

J. V. MATHIVET.
Steam-Traps.

No. 153,904.

Patented Aug. 11, 1874.

Fig. 1.

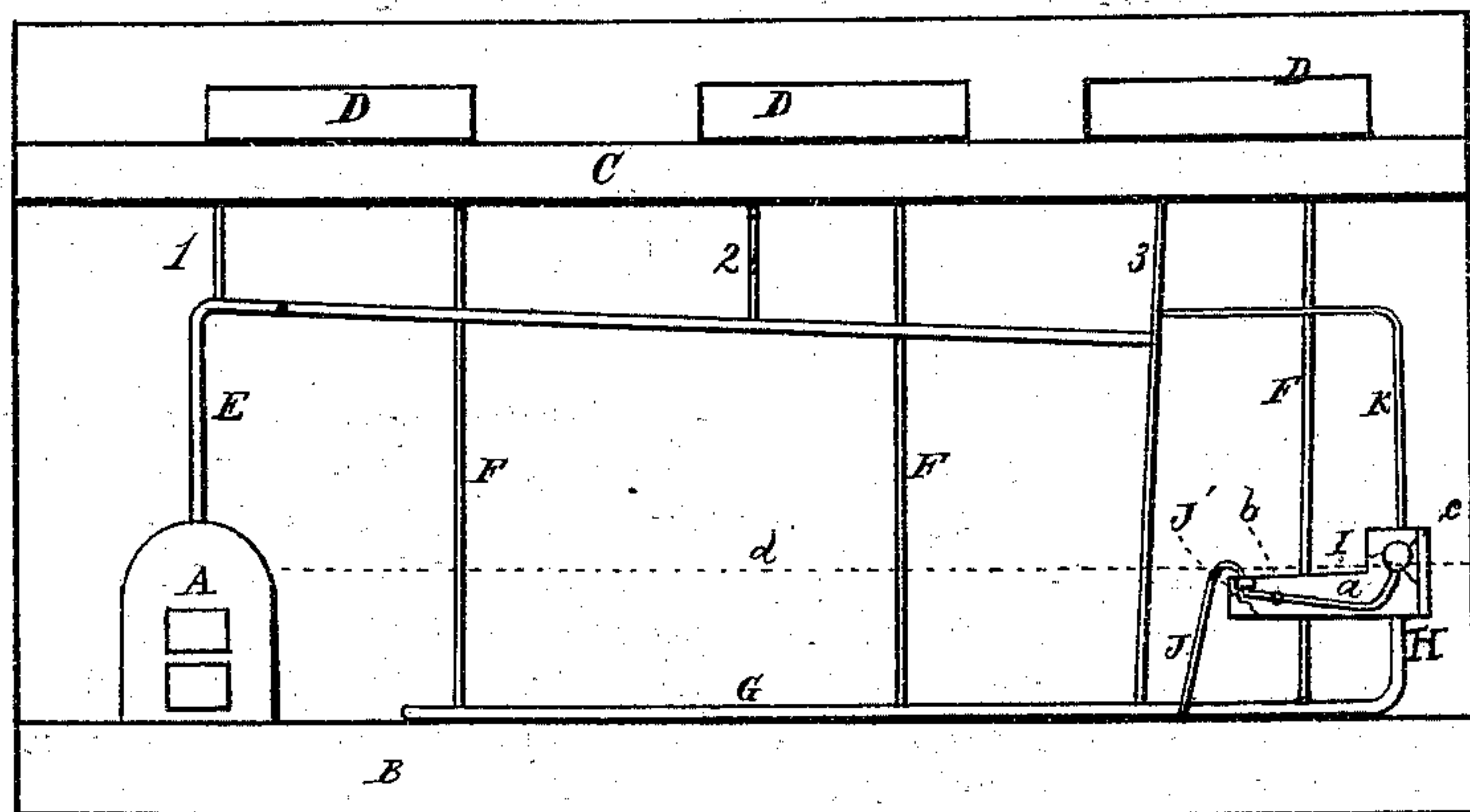


Fig. 2.

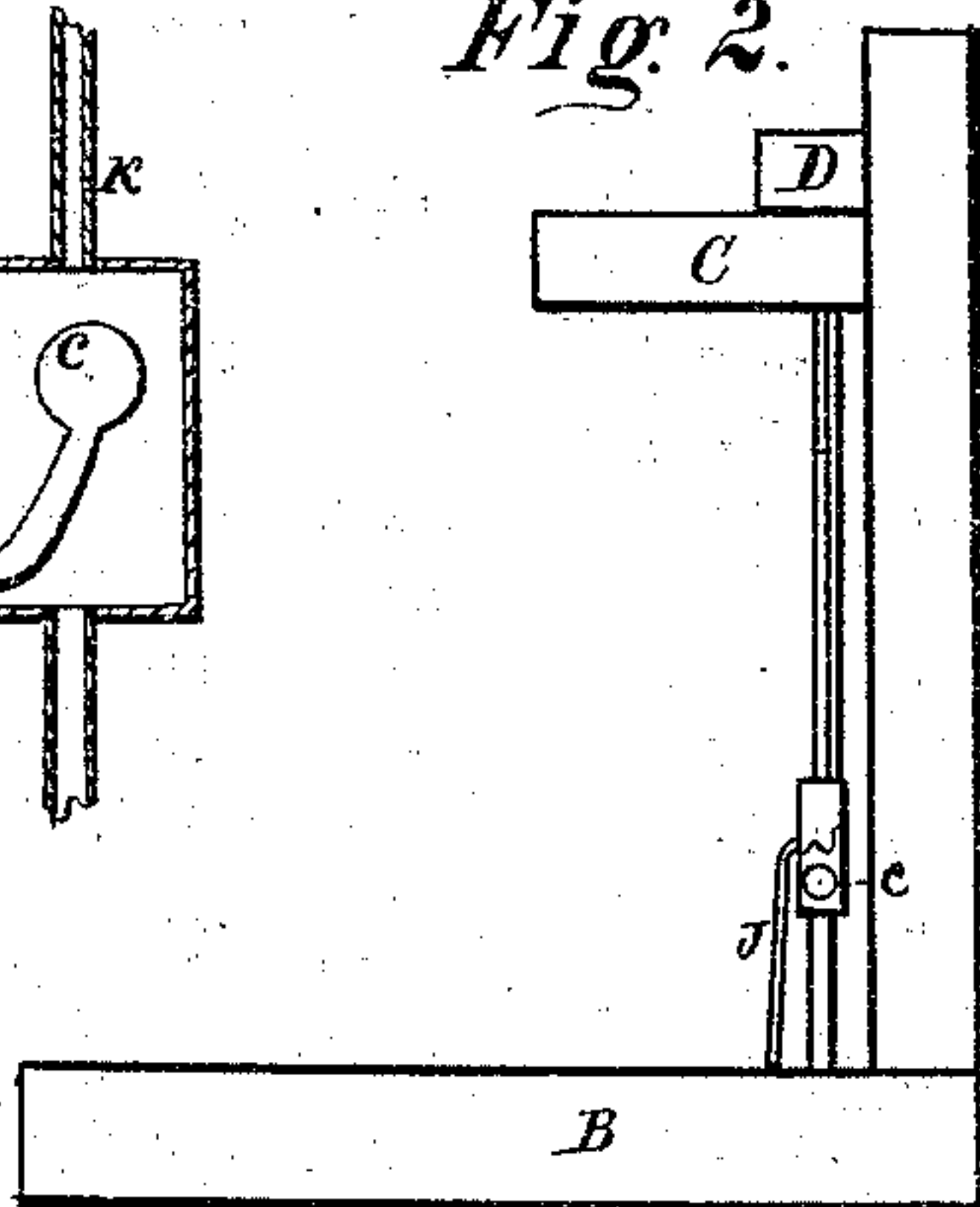
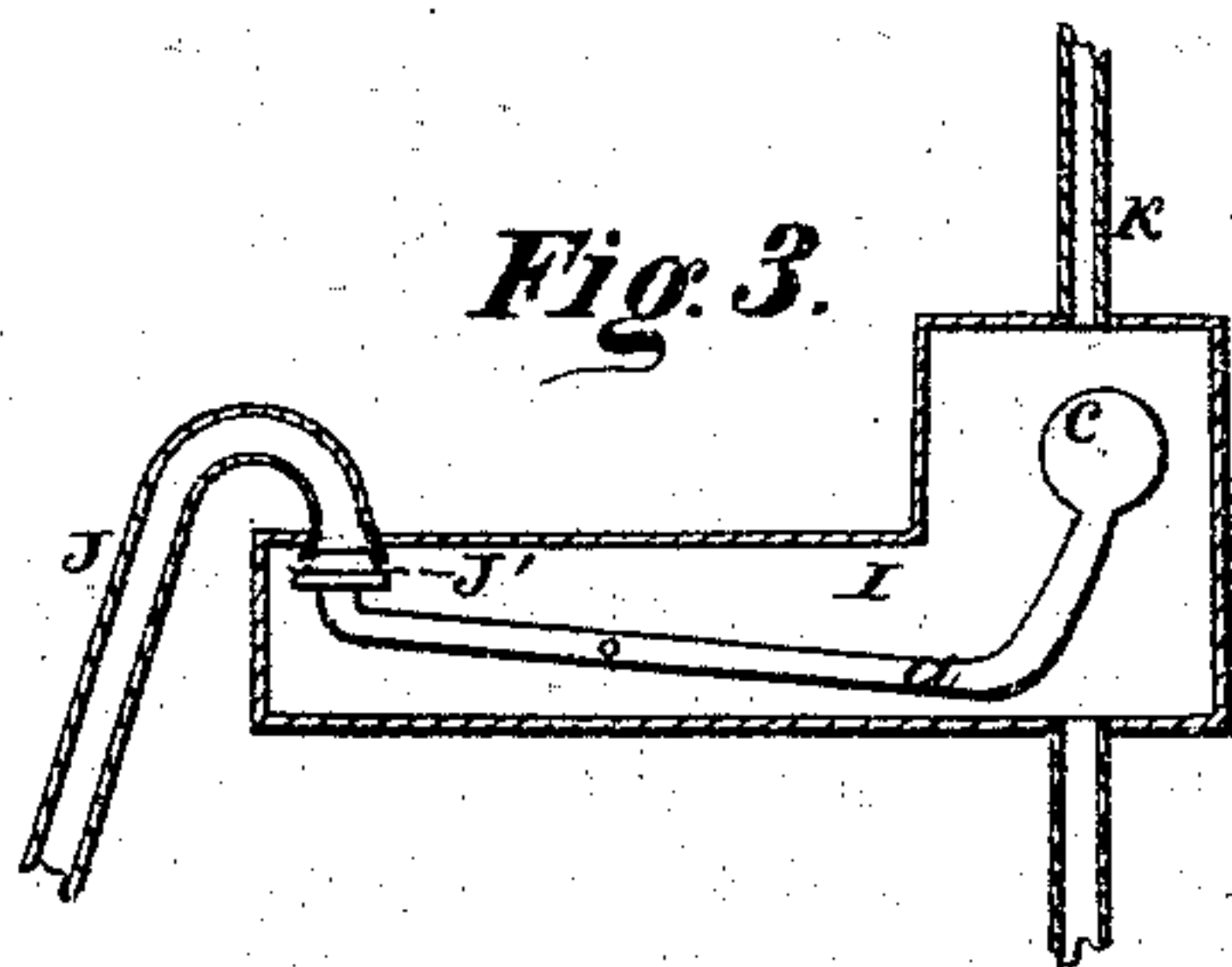


Fig. 3.



Witnesses.

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IMPROVEMENT IN STEAM-TRAPS.

Specification forming part of Letters Patent No. **153,904**, dated August 11, 1874; application filed May 18, 1874.

To all whom it may concern:

Be it known that I, JEAN V. MATHIVET, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Steam-Trap, of which the following is a full and complete description, reference being had to the accompanying drawings making a part of this specification, in which—

Figure 1 is a side view of an arrangement of the trap. Fig. 2 is an end view of Fig. 1. Fig. 3 is an enlarged detached section.

Like letters of reference refer to like parts in the several views.

The nature of this invention relates to a steam-trap; and the object of the same is to cause an equal pressure on both sides of the float used in connection with the trap, thereby making the valve a balanced one, by the application thereto of an equalizing-pipe arranged in relation to the trap and steam-pipes, as hereinafter described.

The construction and operation of the trap are more particularly described as follows:

In the drawing, A represents the boiler for generating steam for heating purposes. Said boiler is supposed to be situated upon the ground-floor B; the upper floor is represented at C, and D represents the heaters or radiators therein. E is the main steam-pipe, from which pipes 1, 2, 3, &c., lead therefrom to the radiators. F are the waste-pipes, whereby condensed steam or water is allowed to escape from the heaters or radiators. The lower ends of said pipes terminate in a pipe, G, the up-turned end H whereof is put in open connection with the steam-trap I. The particular kind of trap is not essential to the working of my invention. The trap referred to in the drawing, however, consists of a lever, *a*, pivoted at *b* in a case or shell. A section of the shell is represented as being broken away, in order to show the lever and float. Secured to the long arm of said lever is a float, *c*. To the short arm of the lever is attached a valve, *J'*, having its seat in the end of the waste-pipe J, which in the drawing is represented as closed by the down position of the float. K is an equalizing-pipe, one end whereof terminates in the steam-pipe 3, above the pipe

E, whereas the opposite end terminates in the steam-trap directly above the float, as shown. The purpose of said pipe is to equalize the pressure of the steam upon the float and valve, thereby making the valve a balanced one, by allowing the pressure on the lower side of the float from the pipe G, and its upper side from the pipe K.

The practical operation of the above-described apparatus is thus: The steam from the boiler, as aforesaid, is conducted into the radiators D through the pipes 1 2 3 and the pipe E. The water, as it may form in the radiators by the condensation of the steam, will flow therefrom through the pipe F into the pipe G; thence up into the body of the trap, on the water accumulating in the pipe G, and, rising in the pipe H, the float *c* will be forced upward by the water in the trap, which, as a consequence, rises therein to the same height as it does in the pipes F. This rising of the float opens the valve, and when the water is risen above the water-line *d*, it will flow out therefrom through the waste-pipe J into the sewer, or elsewhere that may be desirable.

It will be obvious that by this device the water in the pipe F cannot rise above the water-line *d* (on which line the float is supposed to be, so as to rise and fall with the water in the case) without opening the valve, thereby opening and closing the valve *J'*, in the manner and for the purpose stated. The water must rise above the line *d* to open the valve by the float, and the valve is at all times closed as soon as the water passes below the point *d*; hence the water in the return-pipes will at all times be on a level with the float when set; hence no water can accumulate in the radiators, nor in their pipes, so as to obstruct the free passage of steam into them, and by the application to the float and valve of the equalizing-pipe K the valve is made very sensitive, so that it will move readily by the buoyancy of the float.

The advantage of this apparatus for the purpose designed over the ordinary mode is, that each return-pipe is entirely separate from the other, thereby preventing the steam from meeting the condense-water returning from

the other pipes, which obviates the cause of the cracking and thumping in the pipes which is produced by the meeting of the steam and water in the pipes in passing through, this also causing strain and leaking of the pipe's joints, as in the ordinary mode. There may be a greater or less number of heaters with pipes, as shown, according to the number of rooms to be heated. The system herein shown is designed for three heaters with induction and eduction pipes and connections.

What I claim as my invention, and desire to secure by Letters Patent, is—

The steam-trap I, having float *c* and valve *J'*, in combination with the equalizing-pipe *K*, pipes *3*, *H*, and *J*, substantially as described, and for the purpose specified.

JEAN V. MATHIVET.

Witnesses:

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