

(No Model.)

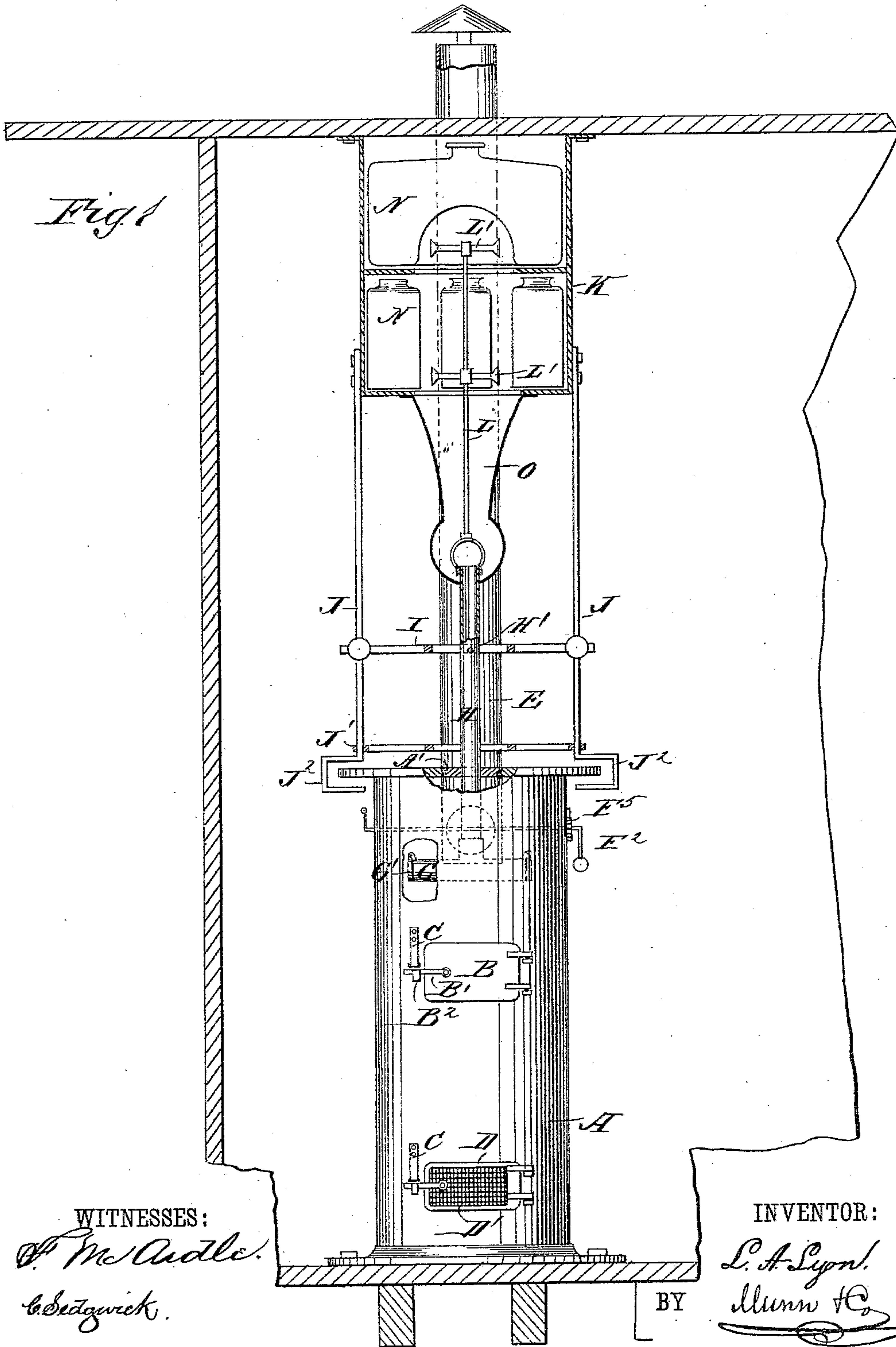
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L. A. LYON.

AUTOMATIC FIRE EXTINGUISHER FOR CAR HEATERS.

No. 381,501.

Patented Apr. 17, 1888.



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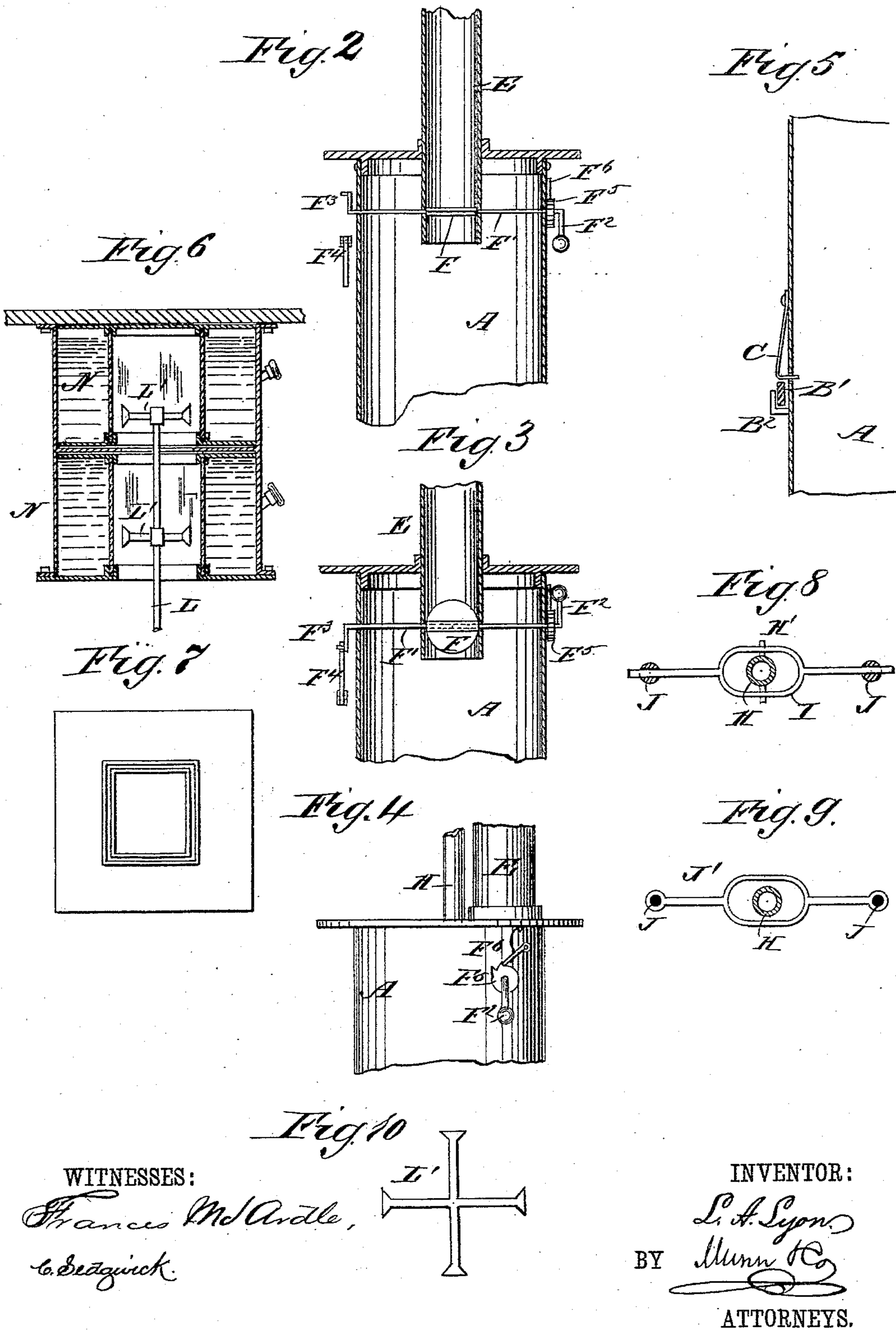
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# UNITED STATES PATENT OFFICE.

LOUIS A. LYON, OF SHORTER'S DEPOT, ALABAMA.

## AUTOMATIC FIRE-EXTINGUISHER FOR CAR-HEATERS.

SPECIFICATION forming part of Letters Patent No. 381,501, dated April 17, 1888.

Application filed May 2, 1887. Serial No. 236,853. (No model.)

*To all whom it may concern:*

Be it known that I, LOUIS A. LYON, of Shorter's Depot, in the county of Macon and State of Alabama, have invented a new and Improved Automatic Fire-Extinguisher for Car-Heaters, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved fire-extinguisher for car-heaters, which extinguishes the fire in the car-heater automatically when the heater or car is upset by collision or other accident.

The invention consists in the construction and arrangement of various parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional elevation of my improvement shown in connection with a heater and part of a car to which it is applied. Fig. 2 is a sectional elevation of the upper part of the heater and smoke-outlet flue provided with an automatic damper, shown in a closed position. Fig. 3 is a similar view of the same, showing the damper in an open position. Fig. 4 is a side elevation of the same. Fig. 5 is a sectional elevation of the heater-shell, showing the locking device for the heater-doors. Fig. 6 is a sectional elevation of a modified form of the vessel containing the fire-extinguishing fluid. Fig. 7 is a plan view of one of the end plates of said vessel. Fig. 8 is a sectional plan view of the universal joint for the pipe conveying the fire-extinguishing fluid to the car-heater. Fig. 9 is a similar view of the standards and braces supporting the universal joint; and Fig. 10 is a plan view of the hammer for breaking the vessels containing the fire-extinguishing fluid.

The car-heater A, of any approved construction, is secured to the car and is provided with the fire-box door B, having a latch, B', adapted to engage the catch B<sup>2</sup> and held in a locked position by a spring, C, pivoted to the shell of the car-heater A and bent inward at its lower end, passing through a slot in said shell, the lower bent end of said spring C be-

ing directly above the outer end of the latch B'. In order to open the latch B', it is necessary that the spring C should be pressed inward, so as to free the latch B', thus permitting the raising of the same in order to disengage it from the catch B<sup>2</sup>.

The ash-pit door D is provided with a similar locking device for its latch, and is also provided with a wire screen, D', which permits the entrance of air for the combustion of the fuel in the heater, but prevents the escape of burning fuel or hot ashes into the car when the latter is upset by a collision or other accident, the doors being securely locked by the springs C.

The car-heater A is provided with the usual smoke-outlet flue, E, extending upward through the roof of the car. In the lower end of the flue E is held a damper, F, secured to a rod or shaft, F', having its bearing in said pipe E and in the shell of the car-heater A, through which it extends at both ends. On one end of the shaft F' is secured the weighted arm F<sup>2</sup>, and on the other end is formed the crank-arm F<sup>3</sup>, extending in an opposite direction from the weighted arm F<sup>2</sup> and adapted to engage the upper end of an arm, F<sup>4</sup>, secured to the car. Alongside the weighted arm F<sup>2</sup> on the shaft F' is secured a ratchet-wheel, F<sup>5</sup>, which engages a spring-pawl, F<sup>6</sup>, pivoted to the shell of the car-heater A. In the normal position, as shown in Fig. 3, the damper F is open, the weighted arm F<sup>2</sup> extending upward, while the crank-arm F<sup>3</sup> extends downward and is held in contact with the arm F<sup>4</sup>. Now, if the car is upset, the weighted arm F<sup>2</sup> will swing downward until the damper F is closed, the shaft F' of the damper being then held in a locked position by the spring-pawl F<sup>6</sup> engaging the teeth of the ratchet-wheel F<sup>5</sup>. By having the arm F<sup>4</sup> secured to the car the jar of derailment of the car breaks the connection between the arm F<sup>4</sup> and the crank-arm F<sup>3</sup>, whereby the damper F is closed, even if the car is not turned over.

In the fire-box of the car-heater A, above the grate-bars, is held a horizontal pipe, G, provided at each end with an outwardly-swinging door, G', hinged at the top of said pipe G. From the middle of the pipe G extends upward a pipe, H, passing through a loose lid,



A', on the top of the car-heater and pivoted near its upper end by the crosswise-extending trunnions H' to the arm I, provided on its outer ends with trunnions turning in suitable bearings formed in the standards J, secured at their upper ends to a casing, K, fastened to the roof of the car. The arm I extends at right angles to the trunnions H' of the pipe H, thus forming a universal joint for the pipe H. The standards J are connected at their lower ends by the brace J', and the lower ends of the standards are also provided with the forks J<sup>2</sup>, fitting over the top rim of the car-heater A, so as to prevent the standards J from swinging, said swinging motion being caused by the swaying of the car. In case of a severe accident, in which the heater is moved from its foundation, then the forks J<sup>2</sup>, engaging the rim of the heater, tear the casing K from the roof of the car, and the casing and heater remain together.

To the upper end of the pipe H is secured a rod, L, provided with one, two, or more hammers, L', placed suitable distances apart, and each consisting of bars arranged in the shape of a cross, as shown in Fig. 10. The outer ends of the bars of each hammer L' extend within a short distance of the lower inner sides of the glass vessels N, held in the casing K and containing a fire extinguishing fluid. To the pipe H is also secured near its upper end a funnel, O, extending to the bottom of the casing K, so that in case the glass vessels N are broken, then the fluid from the vessels passes into the funnel O and finally into the pipe H.

Instead of placing the glass vessels N containing the fire-extinguishing fluid in the casing K, as shown in Fig. 1, I may form a fire-extinguishing casing, as shown in Fig. 6, provided only on its inside with glass sides, against which the hammers L' operate.

The operation is as follows: When the car-heater A is upset in any direction by a collision or other accident, then the pipe H, on account of being hung on a universal joint, will remain in a vertical position, whereby the hammers L' will be thrown in contact with the sides of the glass vessel N, so that the latter will be broken, and the fire-extinguishing fluid will run out of the same and into the funnel O, in the bottom of which it collects, and from which it finally passes into the upper end of

the pipe H and down the same, and into the horizontal pipe G, from which it passes out at either end into the fire-box, thus extinguishing the fire in the heater A. The damper will be simultaneously operated with the hammers, so that the gases generated by the fire-extinguishing fluid will be prevented from escaping. An ordinary damper would not suffice, as it could not be operated upon the derailment of the car.

It will be seen that the burning fuel cannot escape through any of the doors B or D, as the latter are securely locked in position by the springs, C, and, further, the burning fuel cannot escape into the smoke-flue E, as the latter is closed by the damper F above described.

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

1. In a fire extinguisher for car-heaters, the combination, with a pipe extending into the fire-box of the car-heater and hung on a universal joint, of a rod secured to the upper end of said pipe, hammers secured to said rod, a funnel extending upward and secured to the upper end of said pipe, glass vessels containing a fire-extinguishing fluid and placed in such a relative position to said hammers that the vessels are broken by said hammers, the fluid running into said funnel and into said pipe, thus passing to the fire-box of the car-heater, substantially as shown and described.

2. In a fire-extinguisher for car-heaters, a casing secured to the roof of the car, and glass vessels held in said casing and containing a fire-extinguishing fluid, in combination with a pipe extending into the fire box of the car-heater located below said casing, a universal joint in which said pipe is hung, the universal joint being supported from said casing, a rod secured to the upper end of said pipe, hammers formed on said rod and adapted to break said vessels, and a funnel secured to the upper end of said pipe and extending upward to the bottom of said casing, so that the fire-extinguishing fluid flows, after the vessels are broken, into the said funnel and then through the pipe to the car-heater, substantially as shown and described.

LOUIS A. LYON.

Witnesses:

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