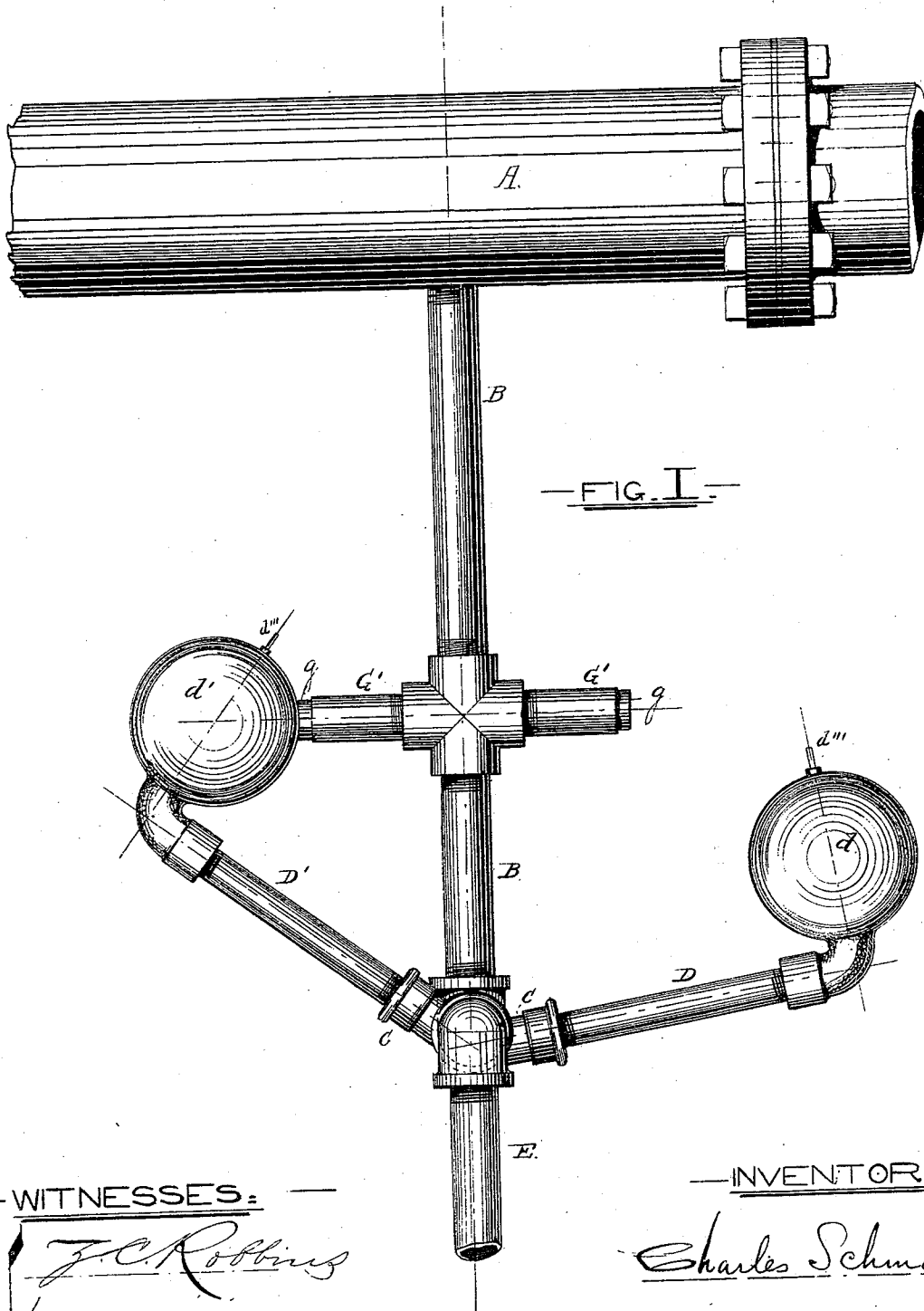


C. SCHMANDT.

Improvement in Steam Traps.

Patented Feb. 6, 1872.

No. 123,515.



—WITNESSES:—

J. C. Robbins

W. A. Daniels

—INVENTOR:—

Charles Schmandt

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his atty.*

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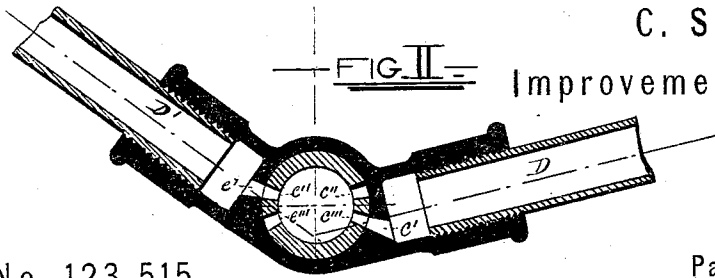


FIG. III.

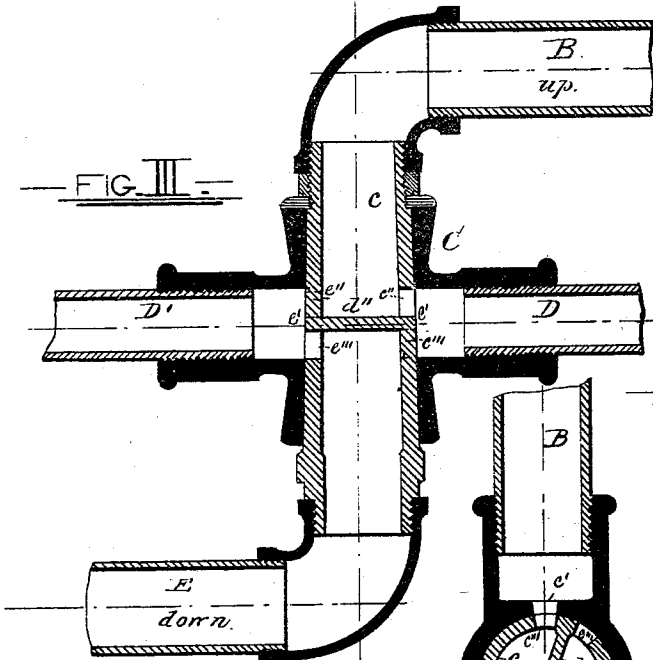


FIG. IV.

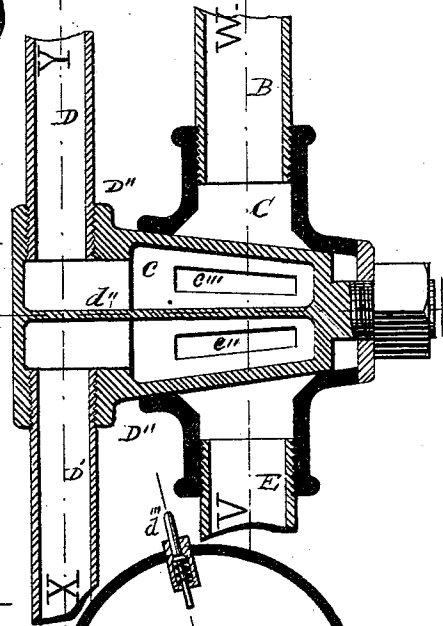


FIG. V.

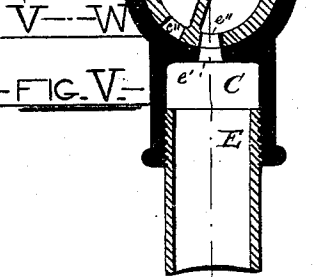
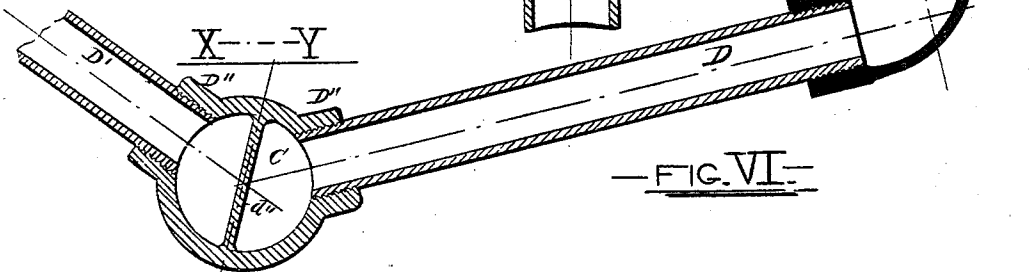


FIG. VI.



WITNESSES:

J. C. Robbins

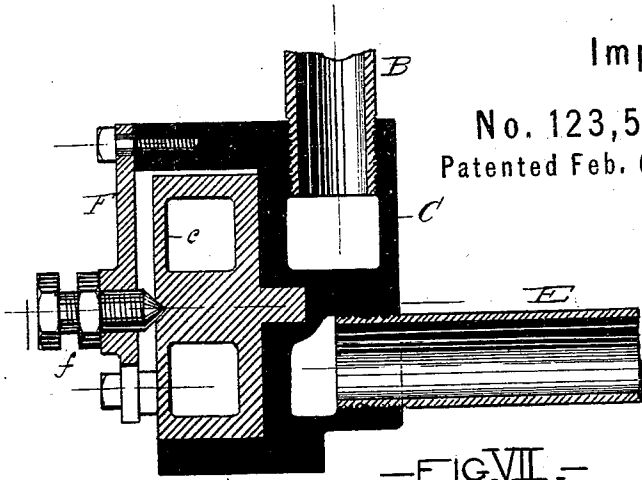
H. A. Daniels

INVENTOR:

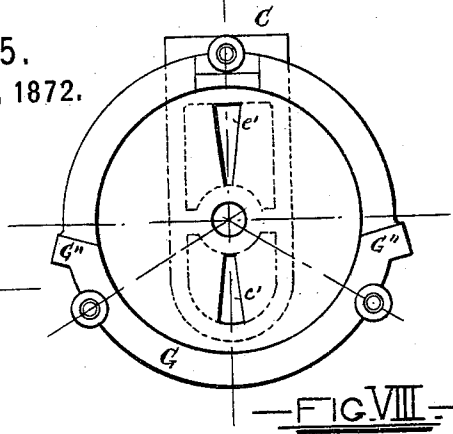
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C. SCHMANDT.
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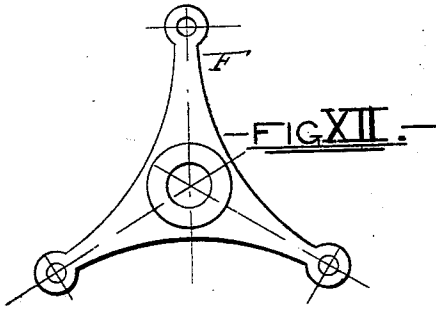
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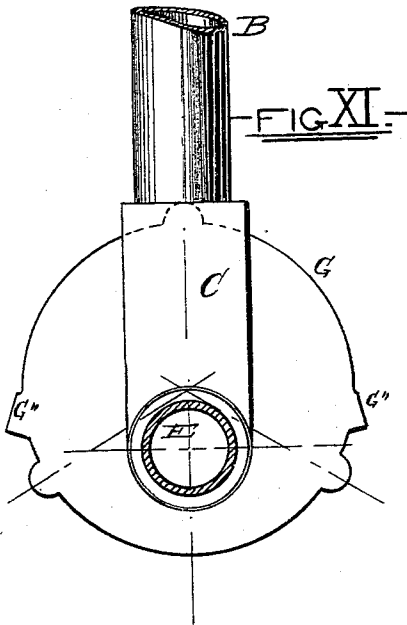
—FIG. VII.—



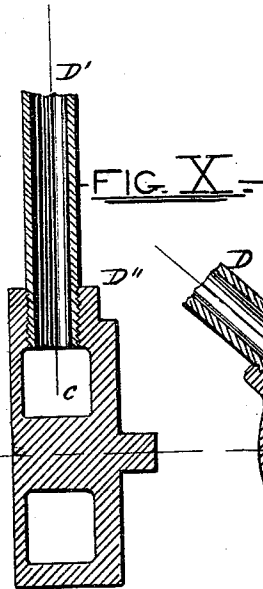
—FIG. VIII.—



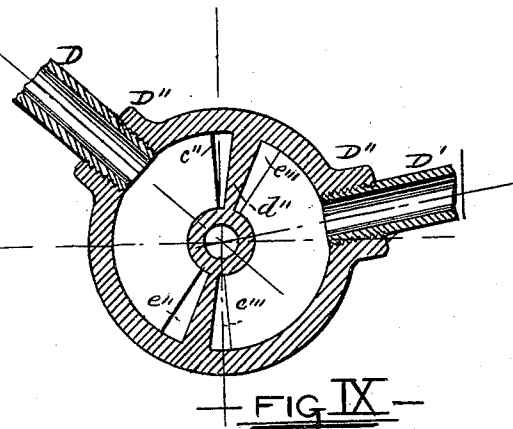
—FIG. XII.—



—FIG. XI.—



—FIG. X.—



—FIG. IX.—

—WITNESSES:—

Wm. S. Anderson

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UNITED STATES PATENT OFFICE.

CHARLES SCHMANDT, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN STEAM-TRAPS.

Specification forming part of Letters Patent No. 123,515, dated February 6, 1872.

To all whom it may concern:

Be it known that I, CHARLES SCHMANDT, of the city and county of Baltimore and State of Maryland, have invented certain Improvements in Steam-Traps, of which the following is a specification; and I do hereby declare that the same is a full, clear, and exact description of my said invention, reference being had to the accompanying drawing and to the letters of reference marked thereon.

In the following descriptive outline of my invention it will be seen that it relates to an appliance which, when attached to steam-pipes, has for its object the carrying off of water therefrom resulting from the condensation of steam. To effect this result I tap the steam-pipe and insert therein a piece of gas-pipe hanging perpendicularly therefrom. At the lower end of this pipe is fitted an ordinary gas-pipe turn, into which is screwed one end of the key of a cock. Upon the other end of the key is secured another turn, connecting with a waste-pipe, through which the water of condensation is carried off. The key of the cock forms a pivot or fulcrum upon which the body or barrel of the cock and its attachments oscillate. The body of the cock is provided with two necks, placed at a certain angle with reference to each other. Within each of these necks a gas-pipe arm is inserted, each having at its end a hollow globe or chamber. The bore and other openings of the key of the cock are so arranged with reference to the openings in the barrel of the cock that the water of condensation is always passing through one of the arms into the hollow globe at its end, while, at the same time, the water which has collected within the globe at the end of the other arm is flowing therefrom into the waste-pipe. A continuous oscillatory movement of the arms is maintained by the alternate filling and emptying of the globes at their ends.

In the further description of my invention which follows due reference must be had to the accompanying drawing, in which Figure 1 is a front elevation of my invention, as attached to a steam-pipe. Fig. 2 is a cross-section through the cock and arms. Fig. 3 is a vertical section through the cock. Figs. 4, 5, and 6 represent modifications in the shape of the cock. Figs. 7, 8, 9, 10, 11, and 12 represent further modifications in the shape of the cock.

Similar letters of reference indicate similar parts of the invention.

A is the steam-pipe from which the water of condensation is to be drawn. B is the pipe attached to the steam-pipe. C is the body or barrel of the cock, and *c* the key of the same. D and D' are the arms attached to the body of the cock, and *d* and *d'* the hollow globes or chambers. Openings in the key of the cock are represented by *c''* and *c'''* and *e''* and *e'''*, and openings in the body by *c'* and *e'*. In Fig. 3 a dividing piece in the bore of the key of the cock is indicated by *d''*. In Figs. 4, 5, and 6 the division is shown as being longitudinal. In Fig. 9 the dividing piece, modified in character, is also shown by *d''*.

I will now proceed to describe the operation of my invention as represented by Figs. 1, 2, and 3, and suppose the arm D to be raised. The water of condensation flows from the steam-pipe A into the pipe B, and thence into the key *c* of the cock. Its course is then diverted by the dividing piece *d''*, and it passes through the openings *c''* and *c'* into the arm D and globe *d*. During this time the arm D' and globe *d'* are empty. When the arm D is raised and that D' depressed, the holes *c''* and *c'* are brought together, and the water flows through them from the pipe B into the arm D and globe *d*. The holes *e'''* and *e'* are also brought together at the same time, but the dividing piece *d''* prevents the flow of water through them when the arms are in the positions designated. When the arm D and globe *d* are filled with water they fall, in consequence of their increased weight, the body C of the cock turning upon the key *c* as a pivot. The holes *c'* and *c'''* and *e'* and *e''* are now brought together, the water flowing from the arm D and globe *d*, through the openings *c'* and *c'''*, into the key of the cock and waste-pipe E. It will be seen that the two holes *e''* and *e'''* and those *c''* and *c'''* are, respectively, at different sides of the dividing piece *d''*. By the falling of the arm D and globe *d* those D' and *d'* are elevated, and the water of condensation flows therein through the openings *e''* and *e'*. When this arm and globe become filled, they fall as the others, the process of filling and emptying the arms and globe continuing alternately, so long as any water remains in the steam-pipe. In order that the arms may not fall lower than is necessary, stopping-pipes

or pieces G' , of any suitable construction, may be used. To prevent undue concussion of the parts, small pieces of rubber g may be interposed between them.

In Figs. 4, 5, and 6 a cock, modified in shape, is shown producing the same results as have been heretofore described. In this instance the dividing piece d'' is placed longitudinally in the bore of the cock-key. It differs further in that the body of the cock is stationary, the arms D and D' being attached to the key, which oscillates with them within the body C .

Figs. 7, 8, 9, 10, 11, and 12 represent a cock or valve, producing the same results, further modified in form. In this cock the key c has a ground face fitting against a discal plate, G , attached to the body C of the cock and held in position by means of the yoke F and set-screw f . The openings e'' and e''' and e'' and e''' , in the key of the cock, are, as in the other cocks before described, respectively placed upon different sides of the dividing piece d'' . In this cock, also, the body is stationary, the arms D and D' being attached to the key c . In each of the globes is a small air-valve, d''' . G'' G'' represent stops to assist in checking the movement of the key c .

I would here state that the apparatus hereinbefore described has been fully tested, is now in actual use, and in all respects operates in the

manner indicated. I claim that, among other advantages, it has one which is very apparent—viz., that its working parts are not concealed, and that a glance at any time will determine whether it is in full operation or not. Should its oscillations from any cause cease, a touch with the finger will immediately obviate the difficulty; but should the apparatus still, apparently, refuse to do its work, the natural and only conclusion to be arrived at is that the elevated arm and globe are filled with steam, and that there is no water resulting from condensation remaining in the pipe to be carried away.

Having thus described my invention, what I claim as new, and wish to secure by Letters Patent, is—

1. The combination of the body C of the cock, with the key c , arms D and D' , globes d and d' , air-valves d''' , and pipes B and E , when arranged substantially in the manner hereinbefore described, for the purposes set forth.

2. The combination of the discal plate G , stops G'' , yoke F , and set-screw f , with the key c and body C of the cock, when arranged substantially in the manner set forth, for the purposes specified.

CHARLES SCHMANDT.

Witnesses:

GEO. H. HOWARD,
A. BALLAUL.