

(No Model.)

G. M. EDWARDS.

STOVE.

No. 266,794.

Patented Oct. 31, 1882.

Fig. 1.

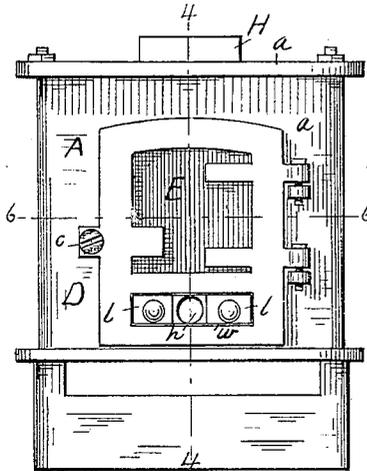


Fig. 2.

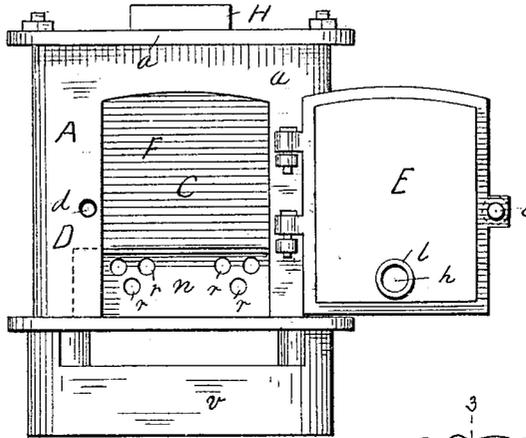


Fig. 3.

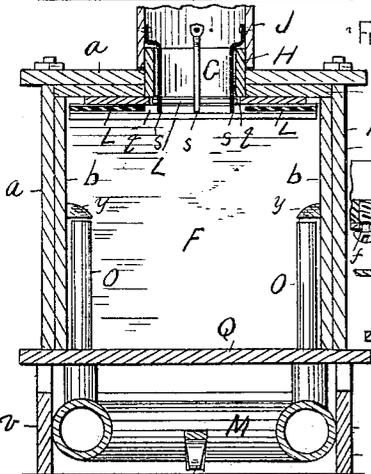


Fig. 4.

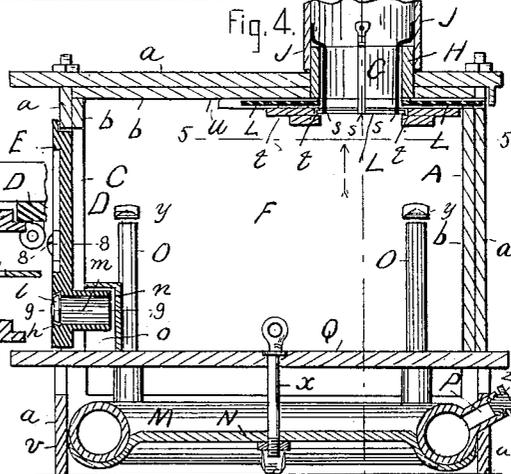


Fig. 8.

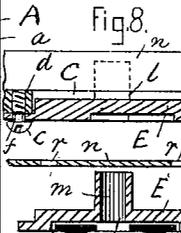


Fig. 9.

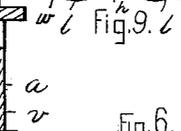


Fig. 6.

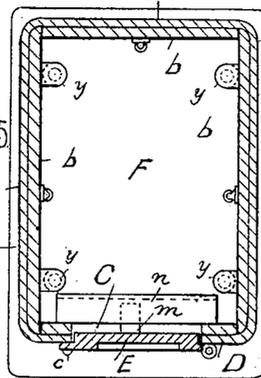


Fig. 5.

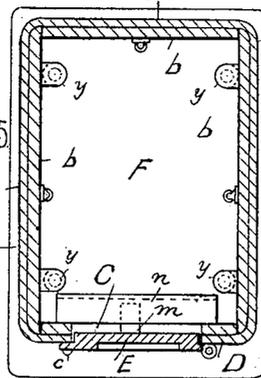
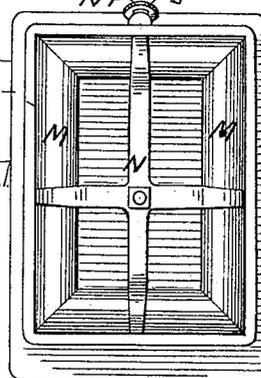


Fig. 7.



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# UNITED STATES PATENT OFFICE.

GRANVILLE M. EDWARDS, OF GRAY, ASSIGNOR TO HIMSELF AND WILLIAM E. DENNISON, OF PORTLAND, MAINE.

## STOVE.

SPECIFICATION forming part of Letters Patent No. 266,794, dated October 31, 1882.

Application filed April 26, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, GRANVILLE M. EDWARDS, of Gray, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Stoves, of which the following is a full, clear, and exact description.

This invention relates to stoves more particularly for use in railroad-cars and other conveyances; and its object is to render the stove substantially and practically proof against communicating fire to the car should the stove by any accident to the car or otherwise be upset or overturned.

The invention consists in substance, first, of damper-slides located either at or in the flue or funnel-opening of the stove, and constructed and arranged to be held opened while the stove is in use, and to close said opening automatically should the stove be upset or overturned by accident to the car or other cause, and thereby prevent the escape of the combustibles at said flue-opening; second, in a construction of the stove with air passages or openings for the admission of air to its combustion-chamber in a manner to prevent the passage of the combustibles through such air-openings to the outside of the stove at any time when the stove is in use, and more especially when the stove is upset or overturned by accident to the car or other cause.

In the accompanying plate of drawings the present improvements in stoves are illustrated.

Figures 1 and 2 are front elevations, showing respectively the stove closed and opened. Fig. 3 is a vertical section on line 3 3, Fig. 4. Fig. 4 is a central vertical section from front to rear of stove on line 4 4, Fig. 1. Fig. 5 is a horizontal section of the rear part of the stove on line 5 5, Fig. 4, showing in plan view the under side of the stove-top. Fig. 6 is a horizontal section on line 6 6, Fig. 1. Fig. 7 is a plan view of the under and outer side of the stove-bottom; and Figs. 8 and 9 are sectional views in detail on lines 8 8 and 9 9, respectively, of Fig. 4.

In the drawings, A represents the body of the stove. This body is made of two kinds of iron—to wit, wrought-iron *a* upon the outside, and cast-iron *b* upon the inside. The wrought-

iron *a* is made in any suitable manner into the shape desired for the outside of the body of the stove, and then the cast-iron *b*, in plates of suitable shape and size, is placed upon the inside of the wrought-iron body and there secured in any suitable manner—as, for instance, by rivets, screws, bolts, or other suitable fastening devices, or by shaping them so that they will fit the inside of the wrought-iron body and be kept and maintained in place without direct attachment. Making the outside of the body of the stove of wrought-iron renders the body practically proof against breaking in case of accidents to the car and the upsetting and overturning of the stove, and the addition of the cast-iron upon the inside of the wrought-iron secures the requisite thickness of iron for the body, while keeping the cost thereof at the minimum.

The body A is composed in substance of sides, top, and bottom, as usual, and the stove shown is for the burning of wood, and it has an opening, C, at the front side, D, through which to feed it with wood. This feed-opening C has a door, E, for closing it. The door E overlaps all sides of the opening C, is hinged at one of its vertical edges to the stove-body, and carries at its other vertical edge a screw, *e*, by which to fasten it when swung against the body of the stove to close the feed-opening C. The screw *e* screws into a screw-socket, *d*, of the stove-body in proper position therefor, and it has a groove, *f*, around its shank that interlocks with the door, as shown in Fig. 8 more particularly, and also that the screw freely turns in the door, to be screwed into and out of the screw-socket, and yet be held from becoming detached from the door. The door E, at its lower portion, has an air-opening, *h*, for the admission of air to the combustion-chamber F of the stove. This air-opening *h* is continued inwardly from the door by a tube or pipe, *m*, which pipe at its inner and open end terminates at a short distance from the outer face of a wall, *n*. The wall *n* separates the lower portion of the door from the combustion-chamber F of the stove, and makes a chamber, *o*, between said combustion-chamber and the door, which, when the door is shut, is inclosed on all sides.

*r* are air holes or passages in the wall *n*, at each side of and out of line with the tubular passage *m* through the door, which air-passages *r* open into the combustion-chamber and make communication for air between it and the outer chamber, *o*.

The outer open end of the tubular air-passage *h* through the door has two damper slides or plates, *l*, for closing it. These dampers *l* are free to slide on horizontal guides or ways *w* of the door across said opening, and they are each of the same size, and that a size sufficient to close said air-passage *h*; and the length of the guideways *w* is such as to admit of one being placed each side of said open end, and to thus wholly uncover it, and of either one to be slid on its guideways *w* toward and against the other, and thereby be placed in position to cover and close said air-opening, and substantially prevent the passage of air or anything else through it. When the door is closed and the damper-slides *l* are opened the air-holes *r* of the wall *n*, together with the tubular air-passage *m* of the door, make the communication for air with the combustion-chamber *F*, and should the stove then be upset or overturned from any cause, obviously, as the air-passages *r* are out of line with the tubular air-passage *m*, and such air-passage *m* terminates near the wall *n*, the combustibles of the stove, while free to enter the chamber *o* through the air-passages *r*, are obstructed in passing from such chamber with the tubular air-passage *m*, and thus they are prevented from passing through said air-passage *m* to the outside of the stove. This escape is still further prevented by the closing of the damper-slides *l*, which is certain to occur from their own gravity, in whatever direction the stove is upset or overturned, as is obvious without further explanation.

*G* is the flue or funnel opening in the stove-top. This funnel-opening *G* is continued by a tubular flange, *H*, above the stove-top, and over this flange fits the funnel or flue pipe *J*. The funnel on its inner periphery has four legs or prongs, *s*, which enter the funnel-opening *G*, and each leg rests against one end of a horizontal damper-plate or slide, *L*, in all four in number. The funnel-dampers are each of a size and shape to close the funnel-opening, and they are arranged in pairs, and those of each pair to slide in common horizontal parallel grooves or ways, *t*, upon the inner side, *u*, of the stove-top. The ways *t* for the one pair of funnel-dampers are above those for the other pair, and also they run in a direction at right angles to and across those of the other pair, and with the rests *s* removed, all are constructed and arranged for the damper-slides of each pair to be free to slide across the funnel-opening, those of the one pair sliding in a line at right angles to and across the line of movement of those of the other pair, and in so sliding, as the case may be, secure either a closing of the funnel-opening by at least one, if not more, of said damper-slides, or an opening of

said funnel-opening by a disposition of those of each pair of said slides—one at one side of and the other at the other side of said opening. The legs *s* of the funnel *J*, when in position within the funnel-opening *G* and at rest against the damper-slides *L*, hold the same open, and thus the funnel-opening *G* open to the passage of smoke, &c.; but with said funnel-legs removed out of such position said damper-slides are then left free to slide, as has been described, which they will do of their own gravity if the stove be upset or overturned, or otherwise be properly placed therefor. As a detachment of the funnel from the stove leaves the funnel-dampers *L* free to slide in their ways, it is plain that the escape of combustibles at the funnel-opening *G* will be instantly and positively prevented should the stove be upset or overturned because of an accident to the car or other cause, for the reason that as then the detachment of the funnel must occur the closing of the funnel-dampers from their own gravity must necessarily follow.

*M* is a tubular receptacle for water, outside of and below the stove-bottom, and surrounded by a flange, *v*, of the stove-body, which flange in the present instance makes the supports or legs of the stove. The water-receptacle *M* is horizontal, and it is held in position in any suitable manner, the way shown consisting of a skeleton frame, *N*, attached at its center by a pendent screw-bolt, *x*, to the stove-bottom *Q*.

*O* are vertical pipes entering the water-receptacle *M*, and passing up through the stove-bottom to and into the combustion-chamber, wherein they terminate and open thereto. The open ends of the pipes *O* are preferably protected by stationary guards *y* against the entrance into the pipe of combustibles from the combustion-chamber, and these guards are shaped and situated so that while practically affording such protection they will offer no material obstruction to the free flow of the water which is in the water-receptacle through and out of the vertical pipes *O* into the combustion-chamber and upon the combustibles therein, should the stove from any accident to the car or other cause be sufficiently upset or overturned therefor, all of which tends to secure, if not substantially securing, the extinguishing of the fire in the stove.

*P* is a spout entering into one side of the water-receptacle, for convenience in filling it with or emptying it of water. This spout is closed by a screw-cap, *z*.

It is plain that under the arrangement of the water-receptacle *M* above described the water can pass into the combustion-chamber only when the stove is upset or overturned.

A stove having combined in its construction the several features herein described obviously, in case accidents occur to the car in which it is used such as would upset or overturn the stove, is practically and substantially proof against the communication of fire to the car from the combustibles in the stove, and, again,

is then capable of securing of itself the extinguishing of its fire. The making of the outside of the stove of wrought-iron renders it practically secure against accidental breaking, the importance of which is obvious in case of accidents to the car.

The screw-fastening *c* for the door *E* makes the door absolutely secure against accidentally unfastening.

The stove may have doors, as required, for entering it. The chamber *F* may have a door of its own and one separate from the feed-door. The funnel-dampers *L* may be increased to any desired number, and although two pairs are particularly shown and described, one pair only might be used; but two pairs arranged to slide, the one pair across the other pair, are preferable, as their closing of the funnel-opening when the stove is upset or overturned is more certainly insured. The water-chamber may have any number of pipes *O* leading from it to the combustion-chamber *F*; but one at each corner of the stove is sufficient, and the water-chamber may be of various shapes and sizes. The rests *s* for the funnel-dampers may be attached to the funnel-opening *G* independent of the funnel *J*—as, for instance, by a separate ring fitting the stove-flange *H*; but in any event the attachment should be such as to insure the automatic removal of such rests from the funnel-dampers upon the upsetting or overturning of the stove.

Having thus described my invention, what

I claim, and desire to secure by Letters Patent, is—

1. In a stove, the chamber *o*, separated by a wall, *n*, from the combustion-chamber *F*, in combination with the door *E*, having passage *m*, extending nearly to said wall *n*, substantially as and for the purpose specified.

2. In a stove, the chamber *o*, separated by a wall, *n*, from combustion-chamber *F*, in combination with the door *E*, having passage *m* and slides *l*, said passage extending nearly to said wall *n*, substantially as and for the purpose specified.

3. In a stove, a damper-slide, *L*, constructed and arranged to slide in pairs, one of such pairs at right angles to the other pair, in common guide grooves or ways, *t*, across an air-passage, *G*, all substantially as and for the purpose specified.

4. In a stove, a damper-slide, *L*, in four parts, constructed and arranged to slide along common guide grooves or ways, *t*, across an air-passage, *G*, in combination with the funnel having the legs or prongs *s*, substantially as and for the purpose specified.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

GRANVILLE M. EDWARDS.

Witnesses:

EDWIN W. BROWN,  
WM. S. BELLOWS.