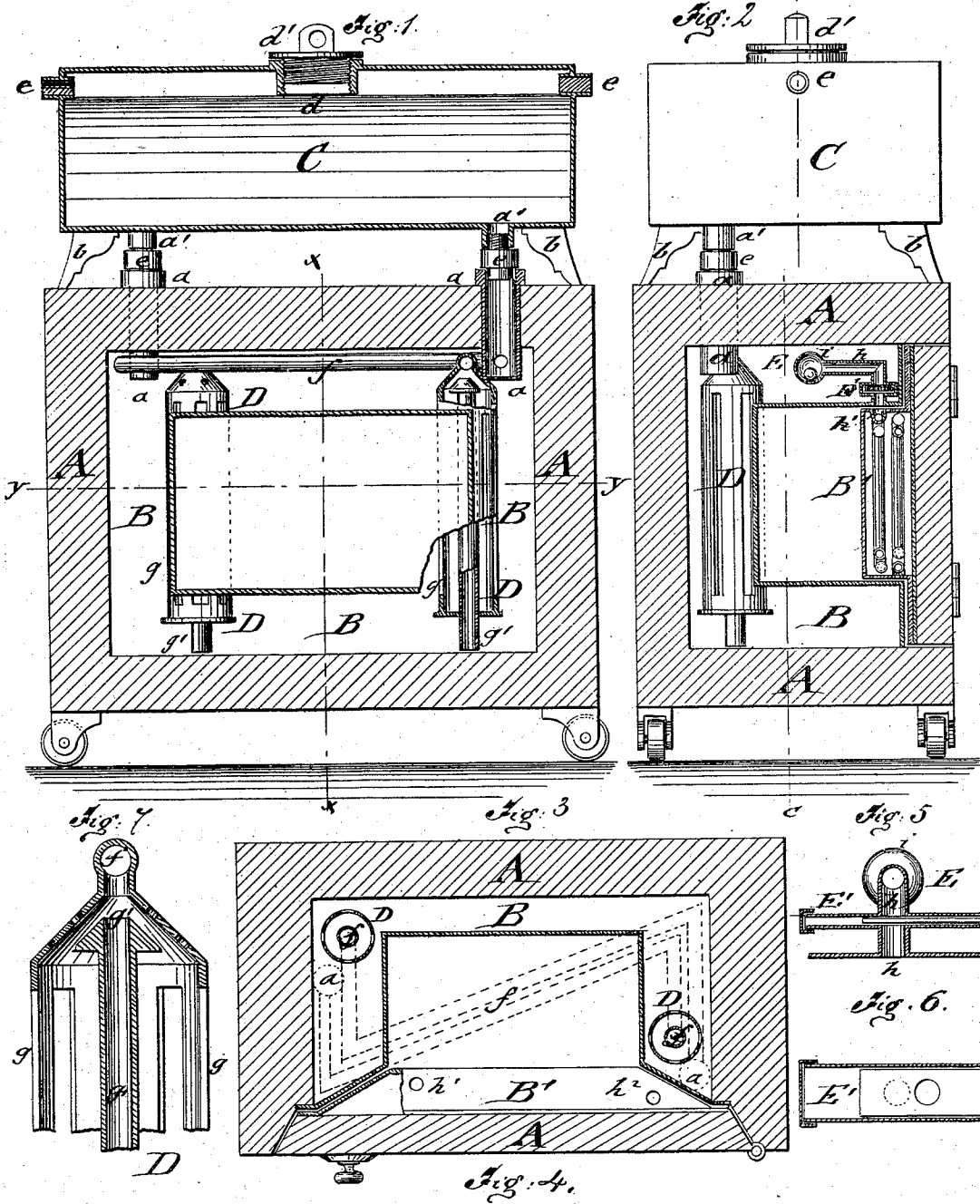


E. H. PARKER.
Fire-Proof Safes.

No. 154,896.

Patented Sept. 8, 1874.



WITNESSES:

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IMPROVEMENT IN FIRE-PROOF SAFES.

Specification forming part of Letters Patent No. **154,896**, dated September 8, 1874; application filed January 24, 1874.

To all whom it may concern:

Be it known that I, EDWARD H. PARKER, of Poughkeepsie, in the county of Dutchess and State of New York, have invented a new and Improved Fire-Proof Safe, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a vertical longitudinal section on the line *c c*, Fig. 2; Fig. 2, a vertical transverse section on the line *x x*, Fig. 1; and Fig. 3, a horizontal section on the line *y y*, Fig. 1, of my improved fire-proof tank or reservoir-safe for the greater security of books and other valuables inside of the same. Fig. 4 represents an inside view of the door provided with a tank-compartment. Figs. 5 and 6, respectively, are detail vertical and horizontal sections of the ball and slide valves for the admission of water to the door-tank, and Fig. 7 is a vertical central section of the tube and plug valve of the main compartment.

Similar letters of reference indicate corresponding parts.

The invention will first be fully described, and then pointed out in the claims.

The drawing represents the arrangement used for a movable safe, that for a stationary one, built into solid masonry, being of simple construction, and easily comprehended after describing the principle of the former.

A, in the drawing, is a safe built for strength and burglar-proof purposes, in any one of the approved methods, with the exception, however, that the walls may be made of lighter construction. To the inner surface of the safe is applied a tank, B, made of copper or other suitable metal, which extends around all the sides of the safe, being perfectly water-tight, except at the points forming the connection with the door-tank. Into the space or compartment formed by this tank B are arranged the book-racks, shelves, or drawers for the valuables which the safe is intended to protect. The door of the safe, whether made of one or two leaves, is, in similar manner as the safe, provided at its inner side with a tank, B', which is fitted closely to the main tank B, as shown in Fig. 3. The top part of the main tank B connects, by two or more tubes, *a*, which pass through the safe A, with a detachable reservoir, C, of a ca-

capacity equal to, or somewhat exceeding, that of the main tank and door combined. The reservoir C is also made of suitable metal, placed separately on the safe on suitable legs *b*, and provided with a top opening, *d*, through which it is filled, and a screw-cap, *d'*, for closing it air and water tight. On its sides, at the highest convenient points thereof, are applied one or more tubes, into which the valves *e*, filled with a mixture melting at a certain fixed temperature, are placed. These valves, having been patented to me before, require here no further description. At the bottom of reservoir C are tubes *a'*, which fit loosely into the connecting-tubes *a*, being also provided with melting-valves *e*. The reservoir rests in this manner on the safe without being attached to it, and is filled with water when the safe is put up for use, being then ready for operation. To the water is added a suitable quantity of carbolic or cresylic acid, or both, by which the development of fungi, vibriones, or other vegetable growth, is prevented. The tubes *a* are arranged at diagonal corners of the top part of tank B, and closed at their lower ends, projecting into the same. To the side of each tube *a* is applied, a short distance above its closed end, a tube, *f*, which extends along the top of the inside of the tank B, first parallel to its shorter side, then diagonally across, and then parallel to the opposite side, its form being that of the letter Z. The short extension or sack of tube *a* below the tube *f* serves to hold the melted mixture of the valve in connecting-tube *a'*, so as to admit the water from the top reservoir C into tube *f* without closing the opening of the same. The diagonally-opposite end of tube *f* is closed, but connected at its lower side with a tube and plug valve, D. This valve consists of a cylindrical casing, *g*, with conical top, tapering toward the aperture in tube *f*, which casing is perforated or slotted in suitable manner to admit the free exit of the water. A tubular valve-stem, *g'*, with conical top part or plug, is guided vertically in casing *g*, resting with its lower end on the bottom wall of tank A. Its upper conical plug is some distance below the top aperture of casing *g*, so as not to interfere with the entering of the water. The plug fits very exactly into

the conical or funnel-shaped top part of casing *g*, by which, in case of the overturning of the safe during a fire, the retention of the water in the tank is secured, while the tubular stem *g'* forms the outlet for the steam generated in the tank. These tube and plug valves are arranged at the ends of all the zigzag tubes *f* which may be used in the tank, and cause thereby the rapid filling up of the main tank B at the melting temperature of the reservoir-valves. The tank or compartment B', attached to the door of the safe, is filled from the main tank by means of ball-valve E and sliding valve E', which are connected, by an elbow-tube, *h*, to the inside wall of tank B, immediately above an opening, *h'*, of the top of door-tank B', corresponding exactly to that of tube *h*.

The slide and ball valves are shown in Figs. 5 and 6 of the drawing, and admit the water after it has risen high enough in tank B, through a top opening, *i*, of the ball-valve, to tube *h*, and through the aperture of sliding valve E' to the opening *h'* of the door-tank. The sliding valve E' is arranged parallel to the tank-wall and vertical to tube *h*, and serves, in connection with ball-valve D, to retain the water in the door-tank, when the safe falls on either side or top during the progress of the fire. The door-tank B' is provided with two or more small apertures, *h*², at the top and bottom wall, each aperture being connected by a zigzag or Z-tube, *h*³, to the inside of the tank. Two of these tubes *h*³ run parallel to each other along the inner wall of tank B', starting from diagonally-opposite ends of the same. The other set of tubes *h*³ runs along the outside wall of the tank, also in diagonal direction, but crossing the first set, as shown in Fig. 2. In Fig. 4, however, only one set is shown, for the purpose of greater clearness. The ends of all tubes *h*³ opposite to their respective entrance apertures *h*¹ and *h*² are open, which furnishes exits for the steam developed in the door-tank into whatever position or side the safe may be thrown during the fire. The steam or surplus water of the door-tank passes out through the crevices around the door, helps to cool the safe, and extinguishes fire immediately under it. In place of the Z or zigzag tubes at the top of the main tank and in the door-tank, circular tubes may also be used, the vertical tubular valves being arranged in the former tank near each entrance-tube of the water, and in the door-tank the same effect is obtained as by the use of diagonal Z-tubes.

The operation of the reservoir-safe is easily understood. The top reservoir is called into action at a temperature, say, of about 150° or 200°, and the water rushes them through the connecting Z-tubes and valves into the main tank, and, after filling the main tank, into the door-tank. The function of the reservoir has then been performed, and that of the inside valves begins, which allow the gradual escape of the steam formed in the tanks, but

retain the water on whatever side the safe may be thrown. When the safe remains in its upright position the steam of the main tank escapes through the top part of the vertical valves and the reservoir—that of the door-tank through the tubes opening at the bottom of the door. If the safe falls into any direction the reservoir is detached and the steam makes its exit directly through the entrance-tubes. If the safe falls on its top the steam escapes through the tubular stem of the vertical tank-valves, while the water is prevented from escaping by the conical plugs being seated in the funnels of the casings. The ball and slide valve closes at the same time, so that no water can escape through the same. The door-tank continues to discharge the steam in the same manner as before, but through the opposite tubes and openings. Should the safe be thrown on either side the uppermost tube and plug valves will discharge the steam through the corresponding external opening. The steam from the door-tank will escape through the tubes having their internal ends highest. The slide in the slide-valve will close that tube. If the safe falls on its back steam escapes through the Z-tubes of the safe and door tanks, having their extremities highest, and through the ball-valves. In falling on the front the same will occur, with the exception that the ball-valve closes to retain the water. In intermediate positions of the safe between those mentioned either one of the valves or tubes will be called into action on the same principles.

A greater simplicity of construction is obtained for the stationary safe, as it is not liable to be thrown around, being embedded in solid masonry. The reservoir will discharge its contents in the same manner into the tanks; but no Z tubes nor valves will be necessary. The tube *h* is, however, retained, as the steam formed in the main and door tanks will be blown off through the top openings of the same.

The greater security of the books and valuables in such a tank-safe is obvious, while the separate arrangement of the reservoir renders the handling of the safe-door easier and prevents mildew or other injurious effects on the books.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The entrance-tubes *a* of main tank B, in combination with the system of Z or circular tubes *f*, and the vertical tube and plug valves D, for admitting the water to the tank from the reservoir and forming the exit for the steam without allowing the water to escape therefrom, as set forth.

2. The entrance-tubes *a*, being extended below the connecting Z-tubes *f* to receive and hold the melted mixture of the reservoir-valves without closing the apertures of tubes *f*, as described.

3. The vertical tank-valve D, formed of per-

forated casing g , with conical top, guiding the conical plug with tubular stem g' , so as to operate in the manner described.

4. The combination of ball-valve E and slide-valve E' , constructed in the manner described, with the main tank B , to operate as described.

5. The door-tank B' , provided with apertures h^1 and h^2 at top and bottom, and at di-

agonally-opposite ends, which are connected, by the system of Z -tubes h^3 , with open internal ends for discharging the steam in the various positions into which the safe may be thrown during a fire, as set forth.

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Witnesses:

W. FARRINGTON,
E. W. SIMMONS.