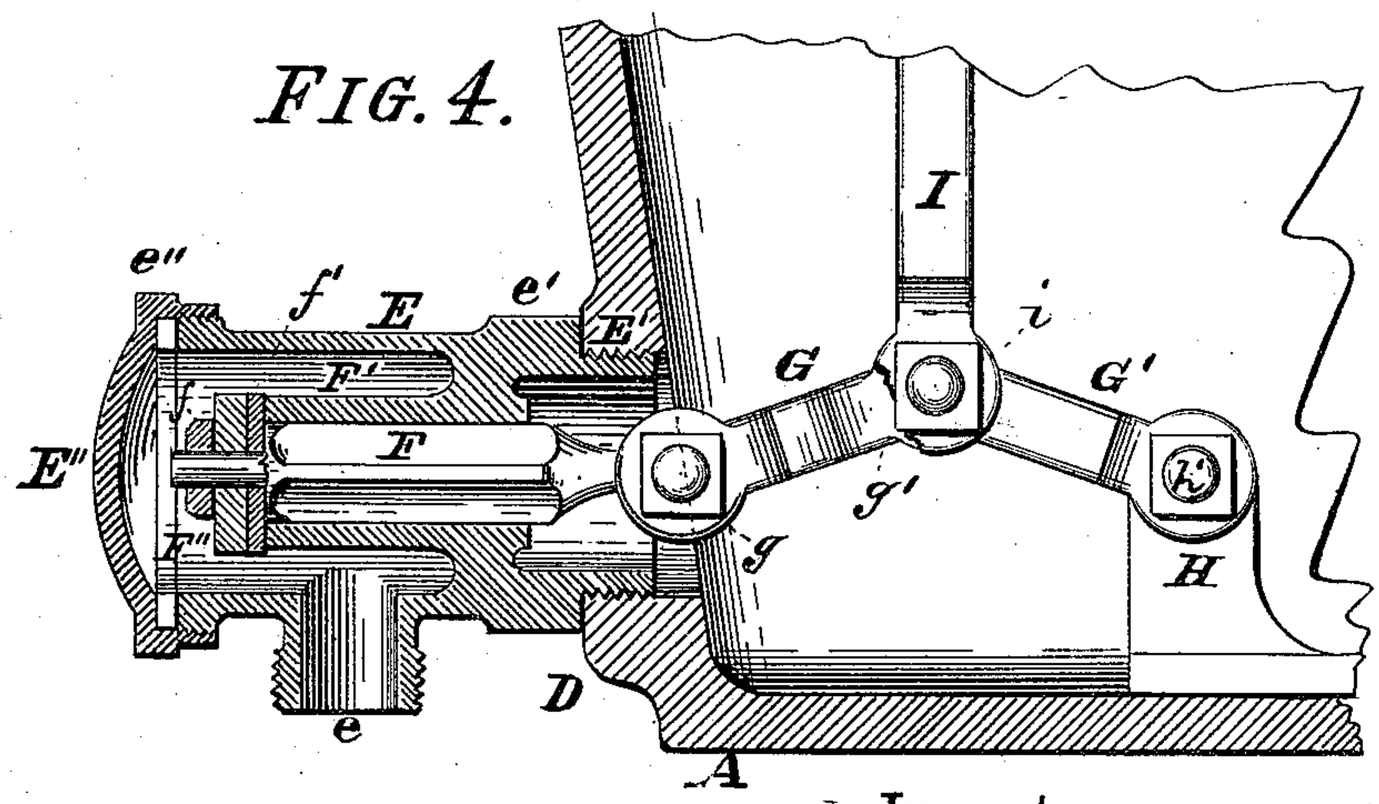


FIG. 4.



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UNITED STATES PATENT OFFICE.

ROBERT W. CLARK, OF BUFFALO, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO LIZZIE CLARK, OF SAME PLACE.

STEAM-TRAP.

SPECIFICATION forming part of Letters Patent No. 466,324, dated January 5, 1892.

Application filed December 11, 1890. Serial No. 374,268. (No model.)

To all whom it may concern:

Be it known that I, ROBERT W. CLARK, of Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements on Steam-Traps; and I do hereby declare that the following description of my said invention, taken in connection with the accompanying sheet of drawings, forms a full, clear, and exact specification, which will enable others skilled in the art to which it appertains to make and use the same.

This invention has general reference to improvements in steam-traps; and it consists, essentially, in the novel and peculiar combination of parts and details of construction, as hereinafter first fully set forth and described, and then pointed out in the claims.

In the drawings already referred to, which serve to illustrate my said invention more fully, Figure 1 is an elevation of my improved steam-trap. Fig. 2 is a plan of the same with the cover removed. Fig. 3 is a longitudinal sectional elevation in line *x x* of Fig. 2. Fig. 4 is a similar view of a portion of the trap, showing the regulating-valve closed.

Like parts are designated by corresponding letters of reference in all the figures.

The object of this invention is the production of an efficient and serviceable steam-trap that shall be positive in its action, not liable to get readily out of order, and in which the governing-valve shall be readily accessible for cleaning and renewal when necessary. To accomplish this result I construct this trap essentially of an oblong casing A, having on its upper edge a flange A′, provided with slot-holes *a* for the passage of screw-bolts A″, by means of which a cover B is secured to the casing, as clearly shown in Fig. 1. Near the upper edge of this casing A, I provide a boss C, into which leads a supply-pipe C′, which conveys the water of condensation from any heating or the like system to the interior of the casing, said pipe having an upwardly-turned elbow C″, which leads this water upwardly in the casing. This elbow may be screwed onto the pipe C′, or it may be formed in one piece with the casing, as shown in the drawings. Near the bottom of the casing A there is a further boss D, into which a governing-valve is screwed, consisting of a shell E, having a screw-threaded shank E′, by which it is secured in the boss D, and its opposite end externally screw-threaded to receive a cap E″. Within this casing and concentric therewith is a tube F′, within which is located the valve-stem F, having on its end a removable disk F″, held to the valve-stem by the nut *f*, and a slightly-elastic packing *f′*, which, seating against the end of said tube F′, closes the passage through the same.

On the end of the valve-stem, which is made triangular for obvious reasons, there is formed an eye *f″*, wherewith engages the double eye *g* of a link G, which, with its opposite double eye *g′*, connects with a further link G′, which latter link engages an abutment H, secured to the bottom of the casing A by the tap-bolt *h*. The two links G G′ are secured together by a bolt *b*, to which is also connected the double eye *i* of a connecting-rod I, which, with its upper end, connects with a lever J by a bolt *j* in the slotted aperture *j″* in said lever. This lever is substantially cross-shaped, the two arms J′ of which have on their outer ends knife-edge journals *j′*, resting in bearings *a′*, formed on the inner opposite sides of the casing A, downwardly-projecting lugs B′ on the cover B serving to keep these journals in their bearings.

Upon the end of the lever J is placed a counter-weight K, while its opposite end is formed into a receiver or pot L, the entire lever, with its arms and the pot, being formed integral in the process of casting to attain cheapness of construction.

The operation of this trap is substantially as follows: In its normal condition the pot is in its highest position, being stopped by the elbow C″, against the under side of which it rests, with the valve in the valve-casing open, as shown in Fig. 3. If now water of condensation enters the trap-casing through the pipe C′ and elbow C″, it will discharge against the cover and there being deflected will fill the pot L. The pot, being now heavier than the counter-weight K, will descend and thereby close the valve F through the connecting-rod and the links in an obvious manner. Water will now accumulate in the casing A and gradually float the pot L, which,

rising, will open the valve F and allow the water to discharge from the nozzle *e*. This will again cause the pot to descend and to close or partly close the valve F, the alternate action, as described, resulting in the governing of the discharge as long as water continues to flow to the trap.

It will be observed that by locating the valve-casing on the outside of the trap-casing I am enabled at all times to reach the packing of the valve by removing the cap on the valve-casing without opening the trap-casing. Repairs may therefore be made, when necessary, in the shortest possible time without disturbing any of the pipes leading to the trap or breaking a single joint connected therewith. This feature is a very important one in traps, and it contributes largely to its success.

Another feature of this trap is the upward discharge of the water entering the trap. Heretofore where in traps the discharge was downwardly into the pot the force of the entering water and steam would expel the water from the pot and thereby render its action uncertain and very violent, owing to the pot being too light to act with the necessary sensitiveness and precision to produce the best results in the discharge of the water and the trapping of the steam.

A further feature in this trap is in the arrangement of the governing-valve, wherein the pressure of the water or steam tends to open the same and thereby assist the pot in its action and making its operation more positive.

My steam-trap as now constructed is perfect in its action, simple in construction, and cheaply produced.

Having thus fully described my invention, I claim as new and desire to secure to me by Letters Patent of the United States—

1. In a steam-trap, the combination, with the trap-casing having the upwardly-pointing elbow, of the cover for the casing, the pivoted lever, the counter-weight thereon, the pot on its opposite end, the connecting-rod pivoted to said lever, the links, the abutment, and the valve-casing having the valve connected with one of said links, as and for the purpose set forth.

2. In a steam-trap, the combination, with the trap-casing, of the regulating-valve consisting of the casing E, having the nozzle *e* and the cap E′, the tubular valve-seat F′ centrally within said casing, the valve-stem F, having the removable disk F″ and elastic packing *f*′, and suitable mechanism for operating said valve-stem by a pivoted float-pot, as stated.

In testimony that I claim the foregoing as my invention I have hereto set my hand in the presence of two subscribing witnesses.

ROBERT W. CLARK.

Attest:

MICHAEL J. STARK,

WM. O. STARK.