(No Model.)

H. C. STIFEL.

STEAM TRAP.

No. 452,294. Patented May 12, 1891.

Fig. 1.

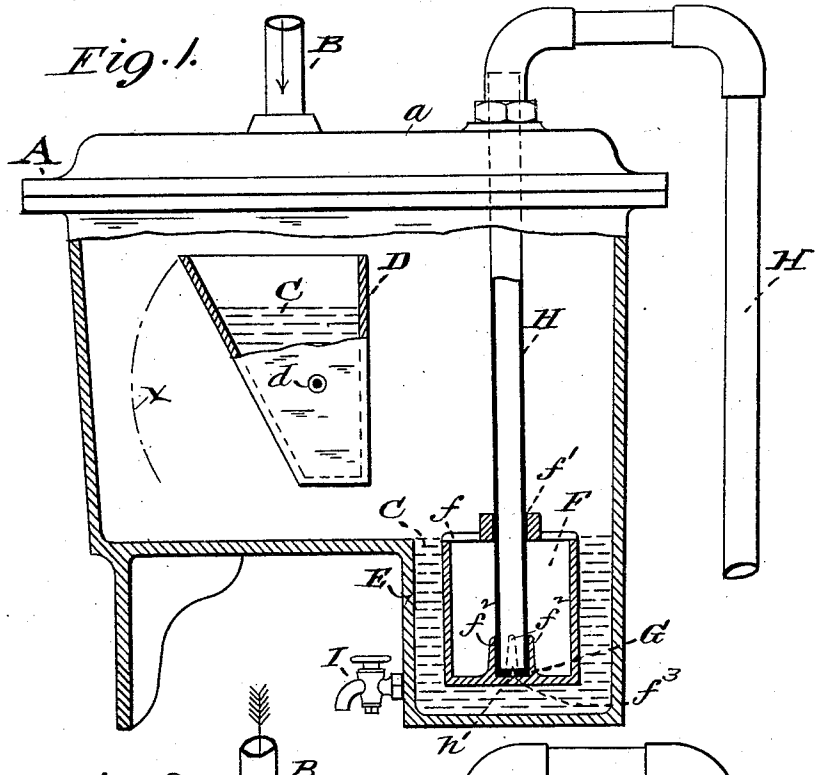
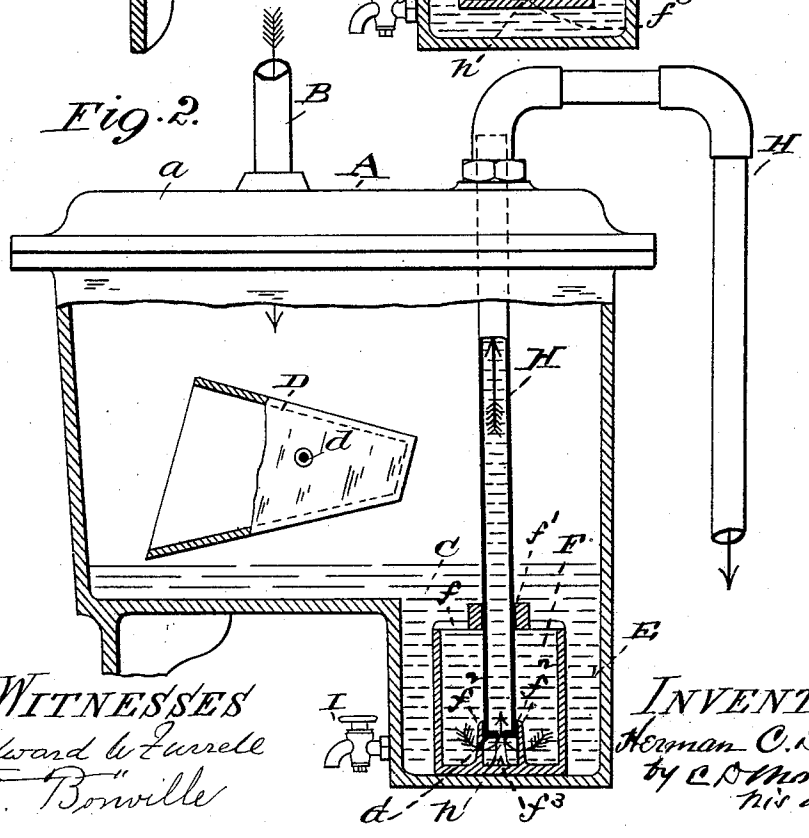


Fig. 2.



WITNESSES
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UNITED STATES PATENT OFFICE.

HERMAN C. STIFEL, OF ST. LOUIS, MISSOURI, ASSIGNOR TO THE N. O. NELSON MANUFACTURING COMPANY, OF SAME PLACE.

STEAM-TRAP.

SPECIFICATION forming part of Letters Patent No. 452,294, dated May 12, 1891.

Application filed February 20, 1891. Serial No. 382,244. (No model.)

To all whom it may concern:

Be it known that I, HERMAN C. STIFEL, of St. Louis, Missouri, have made a new and useful Improvement in Steam-Traps, of which the following is a full, clear, and exact description.

The improvement relates more especially to the means whereby the water of condensation is collected and delivered at prolonged intervals from the trap, substantially as is hereinafter described and claimed, aided by the annexed drawings, making part of this specification, in which—

Figure 1 is a sectional elevation of the improved trap, the outlet therefrom being closed; and Fig. 2, a similar view, the outlet being open and the movable parts of the trap being accordingly adjusted.

The same letters of reference denote the same parts.

A represents the trap casing or chest. It is of any suitable size and shape suited to the end in view. The water is delivered thereinto through the inlet B, and the water C after entering the chest is received in a dumping-tank D. The tank by means of journals, such as *d*, and connected with the walls of the chest, is pivoted to be turned downward and upward from an upright position, as is Fig. 1, in which it is adapted to receive the water, into a position substantially as shown in Fig. 2, in which it is adapted to discharge the water previously received in it downward into the chest. The tank is also shaped and arranged to cause it to dump the water automatically, and after having dumped it to turn back into an upright position again.

E represents a well formed within the chest and containing the valve F, which controls the discharge of the water from the trap. The valve is cup-shaped, substantially as shown, to cause it when empty or substantially empty to float in the well and seat, and thereby close the outlet from the trap. The valve-seat G is at the lower end of a tube H, through which the water passing the valve-seat is discharged from the trap. To this end the tube leads upward and outward through the shell of the chest, and preferably through the top *a* of the chest, and thence to any desired point. The tube also serves to guide the valve in its movement, to which end the valve at its upper end is provided with a cross-bar *f* and at its lower end with an open-work construction fitted to receive the tube, but to admit the water thereto when the valve is unseated. The cross-bar *f* is perforated at *f'* for the tube to pass through it, and the open-work construction referred to is in the form of the upwardly-extending projections f^2 f^2 f^2, all substantially as shown. The inlet *h* into the tube H is preferably smaller than the diameter of the tube, and the valve is provided with a point f^3, which enters and closes said inlet when the valve is seated. The well may have an outlet therefrom controlled by the cock I, and used when it is desired to clear the well.

The operation of the improved construction is as follows: The water C collects in the tank D until the tank thereby becomes unbalanced, whereupon the tank turns upon its bearing, as indicated by the broken lines *x*, Fig. 1, into its position, (shown in Fig. 2,) and the water is poured from the tank in the lower part of the chest. Prior to the dumping of the tank the valve is sufficiently empty and buoyant for it to float, and by coming against the lower end of the tube H to seal the inlet *h* thereto; but when the water is discharged from the tank in the manner described it flows rapidly and freely into the valve, and thereby weights the valve sufficiently to unseat it. The steam-pressure at once acts upon the water in and above the valve and expels it thence and before the valve seats again into the tube and through the same to without the trap. After the water has been thus expelled the valve floats again and closes the outlet from the tank. Meanwhile the tank has righted itself and the operation is repeated. In this manner a difficulty incident to the use of many steam-traps, in which the outlet therefrom is opened at short intervals and the water is discharged frequently in minute quantities and the steam thereby wasted, is largely, if not entirely, obviated, for the outlet from the present trap is opened only when the tank is dumped, a movement occurring only at comparatively long intervals, and when it does

occur a comparatively large amount of water is delivered into the valve, which is thereby opened positively and for a time long enough to enable a tankful of water to be discharged from the trap.

I desire, so far as the use of a dumping-tank in a steam-trap is concerned, not to be restricted to the present or any special valvular mechanism for controlling the outlet from the trap. I also desire not to be limited to a dumping-tank for receiving the water and delivering it in at intervals to the valvular mechanism which controls the outlet from the trap, as other means can be used within the chest for such purpose. I prefer, however, the particular construction shown.

I claim—

1. In a steam-trap whose outlet is controlled by a cup-shaped valve, substantially as described, a tank for receiving the water entering the trap and delivering it to said valve.

2. A steam-trap in which is contained a receptacle for receiving the water entering the trap and delivering it at intervals into the lower part of the trap-chest, for the purpose described.

3. A steam-trap in which is contained a receptacle for receiving the water entering the trap and delivering it at intervals to the valvular mechanism, which controls the outlet from the trap.

Witness my hand this 10th day of February, 1891.

HERMAN C. STIFEL.

Witnesses:
C. D. MOODY,
A. BONVILLE.