(No Model.) 3 Sheets—Sheet 1.

A. BELL.

SAFETY CASING FOR CAR HEATERS.

No. 383,034. Patented May 15, 1888.

Fig. 2.

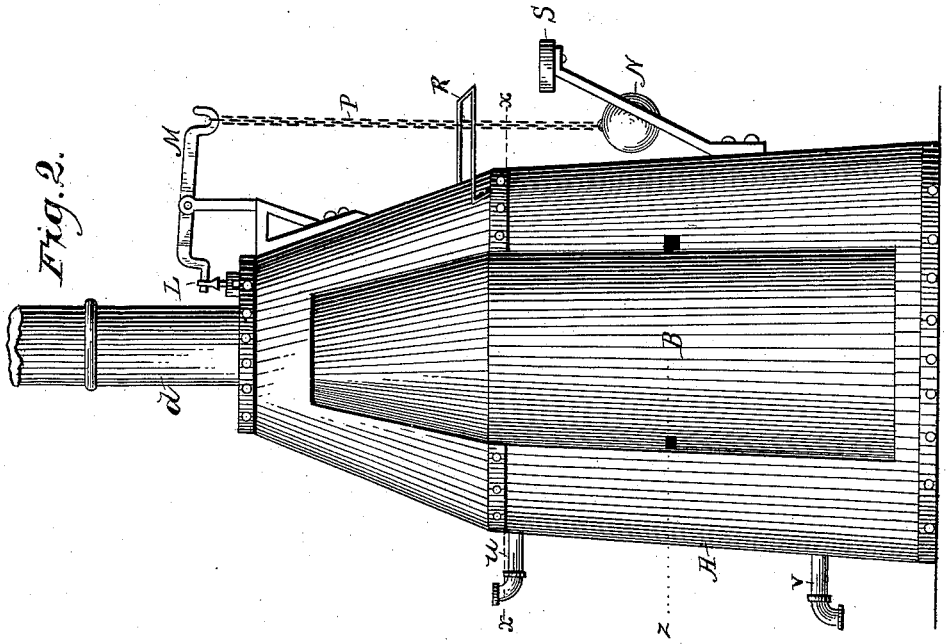
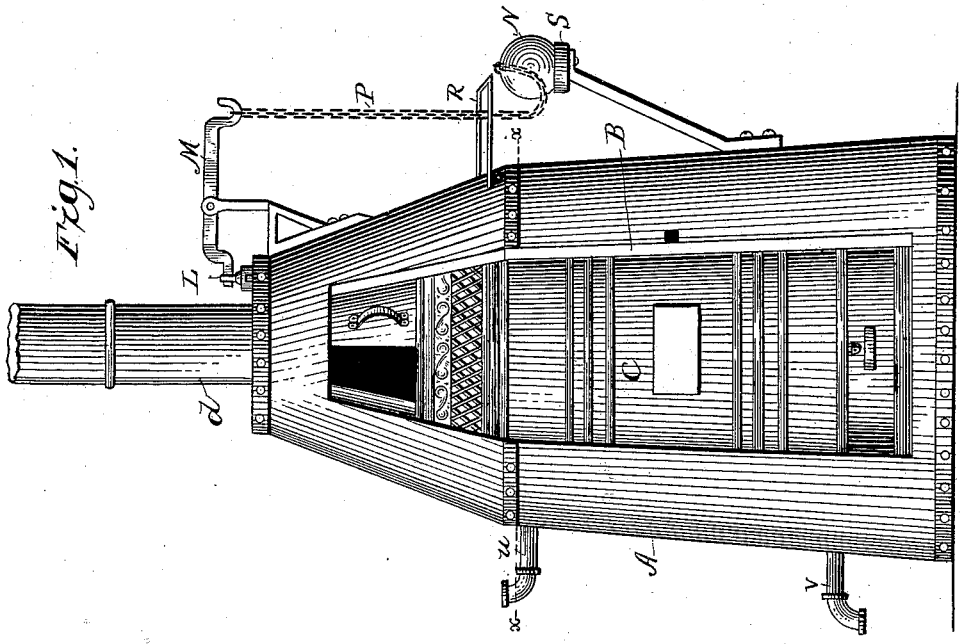


Fig. 1.



Witnesses.

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(No Model.) 3 Sheets—Sheet 2.

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SAFETY CASING FOR CAR HEATERS.

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Fig. 3.

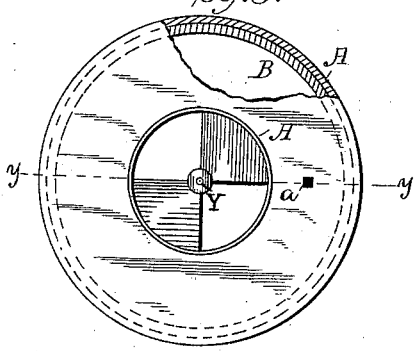


Fig. 4.

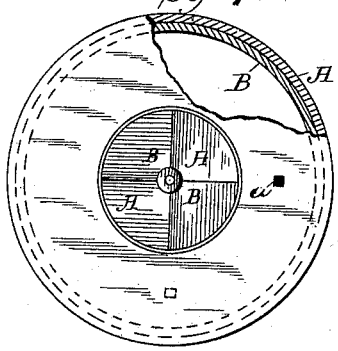


Fig. 5.

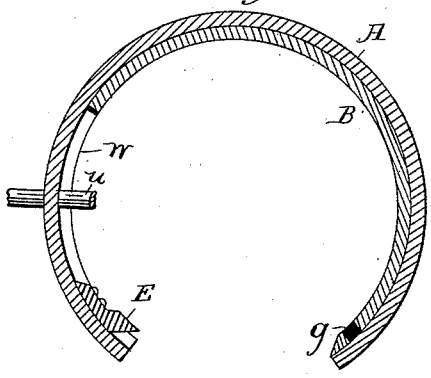
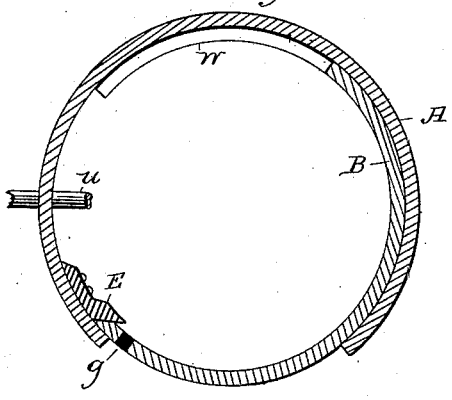


Fig. 6.



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SAFETY CASING FOR CAR HEATERS.

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Fig. 7.

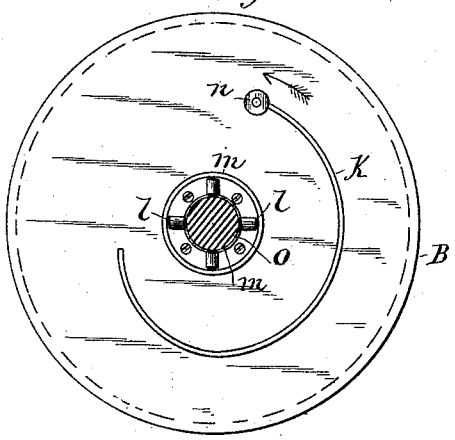


Fig. 8.

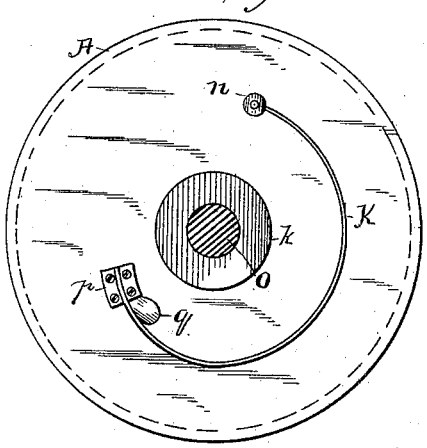


Fig. 9.

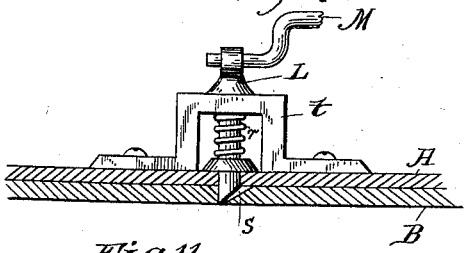


Fig. 10.

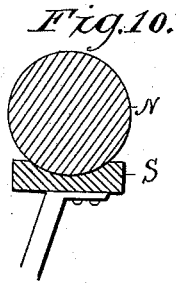


Fig. 11.

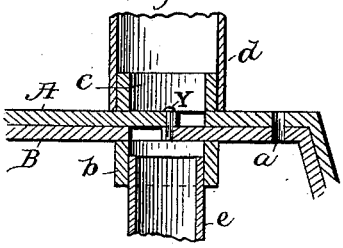


Fig. 12.

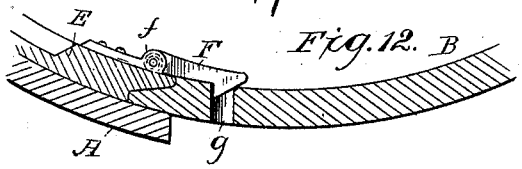


Fig. 13.

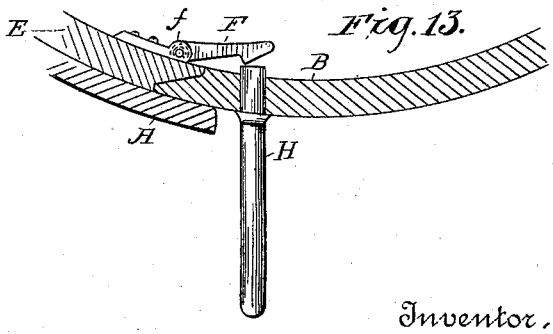
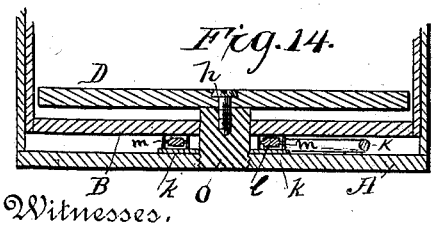


Fig. 14.



Witnesses.

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Sam'l M. Lake.

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UNITED STATES PATENT OFFICE.

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SAFETY-CASING FOR CAR-HEATERS.

SPECIFICATION forming part of Letters Patent No. 383,034, dated May 15, 1888.

Application filed April 23, 1887. Serial No. 235,831. (No model.)

To all whom it may concern:

Be it known that I, ALONZO BELL, a citizen of the United States, and a resident of the city of Washington, in the District of Columbia, have invented a new and useful Improvement in Safety-Casings for Car-Stoves, of which the following is a specification.

The object of my invention is to protect the combustible portions of a car from the stove or its hot contents in the event of an accident to or the wreck of the train.

My invention consists of a casing open at one side, so as to expose the fuel, draft, and ash openings of the stove, and provided with a sliding portion adapted to automatically close said openings in case of accident to the car. The inner sliding portion is loosely and centrally pivoted to the top and bottom of the outer casing, or may be secured in any other approved manner to cause its easy rotation or movement therein. The sliding movement of the inner portion is effected by means of a suitable spring connected with said sliding portion, and a catch which holds the inner casing or plate against the tension of the spring, the withdrawal of the catch-spring causing the sliding portion to close the opening or openings in the outer casing. Provision is made for the automatic withdrawal of the catch-pin from its seat in the inner sliding portion whenever the car is subjected to any extraordinary motion—such as would be caused by the derailment of the car, or by sudden shock to the train from any cause whatever.

Figure 1 is a perspective elevation of my improved safety-casing, showing it applied to a Baker heater, the heater being shown through the opening in the outer casing, also showing the ball and lever which operate the catch-pin when the sliding portion is to be closed. Fig. 2 is a similar view showing the catch-pin withdrawn and the sliding portion closing the opening in the outer casing. Fig. 3 is a top view of the outer casing, showing a portion of the plates broken away, and showing the central smoke-flue through the outer casing and the sliding portion within, the flue being shown as open. Fig. 4 is a similar view showing the smoke-flue closed. Fig. 5 is a cross-section of the outer casing and the sliding portion within shown on line *x x* of Fig. 1. Fig. 6 is a cross-section on line *x x* of Fig. 2. Fig. 7 is a detail view of the under side of the bottom plate of the inner sliding portion, showing a cross-section of the center standard, the spring that rotates the sliding portion, and the anti-friction rollers on which it revolves. Fig. 8 is a detail view of the upper side of the bottom plate of the outer casing, showing a cross-section of the center standard, the raised disk which acts as a track for the anti-friction rollers, also showing the spring which rotates the sliding portion. Fig. 9 is a detail plan of the spring-catch which holds open the sliding portion against the tension of the spring when the stove is exposed to view, the outer casing and the sliding plate being shown in section. Fig. 10 is a vertical sectional view of the ball and the concave seat upon which it rests. Fig. 11 is a vertical cross-section of a portion of the top of the outer casing and inner sliding portion drawn on line *y y* of Fig. 3, showing the smoke-flue and the manner of connecting the inner and outer smoke-pipes to the outer and inner plates. Fig. 12 is a horizontal sectional view of a portion of the outer casing and the sliding portion therein drawn on line Z of Fig. 2, showing the means employed to secure the sliding portion when closed. Fig. 13 is a similar view showing the means employed to disengage the latch hook and to open the inner slide when the stove is to be exposed to view. Fig. 14 is a vertical sectional view of the lower portion of the casing, showing the stationary platform on which the stove rests, the central standard which supports the same, and two of the anti-friction rollers attached to the bottom plate of the sliding portion.

In the drawings like letters indicate like parts.

A is the outer casing, preferably made of wrought-iron or other like material. A portion of this casing is open, so as to afford easy and convenient access to the fuel, draft, and ash openings of the stove or heater, as shown in Fig. 1. Openings are also provided in the top plate, so as to allow the smoke to pass without obstruction through the smoke-pipe. A collar, *c*, surrounds these openings, the smoke-pipe *d*, which projects above the casing, fitting over the collar. The form of these openings is best shown in Figs. 3 and 4.

B is the inner sliding portion or rotating casing. It is centrally pivoted at Y to the top of the outer casing, as shown in Figs. 3 and 11, the supporting-standard O (shown in Figs. 7, 8, and 14) forming the pivoted center at its base. The rotation of the inner sliding portion is secured by the action of spring K, preferably located between the bottom plates of the two casings. This spring is shown in Figs. 7 and 8. One end is pivoted to the under side of the bottom plate of the inner casing or slide at *n*, as shown in Fig. 7. The other end is rigidly secured to the upper surface of the bottom plate of the outer casing at *p*, as shown in Fig. 8. It will be seen that the rotation of the sliding portion in the direction of the arrow, or from the position shown in Fig. 2 to that shown in Fig. 1, will increase the tension of the spring until the recess *s* in the top plate of the sliding portion is brought immediately below the spring catch-pin L of the outer casing. The falling of this into the recess *s* (shown in Fig. 9) holds the sliding portion against the tension of the spring, as shown in Figs. 1, 3, and 5.

The catch-pin L is best shown in Fig. 9. It has a vertical movement in frame *t*, and is provided with a spring, *r*, said spring resting at its lower end on the shoulder of the catch and at its upper end abuts against the cross-bar of the frame *t*. The lever M engages with an eye in the upper end of the catch-pin.

The lever M is operated through ball N and chain P, the displacement of the ball from its concave seat S by any shock to the car bringing a downward pressure upon the free end of the lever M. The guide-rail R limits the swing of the ball after it has left its seat, and thus causes it to act in a downward direction upon the lever.

The withdrawal of the catch-pin from its seat in the sliding portion brings the spring K into instant action, and the slide springs shut, as shown in Figs. 2, 4, 6, 12, and 13. The spring-latch F, hinged at *f*, engaging with the slot *g* in the sliding portion, together with the vertical cleat E, undercut on one edge and into which the slide enters, holds it securely in its closed position.

The casing is opened by inserting the rod H into the slot *g*. This disengages the latch, as shown in Fig. 13, and allows the sliding portion to be returned to its normal position, as shown in Fig. 1. The sliding portion rotates on friction-rollers *l*. (Best shown in Fig. 7.) These rollers are journaled between the side flanges, *m*, the bearings being rigidly held on the under surface of the bottom plate of the inner casing, as shown in Fig. 7. An annular plate, *k*, around the central standard, O, slightly elevates the track of the rollers above the plane of the surface of the bottom plate of the outer casing, thus lessening the liability of dust or dirt interfering with their movement.

The construction of the smoke-flue is shown in Figs. 3, 4, and 11. Fig. 3 shows it open. Fig. 4 shows it closed. The solid portions of the sliding casing are seen closing the openings in the outer casing in Fig. 4. The extent of the movement to close all the openings in the outer casing is equal to about one-quarter of the circumference of the casing, or from the slot *a* to the dotted slot, as shown in Fig. 4. In the vertical cross-section, Fig. 11, the manner of connecting the inner and outer smoke-pipes is shown. The outer pipe, *d*, fits over a collar, *c*, on the outer casing, and the inner pipe, *e*, leading from the stove, fits loosely in a like collar, *b*, on the under surface of the sliding portion. The stove or heater rests upon the stationary platform D. (Shown in cross-section in Fig. 14.) This platform is rigidly secured to the central standard, O, by bolt-screw *h*, or in any approved manner.

While I prefer the construction shown, it is evident that the platform D and the bottom plate of the inner sliding portion may both be dispensed with without departing from the vital features of my invention.

Where steam, water, or hot-air pipes are to be covered, an opening or openings sufficiently large for the pipe to pass through is made in the outer casing. The sliding portion is provided with horizontal slots, so as to allow it to rotate without being brought into contact with the pipe or pipes. The lower wall of one of the slots is shown at *w* in Figs. 5 and 6. The pipes *u* and *v* (shown in Figs. 1, 2, 5, and 6) are thus avoided by the inner moving slide.

As the essence of my invention is to provide a casing which normally leaves the front of the stove exposed for convenient access thereto and for the deflection of heat, and in case of an accident to the car instantly incloses the stove in a continuous casing, I do not limit myself to a complete inner casing, as shown, as said casing may be of only sufficient extent to cover the exposed portions of the stove and the necessary openings for the escape of smoke, &c.

While I prefer the construction shown, it is evident that the bottom plate of the inner casing and the stationary platform D may be dispensed with, so that the lower part of the sliding portion and the stove itself may rest directly upon the bottom plate of the outer casing; nor do I confine myself to the form or location of the catch-pin or the exact means described for automatically operating it, as these may be changed both in form and location without affecting their function or the vital feature of my invention.

What I claim as new and of my invention, for which I ask Letters Patent of the United States, is—

1. A safety-casing for a car-stove, consisting of an outer casing open at the side to expose the fuel, draft, and ash openings of the stove, in combination with a sliding plate having a horizontal movement for closing said opening in said outer casing, a spring connected with said sliding plate for closing the same, and a detent for holding the sliding

plate in an open position against the tension of the spring, substantially as set forth and described.

2. A safety-casing for a car-stove, consisting of an outer casing open at the side to expose the fuel, draft, and ash openings of the stove and provided with an opening for the passage of smoke, in combination with a sliding plate having a horizontal movement for closing said openings in said outer casing, a spring connected with said sliding plate for closing the same, a detent for holding the sliding plate in an open position against the tension of the spring, and a tripping device for releasing said detent in case of an accident to the car, substantially as set forth and described.

3. A safety-casing for a car-stove, consisting of an outer casing open at the side to expose the fuel, draft, and ash openings of the stove, in combination with a sliding plate adapted to cover said openings, a spring connected with said plate for closing the same, catch L, for holding the slide in an open position against the tension of the spring, lever M, for tripping said catch, chain or rope P, attached to said lever, ball N, secured to said chain, and concave seat S, for seating said ball, substantially as set forth and described.

4. A safety-casing for a car-stove, consisting of an outer casing open at the side to expose the fuel, draft, and ash openings of the stove, in combination with a sliding plate adapted to cover said openings, spring K, for actuating said sliding plate, spring-catch L, for holding said plate in an open position against the tension of the spring, lever M, for tripping said catch, chain or rope P, attached to said lever, ball N, secured to said chain or rope, concave seat S, for seating said ball, and guide-rail R, for limiting the swing of the ball when unseated, substantially as set forth and described.

5. A safety-casing for a car-stove, consisting of an outer casing open at the side to expose the fuel, draft, and ash openings of the stove, in combination with a sliding plate having a horizontal movement for closing said opening in said outer casing, spring K, connected with said sliding plate for closing the same, catch L, for holding the sliding plate in an open position against the tension of the spring, and stationary platform D, supported by center standard, O, for elevating the stove above the bottom plate of the outer casing, so as to afford a free movement to said spring, substantially as set forth and described.

6. A safety-casing for a car-stove, consisting of an outer casing open at the side to expose the fuel, draft, and ash openings of the stove and provided with openings in its top plate for the passage of smoke, said openings surrounded with a collar for connection with the outer smoke-pipe of the stove, in combination with an inner sliding portion adapted to cover said openings in the outer casing, said sliding portion provided with smoke-openings, and a collar surrounding the same for connection with the inner smoke-pipe and corresponding in location with those in the outer casing, a spring connected with said sliding plate for imparting a horizontal movement to the same, a catch for holding the sliding plate in an open position against the tension of the spring, and a tripping device for releasing said catch in case of an accident to the car, substantially as set forth and described.

7. A safety-casing for a car-stove, consisting of an outer casing open at the side to expose the fuel, draft, and ash openings of the stove and provided with vertical cleat E, undercut at one edge, in combination with an inner sliding portion having a horizontal movement for closing the opening in said outer casing, said sliding portion having opening *g* and fitting under cleat E when the sliding portion is closed, spring-latch F, engaging with opening *g*, and rod H, adapted to enter said opening *g* and release the latch therein, substantially as set forth and described.

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Witnesses:
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WM. H. H. KNIGHT.