

(No Model.)

3 Sheets—Sheet 1.

E. H. ASHCROFT.

SAFETY COVER FOR ELEVATOR WELLS, HATCHWAYS, OR OTHER ROOF
OPENINGS.

No. 386,620.

Patented July 24, 1888.

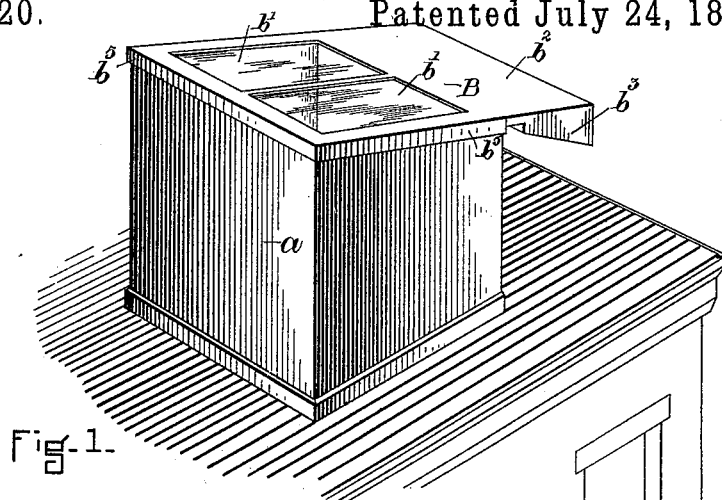


Fig. 1.

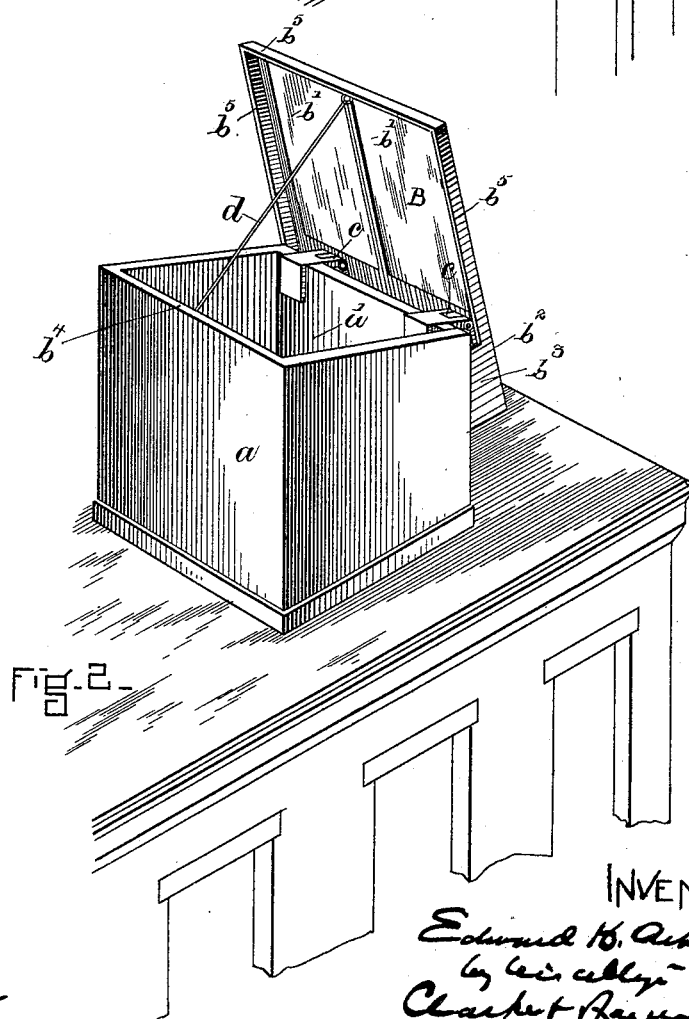


Fig. 2.

WITNESSES.

J. W. Dolan.

E. F. Small.

INVENTOR.

Edward H. Ashcroft,
by his attorney
Charles Raymond.

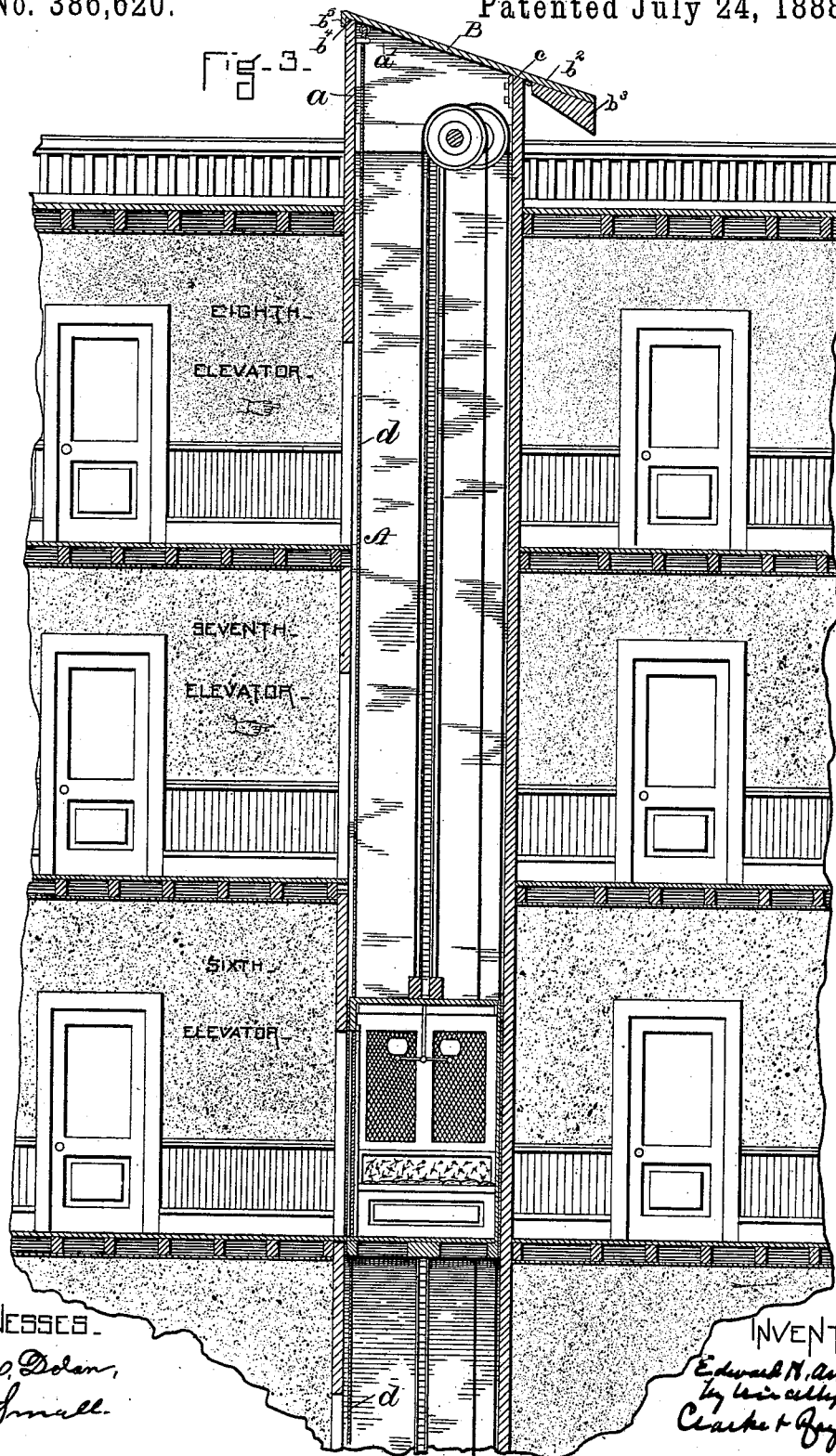
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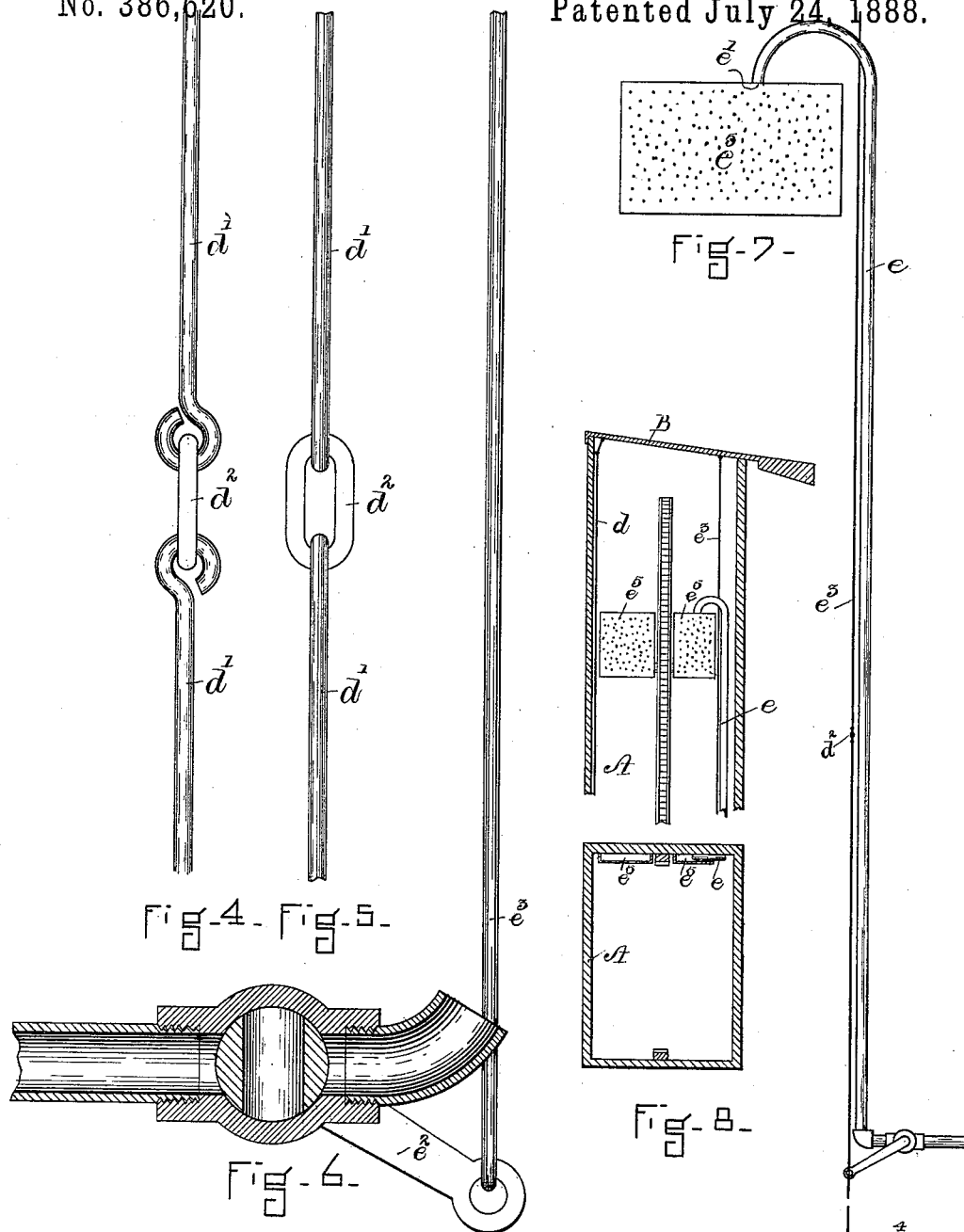
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UNITED STATES PATENT OFFICE.

EDWARD H. ASHCROFT, OF LYNN, MASSACHUSETTS.

SAFETY-COVER FOR ELEVATOR-WELLS, HATCHWAYS, OR OTHER ROOF-OPENINGS.

SPECIFICATION forming part of Letters Patent No. 386,620, dated July 24, 1888.

Application filed March 19, 1888. Serial No. 267,637. (No mo'c'l.)

To all whom it may concern:

Be it known that I, EDWARD H. ASHCROFT, of Lynn, in the county of Essex and State of Massachusetts, a citizen of the United States, have invented a new and useful Improvement in Safety-Covers for Elevator-Wells, Hatchways, and other Roof-Openings, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

The invention relates to an improvement in the method of constructing the tops or covers of elevator-wells, hatchways, &c., for the purpose of automatically opening or removing their tops in case of fire, which comprises a frame or cover of a size to fit the top of the elevator-well, hatchway, or other opening, or a large part thereof, and hinged or secured to a support and provided with an overbalancing weight or section, and which top frame or cover is held in place normally to cover the elevator-well, hatchway, or other opening by means of a rope or cord or other holding device, which extends into the elevator-well or hatchway, and which is adapted to be released by the burning in case of fire in the elevator-well or building, or by an increase in temperature therein caused by fire in close proximity thereto, whereby the cover or top is automatically released by the action of the fire and by its overbalance caused to automatically open or uncover the top of the elevator-well, hatchway, or other opening, thereby establishing in the building an escape for the smoke and flames, which otherwise, if the cover of the elevator-well or hatchway were tight, would be forced through the doors of the elevator-well into other parts of the building.

Referring to the drawings, Figure 1 illustrates in perspective my invention applied to the upper end of an elevator-well, the cover being shown as closed. Fig. 2 is a view in perspective of the same parts, the cover being open. Fig. 3 is a vertical section taken through a portion of a building and its elevator-well, more fully illustrating my invention. Figs. 4 and 5 represent a form of connection for holding the cover, hereinafter referred to. Figs. 6, 7, and 8 illustrate the use, in connection

with the automatic cover, of an apparatus for flooding the elevator with water or steam, and which is adapted to be operated automatically upon the opening of the cover to the elevator-well.

A represents an elevator-well. *a* is its upper section, which, as a rule, projects above the roof, and it is provided with the opening *a'* to the outer air.

B is a movable cover, of a size to fit the opening. It is represented as comprising in part a frame, *b*, in which glass *b'* is set, and is attached to the casing of the well or other support by a hinge or hinges, *c*, placed beneath or upon the under surface of the cover. It is also represented as having an extension, *b²*, to the under surface of which is attached or secured an overbalancing-weight, *b³*.

I have represented the edge of the casing of the well about the opening as inclined from the point *b⁴* downward, so that the cover when applied to the well shall be inclined and provide a suitable surface for the escape of rain-water, &c.; and I have also represented the cover as having a deep flange, *b⁵*, which extends as a weather-guard upon the outer edge of the casing of the well.

The overbalance is sufficient to swing or move the cover to a vertical position automatically. The cover is held in its normal position by means of any substance destructible by heat or fire to such an extent as to destroy its holding power; and in Fig. 3 I have represented the cover as held closed by means of a cord, *d*, which extends from the cover to the bottom of the elevator, so that flame entering the elevator at any point will immediately release the cord by consuming it, or a section of it, thereby permitting the overbalancing-weight to immediately operate to uncover or open the top of the elevator by swinging the cover to a vertical position.

In lieu of a cord I may use a wire, *d'*, sections *d²* of which may be of metal fusible at a low temperature, whereby an increase of temperature in the elevator-well above a certain point will cause the wire to part and the cover to be lifted from the top of the well; or the rope or holding cord may be connected with a fusible plug or plugs adapted to be melted at

a comparatively low temperature, and thus release the holding device; or any other equivalent means for holding the cover closed adapted to be released by the presence of flame or undue heat in the elevator-well may be employed.

The operation of the invention is obvious. Fire or heat entering the elevator-well causes its cover or top to be released, and a large flue or vent for the smoke, flame, and heat is thus provided. Of course it is desirable to apply this cover to the top of the elevator-well or other building-opening; but it is not essential, so far as the principle of the invention is involved, that it be applied to the top opening, as it can be applied to the openings in the side of the elevator-well or other well, if desired. The best application, however, is to the top.

In Figs. 7, 8, and 9 I have represented, in addition to the device above specified, one or more pipes, *e*, having their outlets *e'* in the elevator-well or hatchway, each of which has a controlling valve or valves, which, preferably, are connected with the automatic cover. These pipes act to supply water or steam or other liquid or vapor for extinguishing the fire, and when connected with the automatic cover the release of the cover to open the elevator-well or hatchway causes the valve or valves to be opened. The connection between the valves and the cover may be obtained in a number of ways. I have represented in Fig. 6 the valve as having a lever, *e''*, and connected with the cover by means of a wire rod or cord, *e'''*.

In Fig. 7 I have represented the valve as connected with the device for holding the cover closed and adapted by the weight *e'* to be opened upon the breaking or severing of the connection. It is not necessary, however, that the valves controlling the water or steam supply should be operated by the cover, as they may be held by fusible metal, as represented in Fig. 4, when the increase of temperature in the elevator-well will cause the release of the valve, which may be balanced or weighted to open upon the release of the holding-cord.

If preferred, the water or steam outlet or outlets in the elevator-well or hatchway may comprise one or more large roses or spraying devices, *e''*, such as are shown in Figs. 7 and 8.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. As a means of automatically providing an elevator-well or other hatchway or roof with an

opening, a section forming when closed a cover hinged or connected to a support to be moved by an overbalancing-weight or similar force applied to or connected with the section, which section of the casing of the elevator-well, hatchway, or roof is held in normal position against the force of the overbalancing-weight by a holding device destructible by undue heat or flame, as and for the purposes described.

2. The combination of an elevator-well or hatchway with a covering-section hinged or connected thereto to be movable therefrom to expose an opening therein, an overbalancing-weight carried by said covering-section, and a holding device for holding the covering-section to close the opening, which holding device extends to the bottom, or very nearly to the bottom, of the elevator-well or hatchway, as and for the purposes described.

3. The combination of the casing of an elevator-well or hatchway, having the opening *a'* and the inclined upper edge, with the cover *B*, pivoted to the lower edge, its overbalancing-weight *b''*, and a holding device destructible by undue heat or fire for holding the cover upon the top of the casing, as and for the purposes described.

4. The combination of the casing of an elevator-well or hatchway, a covering-section therefor hinged or connected thereto, an overbalance for automatically opening the same, a holding device destructible by undue heat or flame for holding it in closed position, and a pipe for conducting water, steam, or other fire-extinguishing fluid or vapor, having an outlet in said elevator-well, as and for the purposes described.

5. The combination of the casing of an elevator-well, hatchway, or building-opening, a cover adapted to automatically open upon the release of its holding device, said holding device for holding it in closed position, destructible by undue heat or flame, a pipe for conducting water, steam, or other fire-extinguishing fluid or vapor, having its outlet in said elevator-well, hatchway, or opening, and a valve connected with said cover or its holding device, whereby upon the destruction of the holding device the valve is caused to be opened, substantially as described.

EDWARD H. ASHCROFT.

In presence of—

F. F. RAYMOND, 2d,
E. P. SMALL.