

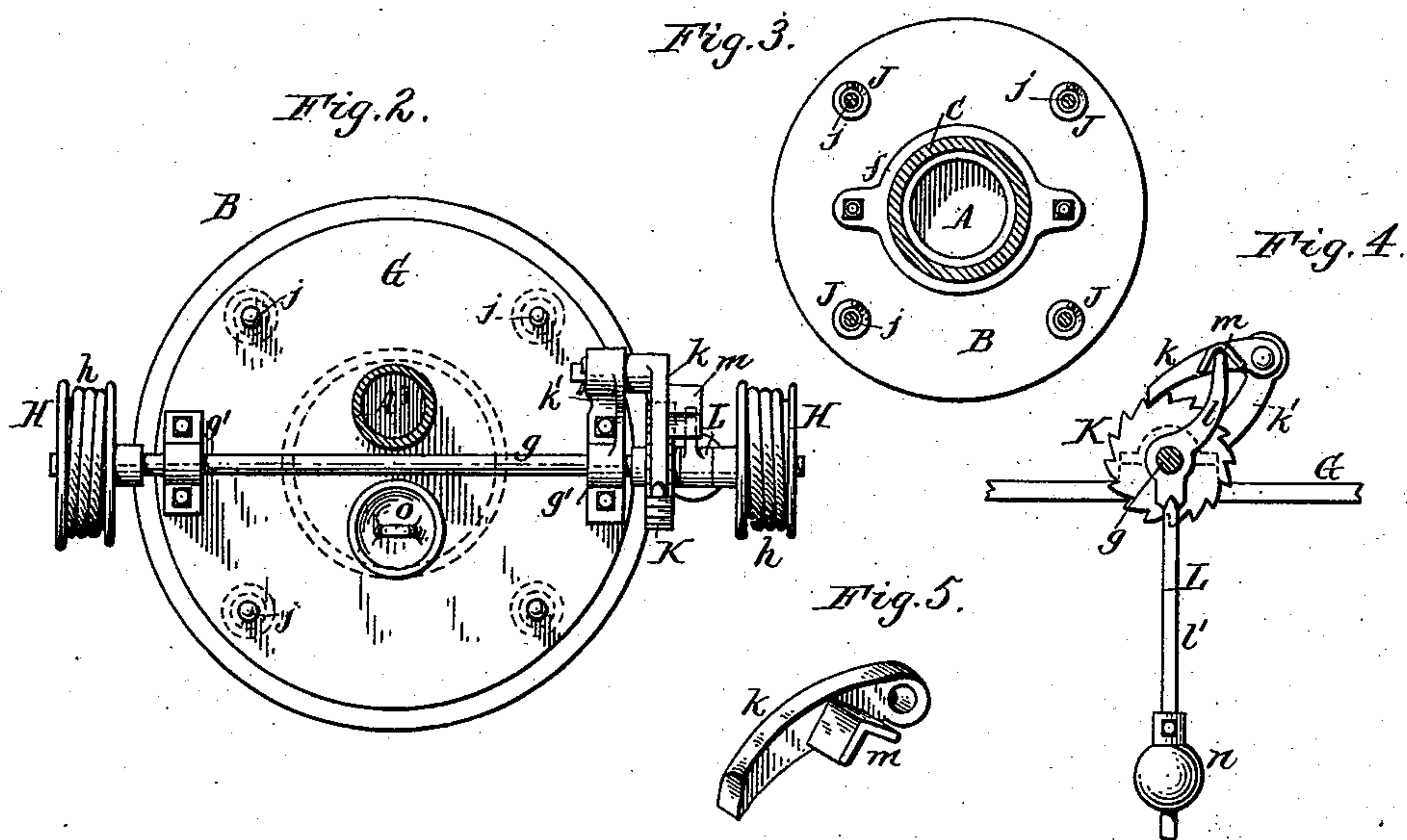
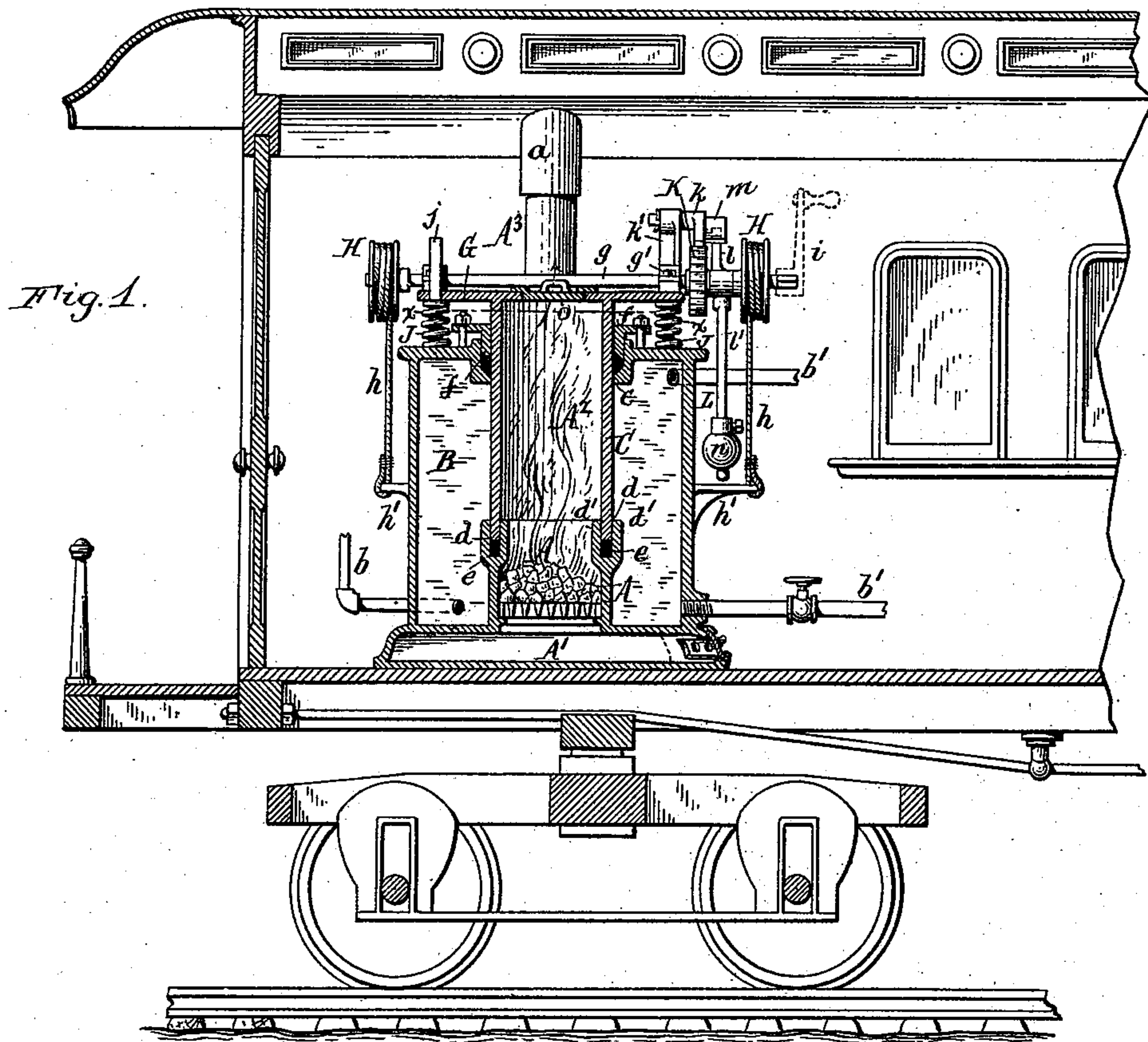
(No Model.)

L. G. GILBERT & M. W. LONG.

CAR HEATER.

No. 377,934.

Patented Feb. 14, 1888.



Witnesses:

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# UNITED STATES PATENT OFFICE.

LEANDER G. GILBERT AND MARTIN W. LONG, OF BUFFALO, NEW YORK,  
ASSIGNORS, BY DIRECT AND MESNE ASSIGNMENTS, TO SAID GILBERT AND  
TOBIAS WITMER, JR., OF SAME PLACE.

## CAR-HEATER.

SPECIFICATION forming part of Letters Patent No. 377,934, dated February 14, 1888.

Application filed April 18, 1887. Serial No. 235,213. (No model.)

*To all whom it may concern:*

Be it known that we, LEANDER G. GILBERT and MARTIN W. LONG, both of the city of Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Car-Heaters, of which the following is a specification.

This invention relates to that class of car-heaters which are provided with a hot-water boiler and radiating-pipes through which the hot water is circulated from the boiler through the car.

Our invention has for its object to construct the heater in such manner that the water in the boiler can be utilized for extinguishing the fire in the heater in case of an accident to the train or the car upsetting or assuming an abnormal position.

Our invention consists to this end of the improvements in the construction of the heater, as will be hereinafter fully set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 represents a sectional elevation of our improved car-heater and one end of a railway-car. Fig. 2 is a top plan view of the heater. Fig. 3 is a cross-section in line *x x*, Fig. 1. Fig. 4 is a sectional side elevation of the ratchet and pawl and hanging lever. Fig. 5 is a perspective view of the locking-pawl.

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

A represents the fire-pot of our improved car-heater; A', the ash-pit; A<sup>2</sup>, the flame-passage, arranged above the fire-pot and communicating with the chimney or smoke-pipe A<sup>3</sup>. The latter extends through a sleeve, *a*, secured in an opening formed in the roof of the car.

B represents an annular water-chamber surrounding the fire-pot and the flame-passage A<sup>2</sup>, and provided with a suitable feed-pipe, *b*, whereby the water is introduced into the boiler from a tank arranged in the car or from any other source of supply.

*b'* represents the radiating-pipes through which the hot water from the heater is circulated through the car. The flame-passage A<sup>2</sup> is formed by a cylinder, C, which extends

through an opening, *c*, formed in the top of the water-chamber B and rests with its lower edge upon the top of the fire-pot, forming a continuation of the fire-pot and also the inner wall of the water-chamber. The top of the fire-pot is provided with an annular space or recess, *d*, which is formed between two vertical rims, *d'*, and the bottom of the cylinder C fits in the recess *d* between the rims *d'*.

*e* represents a packing of asbestos arranged in the space or recess *d* and upon which the cylinder C rests, so as to form a tight joint between the edge of the cylinder and the fire-pot. The top of the water-chamber B is provided with a stuffing-box, *f*, which forms a tight joint between the cylinder C and the opening *c*.

G represents a horizontal plate formed with or secured to the top of the cylinder C and extending outwardly over the top of the water-chamber. The plate G is provided in its upper side with a horizontal shaft, *g*, which is journaled in bearings *g'*, secured to the plate G.

H H represent flanged pulleys secured to the ends of the shaft *g*, and *h h* are chains or cables fastened at one end to the pulleys H and at their opposite end to a ring or projection, *h'*, secured to the outer side of the boiler or water-chamber B. The shaft *g* is provided at one of its ends with a crank, *i*.

J J represent spiral springs interposed between the plate G and the top of the water-chamber B. The springs J are held in place by vertical rods *j*, which are secured to the top of the chamber B and extend through openings formed in the plate G.

K represents a ratchet-wheel secured to the shaft *g*, and *k* a pawl pivoted to an arm, *k'*, secured to the plate G and engaging with the teeth of the ratchet-wheel.

L represents a hanging lever mounted loosely on the shaft *g*, so as to swing thereon. The lever L is provided with a short arm, *l*, which engages against a V-shaped projection or lug, *m*, formed on the pawl *k*, and a long arm, *l'*, which hangs in a vertical position from the shaft *g*, and is provided at its lower end with a weight, *n*.



Upon turning the shaft *g* by means of the crank *i* the cables or chains *h* are wound upon the pulleys *H* and the springs *J* are compressed between the plate *G* and the top of the chamber *B*. The cylinder *C* is also forced down upon the fire-pot, with its lower edge seated in the recess *d* against the asbestos packing *e*. The parts are now in position for use, and are held in place by the pawl *k* engaging the ratchet-wheel *K*.

Upon the car assuming an abnormal position in case of an accident to the train the upsetting or tilting of the car will cause the weighted end of the lever *L* to swing upon its pivot, and the arm *l*, engaging against the projection *m* of the pawl *k*, will lift the latter from the ratchet-wheel *K*. This movement releases the cables *h*, and the plate *G* and cylinder *C* are forced upwardly by the springs *J*, so as to break the joint between the cylinder *C* and the fire-pot and permit the water surrounding the cylinder or flame-passage to enter the fire-pot and extinguish the fire.

Air is supplied to the fire-pot through a suitable damper formed in the door leading to the ash-pit, and the fuel is supplied through an opening formed in the top of the cylinder *C*, which is closed by a cover, *o*.

Our improved car-heater is very simple in construction, it occupies but little space, and forms a safe and reliable means for extinguishing the fire in case of an accident.

We claim as our invention—

1. In a car-heater, the combination, with the fire-pot *A* and a water-chamber, *B*, surrounding the fire-pot, of an adjustable cylinder, *C*, arranged above the fire-pot and forming the inner wall of the water-chamber and the flame-passage, substantially as set forth.

2. In a car-heater, the combination, with the fire-pot *A*, having a recess, *d*, around its upper edge and provided with a suitable packing, *e*, and a water-chamber, *B*, surrounding said fire-pot and provided at its top with an opening, *c*, and stuffing-box *f*, of a cylinder, *C*, extending through the stuffing-box and resting with its lower end in the recess *d* against

the packing *e*, so as to form the inner wall of the water-chamber and the flame-passage for the fire-pot, substantially as set forth.

3. In a car-heater, the combination, with the fire-pot *A* and chamber *B*, surrounding the fire-pot, of a cylinder *C*, extending through the chamber *B* and resting upon the upper edge of the fire-pot, a plate, *G*, secured to the top of the cylinder *C*, a shaft, *g*, journaled in bearings secured to the plate *G*, pulleys *H*, mounted on said shaft, and cables *h*, secured to the pulleys *H* and to the wall of the chamber *B*, substantially as set forth.

4. In a car-heater, the combination, with the fire-pot *A* and a water-chamber, *B*, surrounding the fire-pot, of a cylinder, *C*, extending through the water-chamber and resting upon the upper edge of the fire-pot, a plate, *G*, secured to the top of the cylinder *C* and provided with drums *H*, cables *h*, and ratchet mechanism *K*, whereby the cylinder *C* is held in place upon the fire-pot, and springs *J*, interposed between the plate *G* and the top of the chamber *B* and adapted to raise the cylinder *C* when the ratchet mechanism *K* is released, substantially as set forth.

5. In a car-heater, the combination, with the fire-pot *A* and a water-chamber, *B*, surrounding the fire-pot, of a cylinder, *C*, extending through the chamber *B* and resting upon the upper edge of the fire-pot, a plate, *G*, secured to the top of the cylinder *C*, a shaft, *g*, journaled in bearings secured to said plate and provided with pulleys *H*, and cables *h*, connecting said pulleys with the wall of the heater, a ratchet-wheel, *K*, secured to the shaft *g*, a pawl, *k*, engaging with the ratchet-wheel, and a hanging lever, *L*, pivoted to the shaft *g* and adapted to release the pawl *k* from the ratchet-wheel *K*, substantially as set forth.

Witness our hands this 8th day of April, 1887.

LEANDER G. GILBERT.  
MARTIN W. LONG.

Witnesses:

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