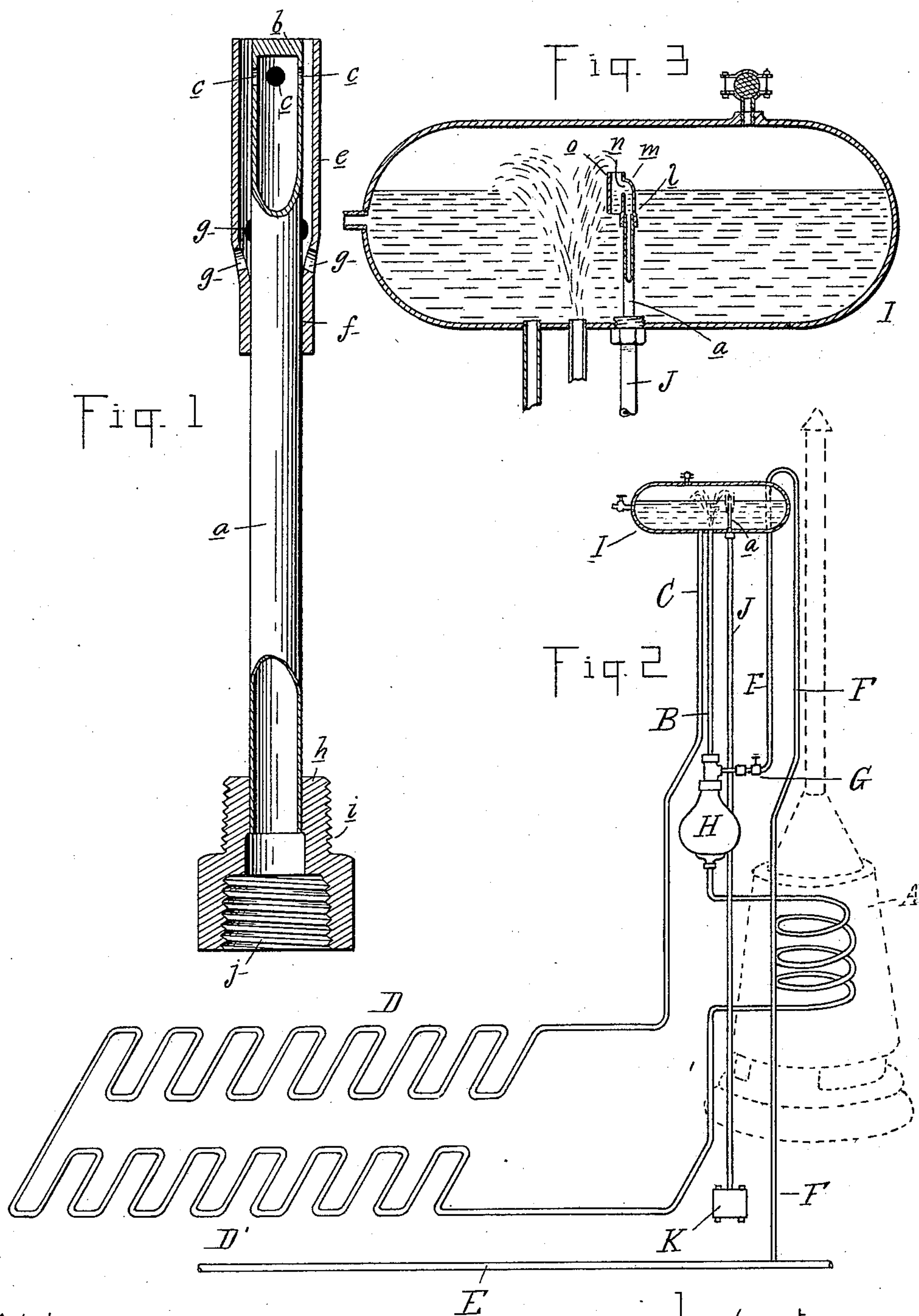


(No Model.)

J. F. McELROY.  
CAR HEATING APPARATUS.

No. 404,927.

Patented June 11, 1889.



Witnesses:  
*Alfred B. Eaton*  
*P. M. Hulbert*

Inventor:  
James F. McElroy  
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Att'y.



# UNITED STATES PATENT OFFICE.

JAMES F. McELROY, OF LANSING, ASSIGNOR TO THE McELROY CAR HEATING COMPANY, OF DETROIT, MICHIGAN.

## CAR-HEATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 404,927, dated June 11, 1889.

Application filed March 25, 1889. Serial No. 304,719. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES F. McELROY, a citizen of the United States, residing at Lansing, in the county of Ingham and State of Michigan, have invented certain new and useful Improvements in Car-Heating Apparatus, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in car-heating apparatus of that class wherein water is circulated through the pipes in the car and is heated and circulated by means of steam commingled therewith or injected therein, and this is intended to be an improvement upon my application for patent, Serial No. 245,193.

The invention consists in the peculiar construction and arrangement of the overflow-pipe to carry off the accumulating water of condensation in such a system. The water is prevented from escaping through such overflow-pipe, except in the event of its rising above the desired level, all as more fully hereinafter described.

In the drawings which accompany this specification, Figure 1 is a perspective, partly in section, of my improved overflow-pipe. Fig. 2 is a diagram elevation, partly in section, showing a car-heating apparatus to which my improvement is attached; and Fig. 3 shows a modification as applied to the expansion-drum of a hot-water-circulating apparatus.

A is the ordinary stove or heater in the car.

B is the upgoing pipe from said stove.

C is the outgoing pipe.

D and D' are the radiators in the car.

E is the main supply-pipe from the locomotive or other source of steam.

F is the branch steam-pipe.

G is the valve controlling the supply into the system.

H is the chamber, in which the steam and water are commingled in the manner specified in my before-mentioned application for patent.

I is the expansion-drum.

J is the overflow-pipe, to which my improvement is attached, and K is the ordinary thermostatic-trap at the end thereof, all of the known and usual construction, except as more fully hereinafter set forth.

In the modification of my device, as shown in Fig. 1, *a* is the extension of the overflow-pipe into the expansion-drum, being of any desired length, the upper end *b* being capped or closed in any suitable manner, and on its sides, a short distance below the top, provided with the perforations *c*. Around the top of this extension is secured in any suitable manner the shield *e*. In the drawings this is shown as soldered to the extension at *f*. In the base of this shield are the perforations *g*. The base of this extension is secured in the reducing-plug *h*, which is provided with the screw-thread *i*, adapted to enter the lower side of the expansion-drum, and the interior screw-thread *j*, adapted to receive the lower part of the overflow-pipe outside of the expansion-drum.

In Fig. 3 is shown a modification of my overflow-pipe having the same construction of reducing-plug and extension of the pipe *a*. The top is provided with the casting *l*, having a vertical passage in line with the pipe, and an offset *m* across the top of the said upright, and apertures *n* and a shield *o* open at top and bottom. It has been found in the use of such apparatus that when steam is injected into the system in the line of the circulation the water is circulated with great rapidity from ten to forty feet per minute, according to the steam-pressure and other conditions, and in consequence in coming out of the riser B into the expansion-drum a great ebullition occurs, which, with the open-ended overflow-pipe, is apt to cause a considerable loss of water.

The object of my invention is to cover the top of the overflow-pipe in the expansion-drum and to provide lateral openings therein, with a shield to prevent the side splashing of water into the apertures, so that no water can escape, except in the event of the water rising above the height of the apertures in the vertical portion of the pipe.

It is evident that, as the water comes in at but one point and but one overflow used, should the overflow be capped and perforations placed on the side opposite from the incoming water the same results would be achieved as with the covered top, side apertures, and the shield, as shown in Figs. 1 and 3.

What I claim as my invention is—

1. In combination with a car-heating apparatus of the kind described and the drum thereof, an overflow-pipe having its aperture shielded from the effects of the ebullition, substantially as described.

2. In a car-heating apparatus of the kind described and the expansion-drum thereof, an overflow-pipe having a covered top and side shields, such shields having top and bottom apertures, substantially as described.

3. In a car-heating apparatus of the kind described and the expansion-drum thereof, a

reducing-plug, the pipe *a*, secured therein and capped at the top, the aperture *c*, and the shield *e*, open at the top and bottom, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 19th day of March, 1889.

JAMES F. McELROY.

Witnesses:

J. PAUL MAYER,  
H. B. EATON.