

(No Model.)

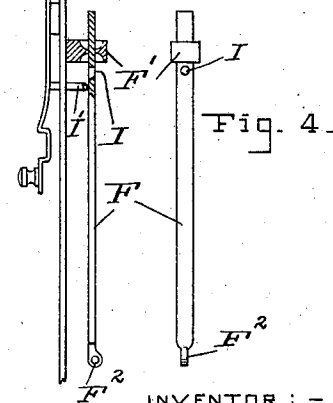
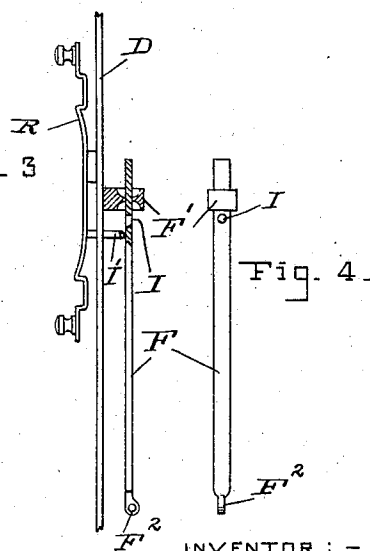
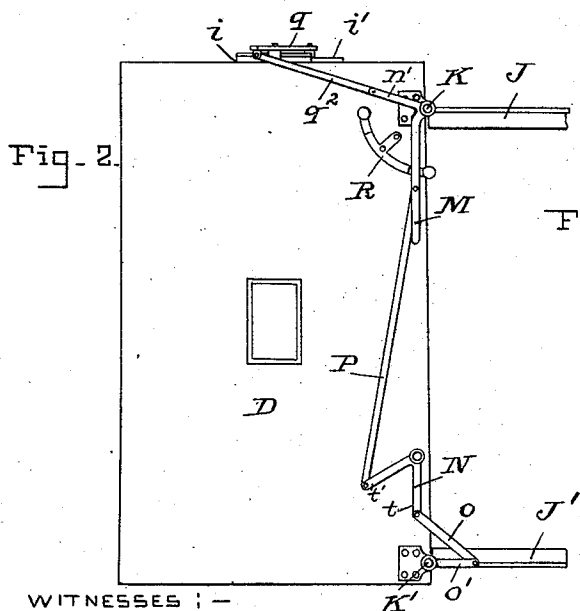
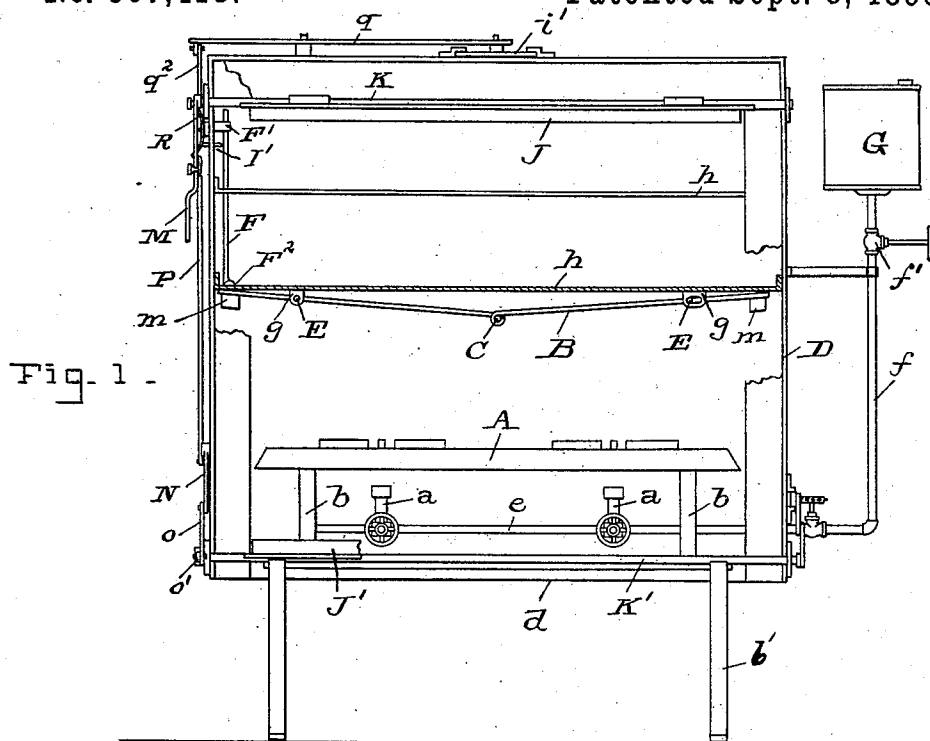
2 Sheets—Sheet 1.

J. A. RUTH.

SAFETY CASING FOR GASOLENE STOVES.

No. 567,415.

Patented Sept. 8, 1896.



WITNESSES : -

Lee J. Van Horn.
Charles B. Mann Jr.

INVENTOR : -

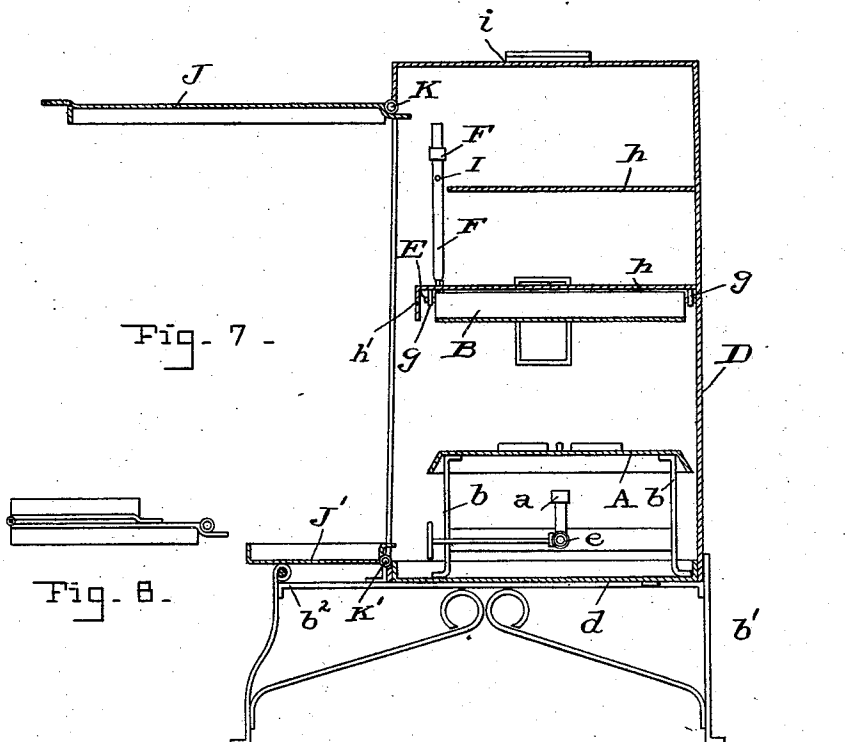
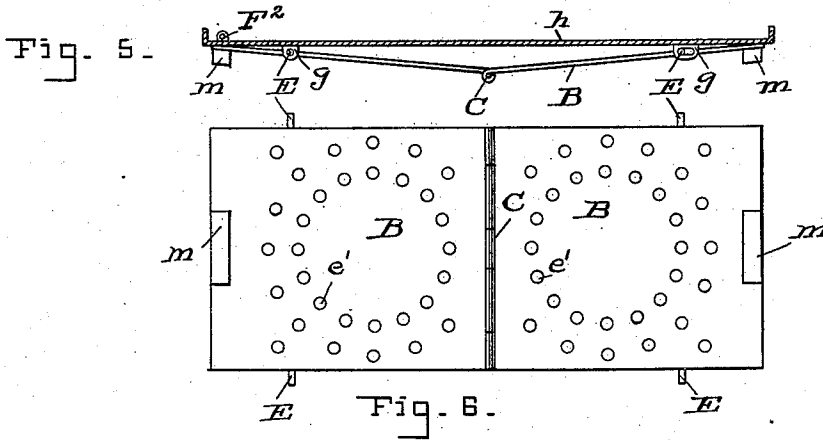
John A. Reith
By Chas B. Mann

ATTORNEY.

J. A. RUTH.
SAFETY CASING FOR GASOLENE STOVES.

No. 567,415.

Patented Sept. 8, 1896.



WITNESSES :-

Lee J. Vandoren.
Charles B. Mann Jr.

INVENTOR :-

John A. Ruth
By Chas B. Mann

ATTORNEY.

UNITED STATES PATENT OFFICE.

JOHN A. RUTH, OF BALTIMORE, MARYLAND.

SAFETY-CASING FOR GASOLENE-STOVES.

SPECIFICATION forming part of Letters Patent No. 567,415, dated September 8, 1896.

Application filed February 14, 1896. Serial No. 579,261. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. RUTH, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Safety-Casings for Gasolene-Stoves, of which the following is a specification.

This invention relates to a fireproof casing or inclosure to contain oil-stoves while they are in use, and has for its object to provide a casing with doors and with a movable diaphragm within the casing and suitable mechanism which may be operated by the movable diaphragm, whereby in the event the stove should explode the expansion within the casing of gases resulting from such explosion will shift the movable diaphragm and thereby cause the doors to be automatically closed, and by such closing to practically seal the casing and in this way smother any fire that may result from the explosion and also prevent the said fire from spreading.

This invention consists of certain improvements on the safety-casing for which Letters Patent of the United States were granted me February 4, 1896, No. 554,033.

In order to make the invention more clearly understood, I have shown in the accompanying drawings certain means for carrying the same into practical effect, without, however, intending to limit my invention to the particular construction which, for the sake of illustration, I have shown.

Figure 1 is a front view of the stove and the case, the latter with doors in open condition. Fig. 2 is a view of one end of the case, showing the mechanism for operating the doors. Figs. 3 and 4 are views in detail of the spring-catch and rod, which is moved automatically. Figs. 5 and 6 are views of the movable diaphragm employed to effect the automatic action. Fig. 7 is a central vertical section of the case. Fig. 8 shows a modification in construction of the upper door. Here the door is in two sections jointed together.

Referring to the drawings, the letter A designates a gasolene-stove of ordinary construction having one or more burners *a* and supported on legs *b*. A gasolene-stove with an elevated tank is here shown for the pur-

pose of illustrating the invention, although the invention is also applicable to other oil-stoves. The casing D in the present instance is shown as rectangular, and must be made of suitable material which is fireproof, such as sheet metal, which I deem preferable. The bottom *d* of this case below the stove is water-tight or oil-tight, and the legs *b* of the stove rest on said bottom. The case is supported on a frame or legs *b'*, and the front part *b²* of this frame projects far enough forward to serve as a rest for the lower door *J'* when the latter is open. The stove, including the burners *a* and horizontal part of the supply-pipe *e* and cocks, are wholly inclosed by the casing. The gasolene-storage tank G, which is on the exterior, has a pipe *f*, connected with the horizontal pipe *e*. Shelves *h* are in the upper part of the casing and serve to hold dishes or cooking utensils containing food to be kept warm.

The case D is open at the front, so as to afford access to the shelves and to the stove for cooking, and doors are provided to close the opening. In the present instance two doors *J J'* are employed, which are hinged horizontally at the top and bottom of the case. The larger door *J* is the upper one, and it is mounted on a shaft *K* at the top and is adapted to tilt down when closing, while the lower door *J'* is on a shaft *K'* and tilts up when closing.

In order to close the doors and the top opening *i* and, in effect, hermetically seal the casing, should the oil-stove explode, I have provided means to automatically close the two doors *J J'* and vent-slide *i'*. In addition to this I have hand-operated mechanism to hold the doors open and to enable them to be closed when using the apparatus in the ordinary way, when no explosion is involved. This mechanism is on one end A' of the casing and connects the two doors *J J'* and vent-slide *i'*, so that said three parts may be opened and closed simultaneously. A lever *M* has one end rigidly fixed to the upper shaft *K*, on which the door *J* is mounted, and a bell-crank lever *N* has one arm, *t*, connected with the shaft *K'*, on which the lower door *J'* is mounted, through the medium of a link *o* and short

arm o' . The other arm, t' , of the bell-crank lever is jointed to one end of a connecting-rod P, whose other end is jointed to the lever M. On top of the case is a pivoted lever q ,
 5 connected at one end with the slide and at the opposite end with a link q^2 , and said link is jointed to an angle-arm n' on the hand-lever M. This hand-lever has a bent end forming a handle by which the lever may be moved
 10 by hand, if desired. A spring-catch R engages the hand-lever M and holds the doors in the open position.

The pipe of the gasoline-tank has a valve f to cut off or let on the supply of fluid.

15 The means which I have invented for effecting the automatic closing of the doors, should an explosion occur, will now be described. It will be obvious that doors having any well-known means for effecting self-closure may be employed. As already stated,
 20 I have selected horizontally-hinged doors and arranged them so that they will close by their own gravity. The front of the case is slightly inclined, as shown at the left upright line, Fig. 7, in order that when the doors are closed
 25 they will not be in a perfectly vertical line, but will lie, as it were, against the said incline.

A movable diaphragm B is hung on pivots.
 30 This diaphragm is a sheet-metal plate placed across one side of the cooking-chamber in the case in such position as to be moved by the sudden expansion of air or gases, which will occur in the cooking-chamber when an explosion takes place. Connections are provided with the diaphragm by means of which,
 35 when the diaphragm moves, the doors will close and practically seal the case and thus smother any fire that may result from said explosion. In the present instance the diaphragm B has a substantially horizontal position below the lowermost shelf h —i. e., it
 40 extends across the cooking-chamber in the case above the burners a or stove. As here shown it comprises two sections or plates, which are jointed together at C in the middle of the case. The sections may have perforations e' to allow the hot air to ascend. Each section has pivots E, by which it is suspended
 50 or balanced on ears g , attached to the lower shelf, and by this construction of joint the two sections sag or tilt down at the center, as shown in Figs. 1 and 5. The two pivoted sections of the diaphragm are nearly counterpoised or balanced on their pivots by means of weights m , so that but a slight puff
 55 of air on the lower surface will lift the sag part at the center. This lifting or up movement of the diaphragm, in this instance, has the effect to cause the doors to close by releasing the catch R. The connections referred to consist of a vertical rod F, movable up and down in a guide F'. The end of this rod is jointed at F² to the movable diaphragm.
 60 The rod has a hole I, and the spring-catch R,

which engages the lever M, connected with the upper door, has an attached pin I', which passes freely through a hole in the wall of the case D, and, normally, the end of the pin inside of the case will impinge or press against
 70 the side of the said rod, as shown in Fig. 3, or said pin will enter the hole I in the rod when the diaphragm is raised at its center.

It will be seen that when the self-closing doors are open one end of the catch R engages
 75 the hand-lever M, and thereby holds said doors open, and the impinging pin keeps the spring-catch pressed outward away from the wall of the case. At the same time the sag of the diaphragm B keeps the vertical rod F
 80 lifted, and its hole I is thereby above the end of the pin I'. (See Fig. 3.) Now if an explosion should occur the expansion of air in the cooking-chamber will raise the sagged part of the diaphragm and lower the rod F
 85 until the hole I therein comes coincident with the pin, whereupon the end of the pin will enter said hole, and the spring-catch R will thus be relieved of its pressure and will disengage itself from the hand-lever M, and then
 90 both doors will automatically close. The heavier weight of the upper door J in lowering will cause the lighter-weight lower door J' to tilt upward. The doors, without reference to other parts, are self-closing.
 95

The front edge of the lower shelf, to which the diaphragm is hung, (see Fig. 7,) has a down-flange h' to hide the diaphragm from view.

It is obvious the position and location of the movable diaphragm may be varied from
 100 that shown.

The hand-lever M has an angle-arm n' , which is jointed to the link q^2 , that imparts movement to the slide i' .
 105

From the foregoing description the operation of the parts will be understood.

The upper door may be made in two sections jointed together, as in Fig. 8, and if so made a suitable spring-catch may be employed
 110 to temporarily retain the free section in the folded position when the door is down.

Having thus described my invention, what I claim is—

1. In a safety-case for inclosing oil-stoves, 115 the combination of a case having self-closing doors; a catch to hold the doors open; a movable diaphragm in the case and adapted to be moved by the expansion which ensues when an explosion occurs; and connections
 120 between the movable diaphragm and said catch, whereby when an explosion occurs the catch will be released from the doors and the latter will be closed automatically.

2. In a safety-case for inclosing oil-stoves, 125 the combination of a case having doors provided with means for closing them; means for holding the doors open; a diaphragm hung in the case on pivots and nearly counterpoised; and connections leading from the said dia- 130

phragm to the said means which holds the doors open, whereby when an explosion occurs the diaphragm will be shifted thereby causing the doors to be closed automatically.

5 3. The combination of a casing; an oil-stove inclosed in the said casing; a door or doors for the casing; and means including a movable diaphragm for closing said door or doors

when an explosion occurs within the casing, as set forth. 10

In testimony whereof I affix my signature in the presence of two witnesses.

JOHN A. RUTH.

Witnesses:

CHARLES B. MANN, Jr.,
C. CALVERT HINES.