(No Model.)

W. C. BAKER.

RAILWAY CAR HEATER.

No. 457,920. Patented Aug. 18, 1891.

Fig. 3.

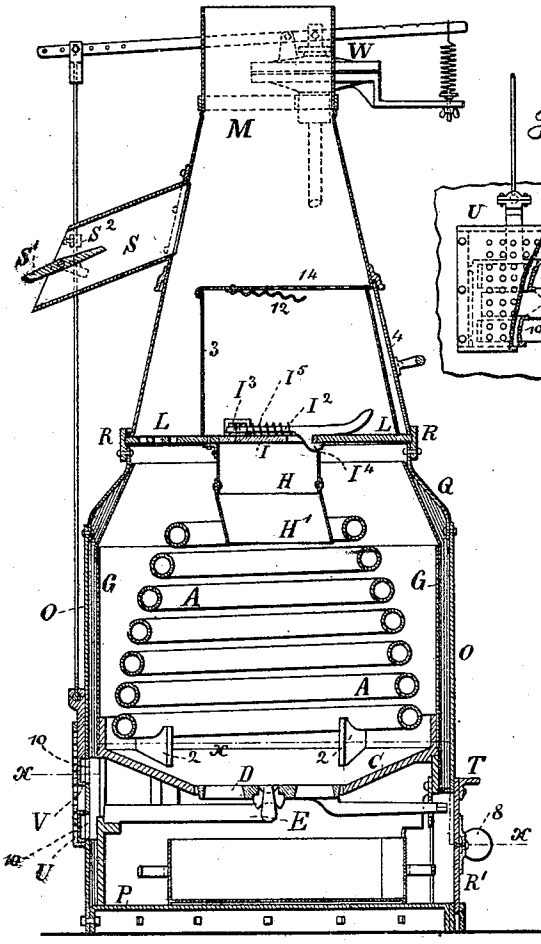


Fig. 5.

Fig. 1.

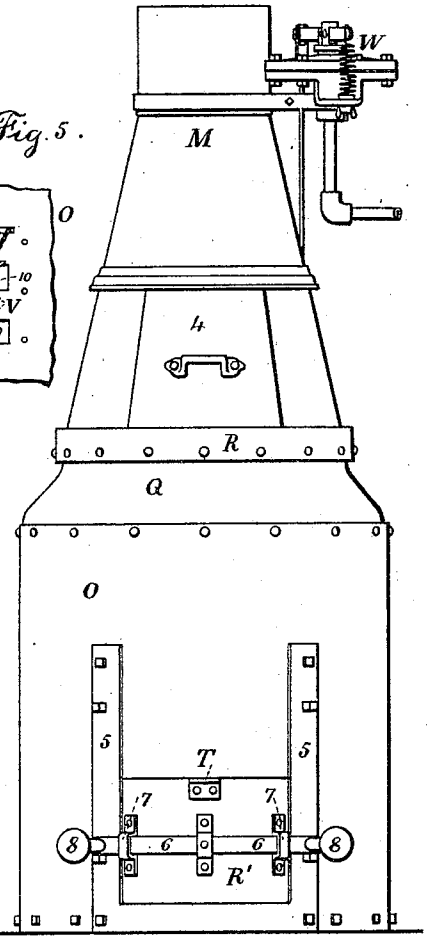


Fig. 4.

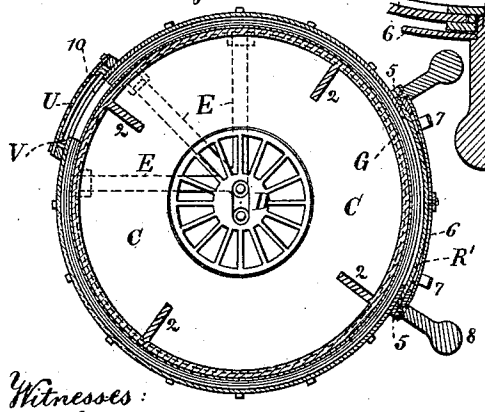


Fig. 6.

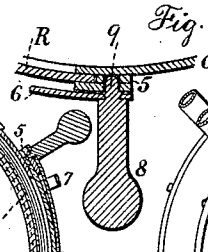
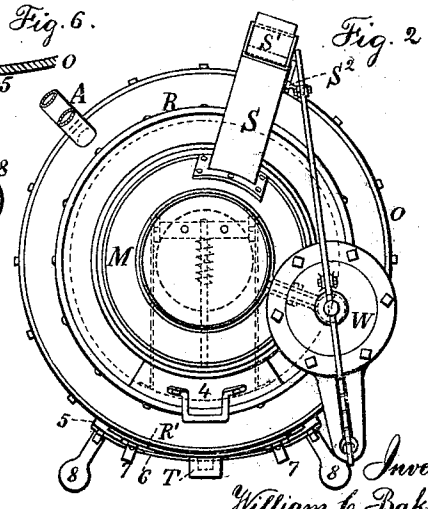


Fig. 2.



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UNITED STATES PATENT OFFICE.

WILLIAM C. BAKER, OF NEW YORK, N. Y., ASSIGNOR TO THE BAKER HEATER COMPANY, OF SAME PLACE.

RAILWAY-CAR HEATER.

SPECIFICATION forming part of Letters Patent No. 457,920, dated August 18, 1891.

Application filed November 30, 1889. Serial No. 256,491. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. BAKER, of the city and State of New York, have invented an Improvement in Railway-Car Heaters, of which the following is a specification.

The object of this invention is to inclose the railway-car heater in a wrought-steel case that will effectually prevent the contents of the heater becoming scattered in case of collision or running off the track and to give access to the heater for stirring the fuel or removing the ashes.

In the drawings, Figure 1 is an elevation of the heater. Fig. 2 is a plan of the same. Fig. 3 is a vertical central section. Fig. 4 is a sectional plan of the base at the line *x x x*, Fig. 3. Fig. 5 shows the damper and case partly broken open to show the draft-openings in the sheet-steel casing, and Fig. 6 is a section in larger size through the spring-latch handle guideways and case.

My present invention is especially adapted to heaters containing coils for circulating hot water, such as represented in my patent, No. 353,839; but the said invention is not necessarily limited to this specific heater.

I have represented a coil of pipe A as resting upon the flanges 2, that are within and above the inverted conical base C, and at the opening in the bottom of the conical base is a grate D, supported upon the triangular bracket E, similar to that in my application, Serial No. 205,859, filed June 22, 1886. Around the coil A is a fire-pot G, usually of cast-iron, and at the top of the fire-chamber is a fuel-supply chute H, with a cover I, and the products of combustion pass off through openings in the perforated plate L into the escape-flue M, the lower end of which is conical and provided with a door 4, through which the fuel is introduced. These parts are similar to those shown in my application, Serial No. 234,323, filed April 11, 1887.

My safety-casing is made of the cylinder O, of wrought metal, preferably soft steel, having a flanged bottom P, riveted or bolted into place within the lower end of the cylinder O after the parts of the heater have been put into place. This bottom P forms the bottom of the ash-pit, and at the top of the cylinder O is a conoidal ring Q, terminating with a vertical flange R, receiving the base of the conical flue M. The space between the fire-pot and the case O is filled in with non-conducting material, preferably with two or more sheets or layers of asbestus cloth or paper, so as to lessen the heat passing to and radiated from the case O.

One of the improvements to which the present invention relates is a door for closing the ash-pit. An opening is made through the case O sufficient to give access to the ash-pit for raking the fire or removing ashes, and upon the outside of the casing, at each side of the openings and extending above the same, are the guideways 5 for the sliding door R′. This door R′ is made to move freely up and down in the slideways, and it is to be of suitable sheet metal, such as soft steel. Upon the surface of the door is attached the middle of the latch-spring 6, and this spring is held in position by the loops 7 upon the door, and the ends of the springs are provided with handles or knobs 8, and each knob has attached to it a stud 9 to pass into a hole in the guideways and form a latch, so that when the door has been forced down to the bottom of the slides and closed the same will be firmly locked. The friction between the ends of the studs and the surfaces of the guideways, caused by the action of the springs, is preferably sufficient to sustain the door at any place to which it may be raised, and there is upon this door a foot-piece T, that is to be pressed upon by the conductor or porter to readily close the door after it has been opened. My improvements contemplate that this door is always to be closed, except when ashes are being removed or the fire shaken. Hence instructions will always be given to keep this door closed, and the conductor or any other person can close the door by simply pressing upon the foot-piece and forcing it down.

In order to regulate the amount of atmospheric air to pass into the ash-pit, I provide two openings or slots 10 through the case O, and I rivet or otherwise fasten to the case O and outside of these openings a perforated shield U, the edges being firmly attached to the case O, and the perforations in this shield are sufficiently small to prevent fire passing through them in case of the heater being

broken up within the case. There, however, is between the shield and the case a sufficient space for the reception of the sliding damper V, which has two cross-bars and an opening corresponding to one of the openings through the case into the ash-pit. This damper may entirely cover the two openings through the case O into the ash-pit or it may be made to open the draft to a greater or less extent. The movement is given to this damper by the automatic regulator W, of ordinary construction. When the fire is burning with sufficient rapidity and there is the proper pressure, the damper will be moved by the diaphragm, lever, and rod of the damper-regulator until both openings through the case into the ash-pit are closed, so as to check the rapidity of combustion, and when the pressure decreases the damper is moved the other way to open the air-inlets to the ash-pit. There is a lateral air-inlet S into the flue M and a damper S′ in said inlet, and upon the rod of the damper-regulator is a connection S^2, that will act upon the crank-arm of the damper S′ to open the same and admit air to pass into the flue M to cool the same and lessen the draft; and this operation takes place simultaneously with the closing of the draft-inlet to the ash-pit by the damper V, thereby regulating the fire in the most perfect manner.

In supplying fuel the coal is liable to be thrown toward the back part of the fire-chamber, and hence not be distributed uniformly over the fire. To avoid this difficulty, I make use of a forwardly-inclined deflector H′ at the lower part of the supply-chute W, which serves to evenly distribute the coal upon the fire as such coal is thrown into the combustion-chamber.

I have modified the safety-plate I, shown in my aforesaid application, by placing upon the same a bolt I^2, sliding endwise, with the rear end passing through the axis-bar I^3 and having a hooked latch I^4, passing through a mortise in the safety-plate and catching below the under side of the plate L when the safety-plate is closed, and there is an expansive spring I^5 around the stem of the latch to cause the same to catch when closed. The latch is released by pushing it back against the action of the spring.

The vertical partition or guard 3 prevents coal being scattered upon the top of the plate L, and there is a perforated plate 14 between the upper end of this plate and the base of the flue M, and upon the under side of this plate is a corrugated detainer 12, into contact with which the handle end of the spring latch I^4 is pressed when the safety-plate is swung up. This holder steadies the latch and safety-plate to prevent them falling while fuel is being supplied into the fire-chamber.

I do not herein lay claim to the safety appliances at the upper end of the heater, where the fuel is supplied, the same being in my former application, Serial No. 234,323, filed April 11, 1887.

I claim as my invention—

1. The combination, with the railway-car heater having a fire-chamber and a supply at top for the fuel, of a wrought-metal case surrounding the heater and having an opening to give access to the ash-pit, slideways affixed to the casing adjacent to such opening, a door sliding vertically in said slideways, and spring-latches for holding the door when closed, substantially as set forth.

2. The combination, with the railway-car heater, of a wrought-metal case inclosing the same and having an opening therein to give access to the ash-pit, slideways affixed to the casing, a vertically-sliding door with the slideways, the spring 6, connected to the door and having handles at its outer ends, studs extending from the handles to enter holes in the slideways and form spring-latches for holding the door when closed, and a foot-piece upon the door for closing the same, substantially as set forth.

3. The combination, with the top plate L and swinging safety-plate I, of the sliding latch having a hook passing through a mortise in the safety-plate and catching beneath the top plate, and a spring to act upon the latch, substantially as set forth.

4. The combination, with the coil for circulating hot water, of the fuel-chamber, the perforated top plate L, the hinged safety-plate, the spring-latch for the same, the vertical guard-plate 3, the top 14, and the corrugated plate 12 for steadying the end of the spring-latch while the safety-plate is raised for supplying fuel, substantially as set forth.

5. The combination, in a railway-car heater having a fire-chamber and ash-pit and the surrounding walls or case, of a top plate over the fire-chamber, with numerous small holes for the products of combustion and an opening for the insertion of fuel, a safety locking-plate for closing this opening, a wrought-metal case surrounding the heater and having an opening to give access to the ash-pit, slideways affixed to the casing adjacent to such opening, a door sliding vertically in the said slide-ways, and spring-latches for holding the door when closed, substantially as set forth.

Signed by me this 21st day of November, 1887.

W. C. BAKER.

Witnesses:
GEO. T. PINCKNEY,
WILLIAM G. MOTT.