(No Model.)

A. J. SMITH & L. W. NUEBLING.

FIRE EXTINGUISHER.

No. 392,168. Patented Oct. 30, 1888.

Fig. 1.

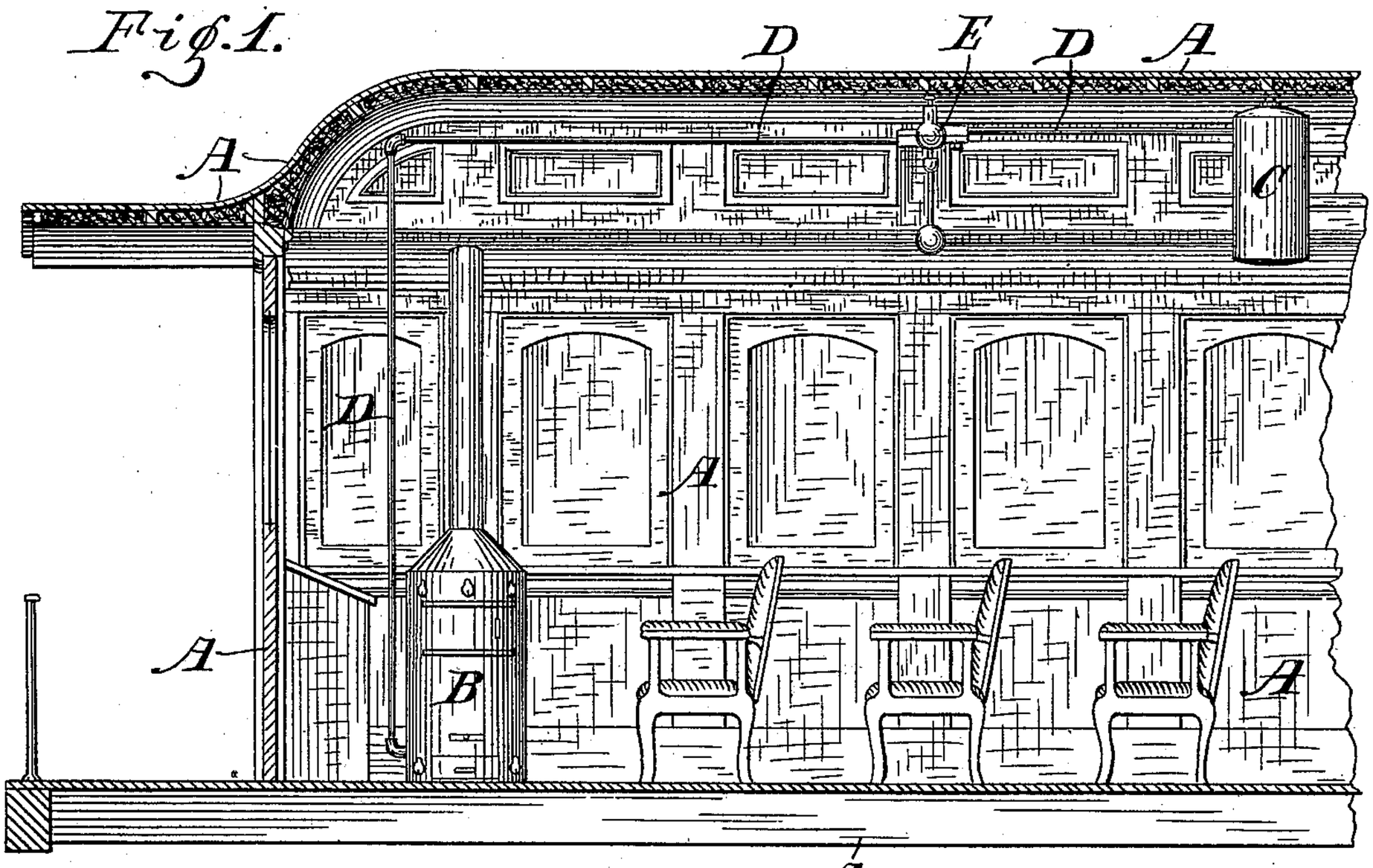


Fig. 2.

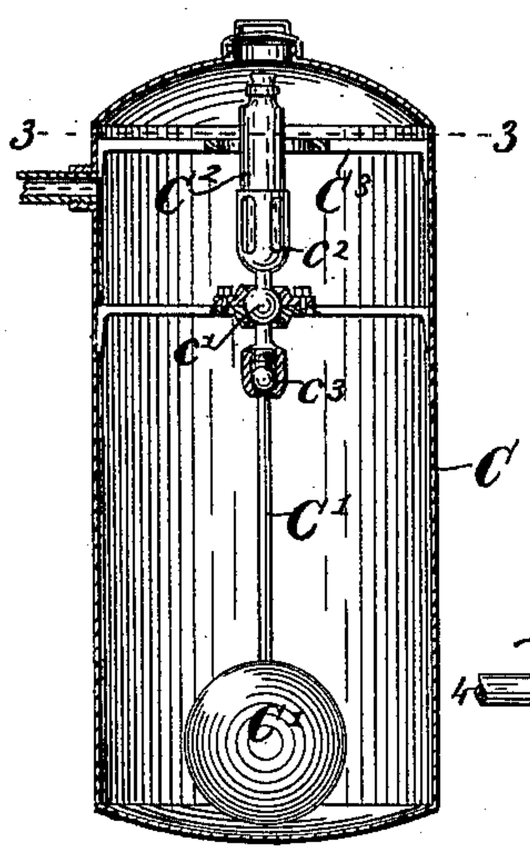


Fig. 3.

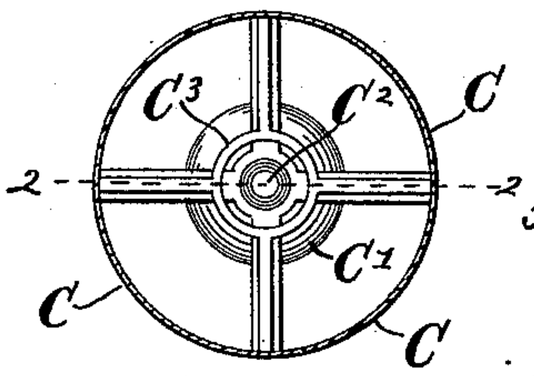


Fig. 4.

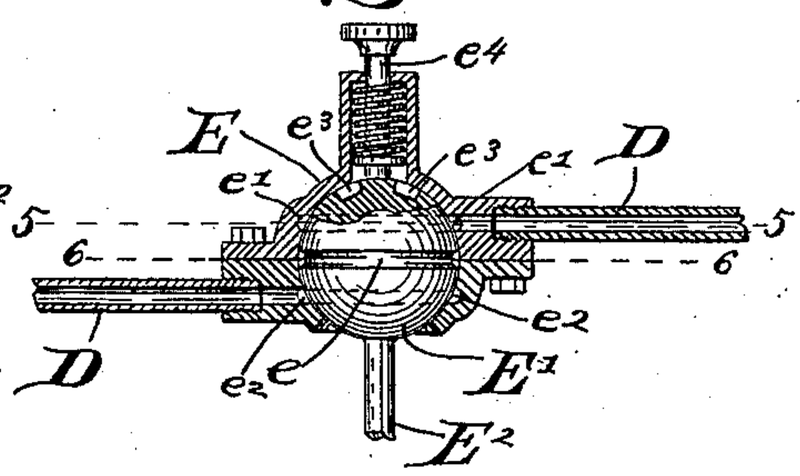


Fig. 5.

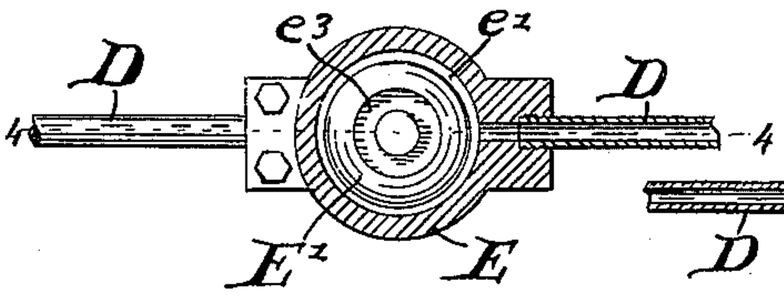


Fig. 7

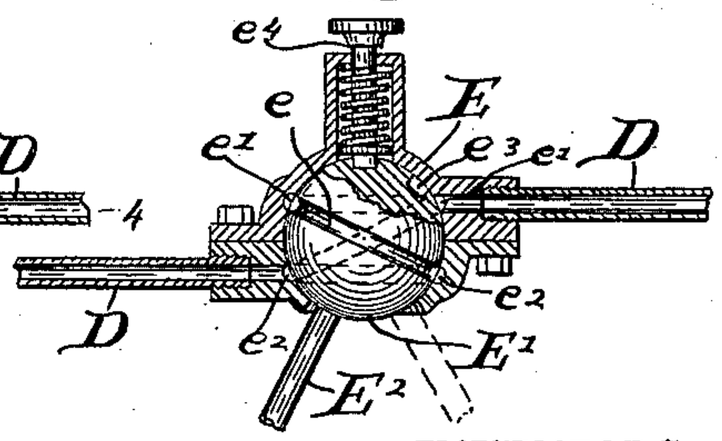
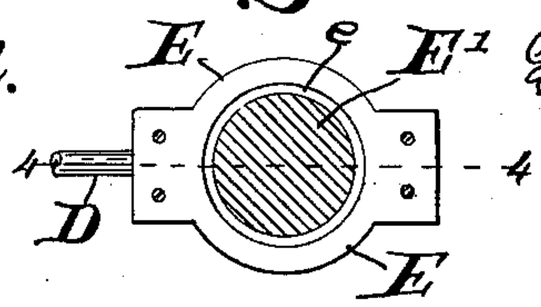


Fig. 6.



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UNITED STATES PATENT OFFICE.

ANDREW J. SMITH AND LOUIS W. NUEBLING, OF INDIANAPOLIS, INDIANA, ASSIGNORS OF ONE-HALF TO MICHAEL H. SPADES, OF SAME PLACE.

FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 392,168, dated October 30, 1888.

Application filed April 23, 1887. Serial No. 235,907. (No model.)

To all whom it may concern:

Be it known that we, ANDREW J. SMITH and LOUIS W. NUEBLING, both of the city of Indianapolis, county of Marion, and State of Indiana, have invented certain new and useful Improvements in Fire-Extinguishers, of which the following is a specification.

The object of our said invention is to provide a means whereby upon the tipping over of any structure containing a stove—such as a railway-car—a gas or liquid will at once be forced into the stove and extinguish the fire therein, thus preventing conflagration. Said object is accomplished by providing a receptacle containing the liquid, or gas, or ingredients for forming the gas, connecting the stove therewith by means of a hose or pipe, and preferably interposing a valve of peculiar construction, by which the passage of the liquid or gas to the stove is prevented, except when the structure is tipped, violently shaken, or overturned, as will be hereinafter more particularly described and claimed.

Our invention will be described in connection with a railway-car, to which it is peculiarly applicable, and for which we have especially designed it.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a longitudinal vertical section of a portion of such a car containing our invention; Fig. 2, a similar section of the tank containing the liquids or gas ingredients on the dotted line 2 2 in Fig. 3; Fig. 3, a horizontal sectional view of the same, looking downwardly from the dotted line 3 3 in Fig. 2; Fig. 4, a longitudinal vertical section of the valve and immediately adjacent parts, when in normal position, on the dotted line 4 4 in Fig. 5, the globe to said valve being shown partly in elevation; Fig. 5, a horizontal sectional view of the same, looking downwardly from the dotted line 5 5 in Fig. 4, the globe being shown in plan; Fig. 6, a similar view looking downwardly from the dotted line 6 6, and Fig. 7 a view similar to Fig. 4, but showing the valve in the position it assumes when the car is jarred or tipped, and the pendulum which operates it is made to swing in the direction indicated, another position being shown in the same figure by means of dotted lines.

In said drawings the portions marked A represent the structure of a passenger-car; B, a stove therein; C, a tank containing the fluid or gas or ingredients from which the gas is formed; D, the pipe or hose leading from said tank to said stove, and E the valve by which the passage of the fluid or gas through the pipe may be controlled.

The car A is, or may be, any ordinary car for the purpose, or any other structure to which our invention may be applied may be understood as taking its place, the form or character of this structure not being essential to our invention.

The stove B contains some peculiarities of construction, but these are not fully illustrated and will not be described herein, as they form the subject-matter of another intended application for Letters Patent.

The tank C consists of an outer water and air tight casing containing one ingredient for producing a fire-extinguishing gas, preferably a quantity of solution of bicarbonate of soda. A pendulum, C′, is mounted therein, suspended by a ball-and-socket joint, c', extending above which is a cup, c^2, carrying a thin vial, C^2, or other easily broken or opened vessel containing another ingredient for producing a fire-extinguishing gas, preferably sulphuric acid. The pendulum is also jointed below the point of suspension by means of a ball-and-socket joint, c^3, which permits said pendulum to swing slightly, and thus accommodate itself to the ordinary movement of the car without disturbing the position of the vessel containing the sulphuric acid. When, however, there is a violent jar, as in case of collision, or a considerable displacement from position, as in case of overturning the car, the pendulum will swing over and force the fragile vessel C^2 against a surrounding ring, C^3, breaking it, which permits the ingredient therein contained to mingle with the ingredient in the tank, which, as is well known, creates a large quantity of gas, which rushes out through the pipe D to the stove and at once extinguishes the fire therein.

The pipe or hose D may be any pipe or hose

of suitable size and strength for the purpose, and leads, as shown, from the tank C to the stove B. It should be divided and a normally-closed valve capable of automatically opening upon any unusual movement of the car inserted.

The valve consists of a spherical socket in the casing or main portion E, and a globe, E′, mounted in said socket, into which at different planes the ends of the sections of the pipe D enter. Annular grooves e' e^2 are formed in the socket in the same planes that the pipe ends enter, entirely surrounding the globe. A central annular groove, e, is also formed in the globe, and a second annular groove, e^3, is formed in its upper surface. A spring-pin, e^4, is mounted in an appropriate chamber or bearing in the upper side of the casing E, which bears when the globe is in normal position upon that portion of its surface which is surrounded by the annular groove e^3; but which, when said globe is moved sufficiently out of said normal position, will enter said annular groove and thus hold said globe to the position to which it has been moved. When the globe is in normal position, as shown in Fig. 4, the groove e therein does not communicate with either of the grooves e' e^2; but when by reason of a sudden jar, as in case of collision or when the car is tipped partially or wholly over by running off the track or otherwise, the globe is moved by its pendulum E^2 to a position, as illustrated in Fig. 7, where the groove e will communicate at one portion with the groove e' and at another portion with the groove e^2, thus furnishing a complete passage about the globe from one portion of the pipe D to the other, and permitting a free passage of the gas or liquid through said pipe.

The groove e^3 is so located that when the pin e^4 enters it it holds the globe so that the several grooves, e, e', and e^2, just register, after which it is impossible to shut off the flow through the pipe until the pin e^4 is withdrawn from engagement with said groove e^3.

Having thus fully described our said invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a movable structure and stove contained therein, of a fire-extinguisher consisting of a tank containing the extinguishing material, a pipe or hose connecting said tank and said stove, and a pendulum carrying a vessel at its top containing one part of the fire-extinguishing material, the other part of said material being contained in said tank beneath said vessel, and said pendulum being hung, by means of a universal joint, to swing in any direction, whereby, upon any unusual movement of the structure, the contents of the vessel at its top will be emptied into the tank below, substantially as described, and for the purposes specified.

2. The combination, with a stove, of a fire-extinguisher consisting of a tank containing the material for extinguishing the fire, a pipe connecting said tank and said stove, and a valve to said pipe consisting of a spherical socket, into which the ends of the pipe-sections enter at different planes, grooves in said socket corresponding to said planes, a globe mounted in said socket and formed with a groove, which, when said globe is in its normal position, does not register with said grooves in said socket, and a pendulum attachment to said globe for operating it upon any unusual movement of the structure to bring the grooves therein to register with the grooves in said socket, whereby a passage through said valve is established, substantially as set forth.

3. The combination, with a movable structure and a stove therein, of a tank containing a fire-extinguishing material, a pipe connecting said tank and said stove, a pendulum within said tank carrying a vessel on its top containing a part of said material, said pendulum being formed with a joint, substantially as described, and for the purposes specified.

4. The combination of a stove, a tank containing material for extinguishing fire communicating with said stove, a pendulum hung within said tank and carrying a vessel on its top containing the substance for causing the fire-extinguishing material to flow into the stove, and a ring mounted around said vessel in position to break the same and release the contents thereof upon any unusual movement of the structure containing the apparatus, substantially as set forth.

5. The combination, with a movable structure and a stove contained therein, of the tank C, containing the fire-extinguishing material, the pipe D, connecting said tank and stove, the valve E in said pipe between said tank and stove, a pendulum attached thereto for operating the same, a pendulum hung within said tank, a vessel mounted on an upwardly-projecting part of said pendulum, containing a portion of the fire-extinguishing material, and a ring surrounding said vessel, whereby when said pendulum is moved to strike the vessel against said ring said vessel will be broken and its contents discharged, substantially as described, and for the purposes specified.

In witness whereof we have hereunto set our hands and seals, at Indianapolis, Indiana, this 1st day of April, A. D. 1887.

ANDREW J. SMITH. [SEAL.]
LOUIS W. NUEBLING. [SEAL.]

In presence of—
C. BRADFORD,
CHARLES L. THURBER.