2 Sheets—Sheet 1.

J. H. PRENTICE.

CAR-STOVE.

No. 187,774. Patented Feb. 27, 1877.

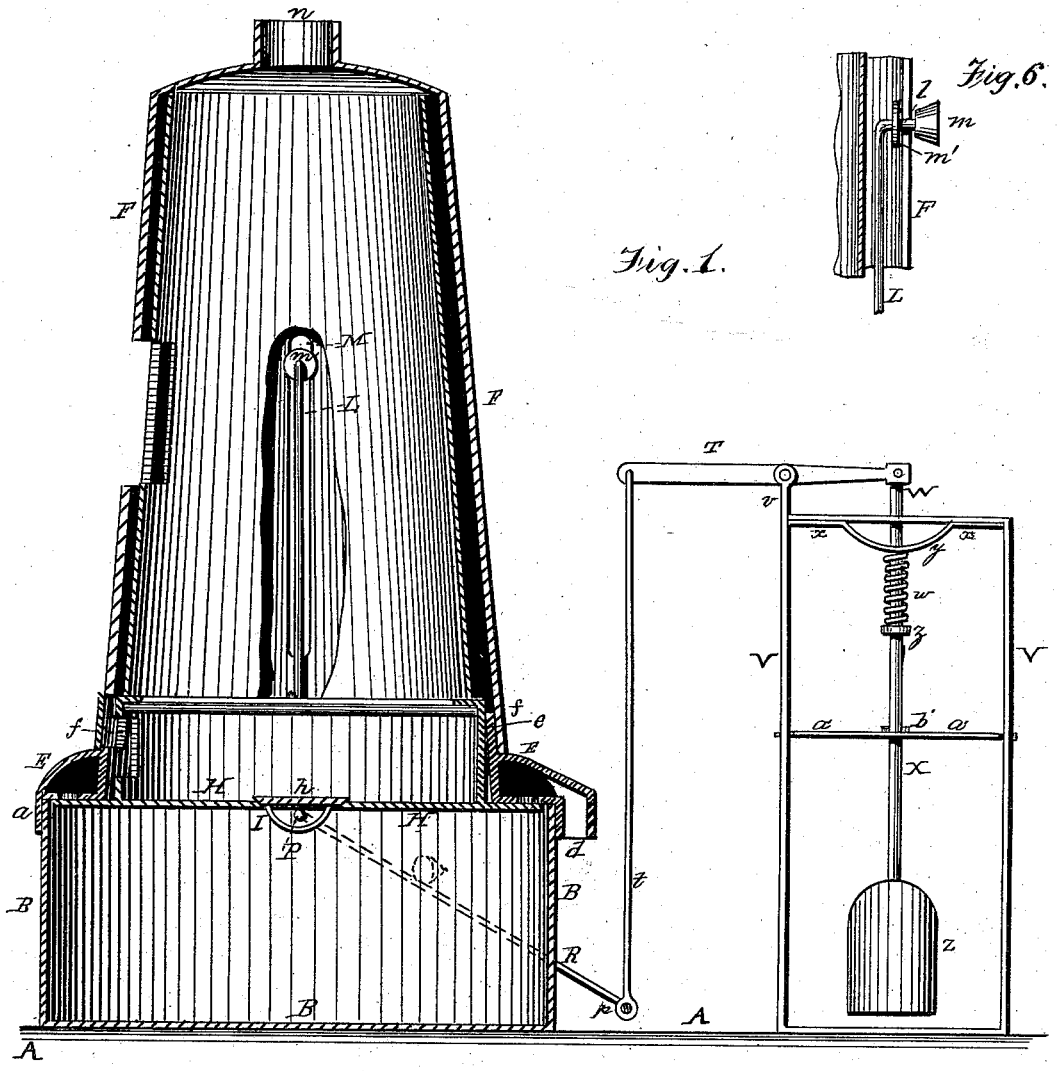

Fig. 1.

Fig. 6.

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2 Sheets—Sheet 2.

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Fig. 2.

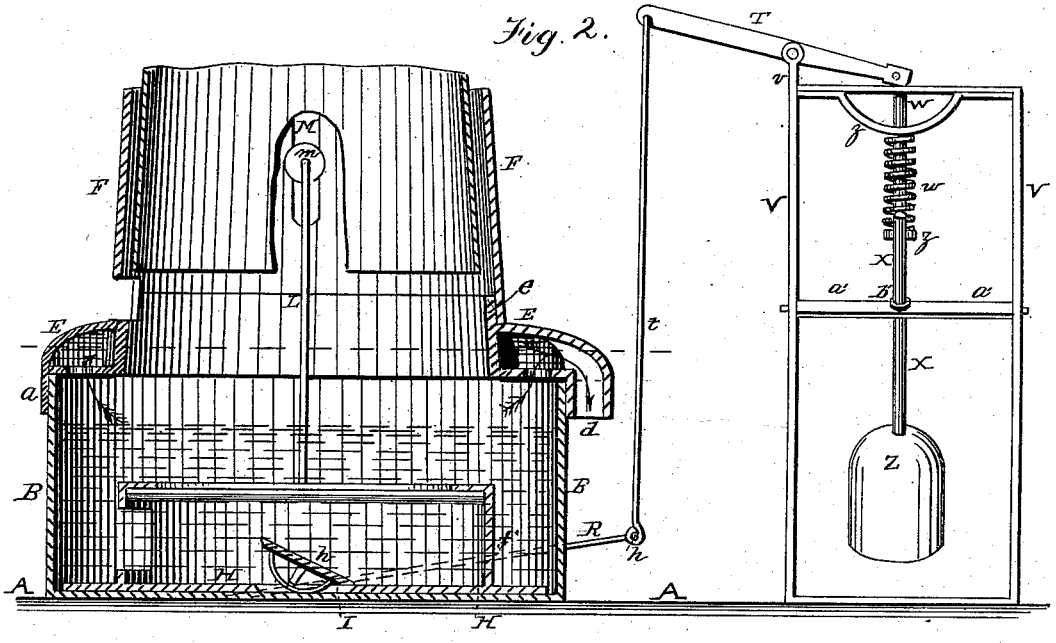


Fig. 4.

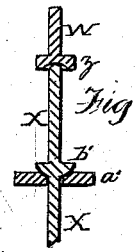


Fig. 3.

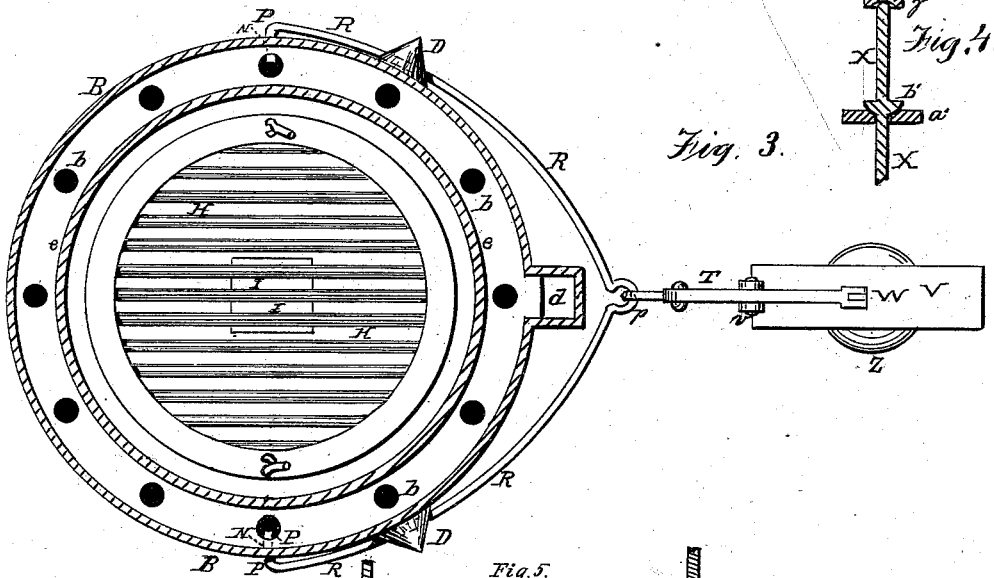
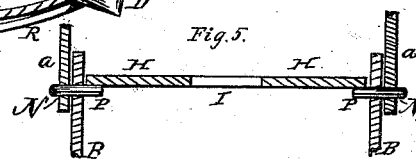


Fig. 5.



Witnesses
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UNITED STATES PATENT OFFICE.

JAMES H. PRENTICE, OF SAGINAW, MICHIGAN.

IMPROVEMENT IN CAR-STOVES.

Specification forming part of Letters Patent No. **187,774**, dated February 27, 1877; application filed February 16, 1877.

To all whom it may concern:

Be it known that I, JAMES H. PRENTICE, of Saginaw, in the county of Saginaw and State of Michigan, have invented a new and useful Improvement in Railway-Car Stoves, of which the following is a specification, reference being had to the accompanying drawings.

The invention relates to an improved railway-car stove, and is intended to provide a device which will insure the extinguishment of the fire in the stove in case of collision or any undue inclination of the car.

The invention consists in the devices hereinafter specifically described.

Figure 1 is a central vertical section of a device embodying the elements of the invention. Fig. 2 is a like view of the same with the grate and attachments lowered. Fig. 3 is a transverse section of same. Fig. 4 is a section of the rod X; and Fig. 5 is a detached view of the plate H, with connections. Fig. 6 is a detached view, showing the button and washer on the arm of the rod L.

In the accompanying drawings, A represents the platform or floor of a car. B represents the water-tank, which is secured firmly to the floor. In the present instance the bottom of this tank is flat, but preferably it should be made conical to a center, whereat a plug and an escape-pipe may be provided, by means of which the tank can be emptied. The sides of the tank are circular, and extend upward, and are provided with the cone-shaped ears or studs D, for purposes hereinafter described.

Upon the upper edge of the sides of the tank B rests the annular steam-chamber E, the dependent flange *a* of which extends below and closely encompasses the upper portion of the tank B, securing the chamber firmly thereto. The chamber E is provided, on its under side, with the apertures *b*, adjacent to the flange *a*, the chamber being supplied with the exit-pipe *d*, to lead the steam out of the chamber to any desired point. The upper part of the inner aperture of the chamber is furnished with the vertical flange *e*, which extends upward and encompasses the base of the stove or heat-chamber F. The grate or other device for sustaining the fuel is placed upon the upper part of an annular rim, *f*, which forms the ash pit or pan. The base of the rim *f* is secured upon the plate H, the diameter of which is less than that of the flange *a*, but greater than the distance between the apertures *b* on opposite sides of the chamber. Thus, when the plate is drawn up in contact with the base of the chamber E, it covers the apertures, and yet leaves a space, for the reception of the upper edge of the tank B, between its circumference and the inner wall of the flange *a*.

Now, as the diameter of the plate H is less than that of the tank B, it is obvious that, if the devices supporting the plate be removed, the plate itself, the ash-pit, grate, and fuel thereon will instantly be precipitated into the water in the tank below.

An aperture, I, is formed at the center of the plate H, to permit the plate and its superposed devices to speedily sink in the water in the tank when the plate falls, and is provided with the valve or cover *h*, which is of greater area than the aperture I, the edges of which are properly recessed to receive the edges of the cover or valve *h*, which is thus sustained with its surface flush with the plate H; but when the plate falls, striking the water, the valve is instantly elevated, and thus any possible buoyancy of the plate or its attachments prevented.

The grate is provided with the rods L, hinged to its upper edges on opposite sides. These rods extend upward between the casing and outside of the heat-chamber, and are provided on their upper ends with the arms *l*, which extend through the slots M in the outside of the stove, which slots extend downward to such a point as not to impede the descent of the plate H. On the outside of the stove the arms *l* are provided with the buttons *m*, to prevent their retraction, a washer, *m'*, being provided on the inside of the casing F to keep the rod L in place when moving.

The heat-chamber F is conical in structure, and provided at its upper end with a flue, *n*, for the escape of the products of combustion.

The device is provided with suitable doors for introducing the fuel and removing the ashes.

Apertures N, which penetrate the flange *a*

and the upper edge of the tank, serve to receive the arms P on the bail R. These arms protrude beyond the inner edge of the tank B, and serve to sustain the plate H, so that the edge of the grate is brought up against the edge of the lining of the stove, preventing the escape of fuel into the chamber between the lining and exterior of the stove. It is obvious that when these arms P are removed the plate H, fire-box, grate, and fuel will be precipitated into the tank, and the fire effectually and at once extinguished.

The bail R is of the usual form, and at its apex is provided the loop *p*, which, when the bail is in operation, is about on a level with the base of the tank, whence the arms of the bail pass upward, and partially encompass the tank, passing under the conical studs D. Thus, when the loop of the bail is elevated, the arms ride up the inclined sides of the studs, and are spread thereby, thus withdrawing the arms P, and allowing the plate to fall, as aforesaid.

The loop *p* is linked to the lower end of the draw-rod *t*, its upper end being linked in an eye in one end of the lever T, which is pivoted in the extension *v* of one of the standards of the frame V, over the top brace of which the lever passes, its opposite end being pivoted in the upper end of a vertical shaft, W, which extends directly downward through the top brace of the frame, and through the auxiliary brace *x*, which, at its center, is formed into the arch *y*, below which the shaft W is encompassed by a spring, *w*, which bears upon the arch *y* above, and upon the upper surface of the head *z* below, the under surface of the head being concave to receive the upper end of the shaft X, which extends downward through an enlarged aperture in the rocking brace *a'* a suitable distance, and terminates in the pendulum Z, the weight of the shaft and pendulum being sustained by the collar *b'* upon the shaft above where it passes through the brace *a'*, the aperture and collar being properly beveled, as shown.

Now, as the pendulum is suspended, it is obvious that if the car to which the frame is fixed be unduly inclined or severely jarred, the pendulum will vibrate. This will detach the head *z*, and permit the spring to depress the shaft W, which tilts the lever T, drawing up the rod *t* and the loop *p* of the bail R, thus causing its arms to spread, with the result aforesaid.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A safety-stove in which the device whereon the grate is placed is sustained by removable supports above a tank containing extinguishing material, substantially as set forth.

2. A safety-stove in which the devices sustaining the grate or fire-bed are retracted by the gravitation of a pendulum, substantially as expressed.

3. In a safety-stove, a grate sustained on removable supports above an open tank of extinguishing material, substantially as set forth.

4. A safety-stove in which the devices sustaining the grate, with the fuel thereon, may be caused to descend into a tank of extinguishing material, substantially as set forth.

5. In a safety-stove, a tank placed below, and capable of receiving, the devices sustaining the grate and fuel, substantially as set forth.

6. In a safety-stove, a stud having inclined sides, or an inclined side, for the purpose of spreading the arms of the bail, as set forth.

7. In a safety-stove, the conical stud D, for spreading the arms of the bail, as set forth.

8. The steam-chamber B, provided with the apertures *b* and flanges *a* and *e*, as set forth.

9. The steam-chamber E, provided with the inlet-apertures *b* and outlet-pipe *d*, in combination with the tank B, substantially as specified.

10. The plate H, for the purpose of sustaining the grate and ash-pit, and provided with the aperture I, to permit the plate and its superposed devices to sink readily in the tank when descending, substantially as set forth.

11. The plate H, provided with the aperture I and valve *h*, substantially as and for the purpose specified.

12. The grate, preserved in proper horizontal position by the sliding rods L, in combination with the heat-chamber, having the slots M, as specified.

13. The tank B and flange *a*, provided with the aperture N, in combination with the arms P, substantially as specified.

14. In a safety-stove, a movable device for supporting a plate carrying the grate, the plate and grate made capable of descent, as specified.

15. The bail R, in combination with the studs D and plate H, as set forth.

16. The bail R, in combination with the studs D and plate H, and connected with any suitable mechanism for raising the loop *p*, as set forth.

17. The shaft W, provided with the spring *w* and head *z*, in combination with the shaft X, provided with the pendulum Z, as specified.

18. In a device for operating a safety-stove, a pendulous shaft provided with a pendulum, and supporting the pressure of a tripping device, so arranged that when the support of the stove is tilted the pendulum shall move the end of the shaft from under the device it sustains, and allow said device to drop or descend, as specified.

In testimony that I claim the foregoing improvement in railway-car stoves, as above described, I have hereunto set my hand this 16th day of February, 1877.

JAMES H. PRENTICE.

Witnesses:
J. H. HERRON,
JOHN T. BURCH.