

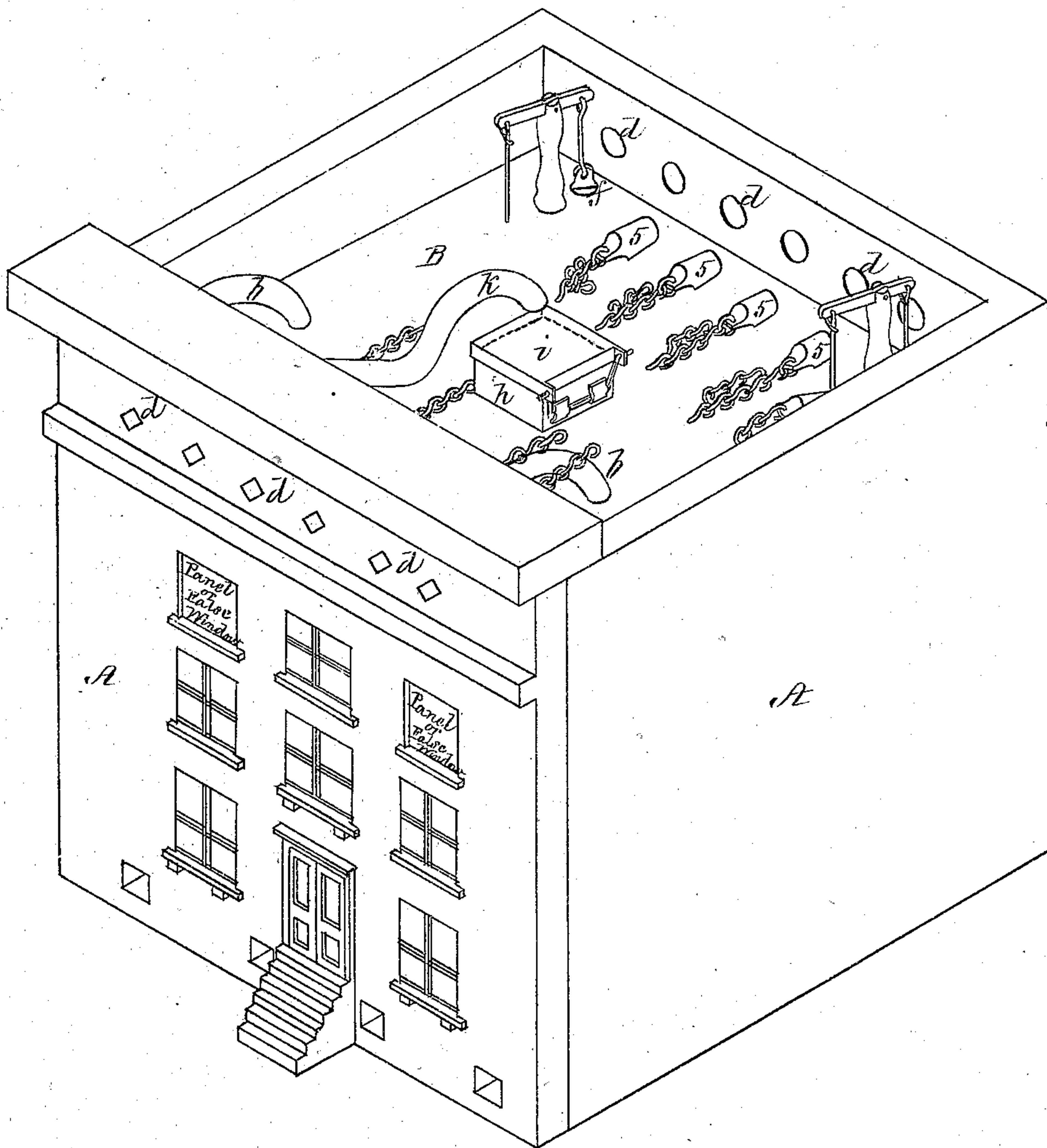
2 Sheets--Sheet 1.

E. S. TOBEY.
Fire-Proof Roofs.

No. 137,038.

Patented March 18, 1873.

Fig. 1.



Witnesses,
P. C. Schumacher
N. W. Stearns

Inventor,
Edward S. Tobey

E. S. TOBEY.
Fire-Proof Roofs.

No. 137,038.

Patented March 18, 1873.

Fig. 2.

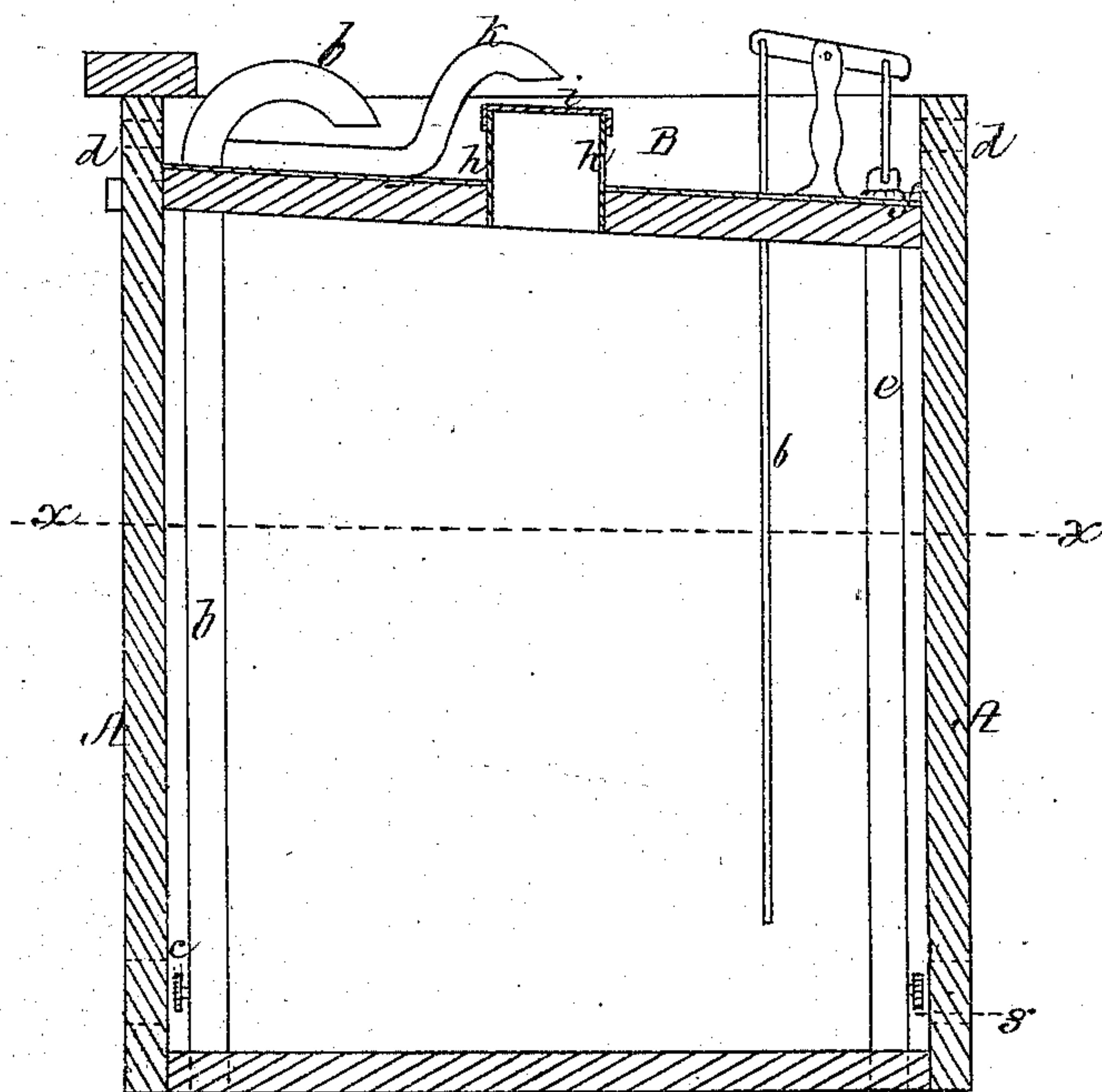
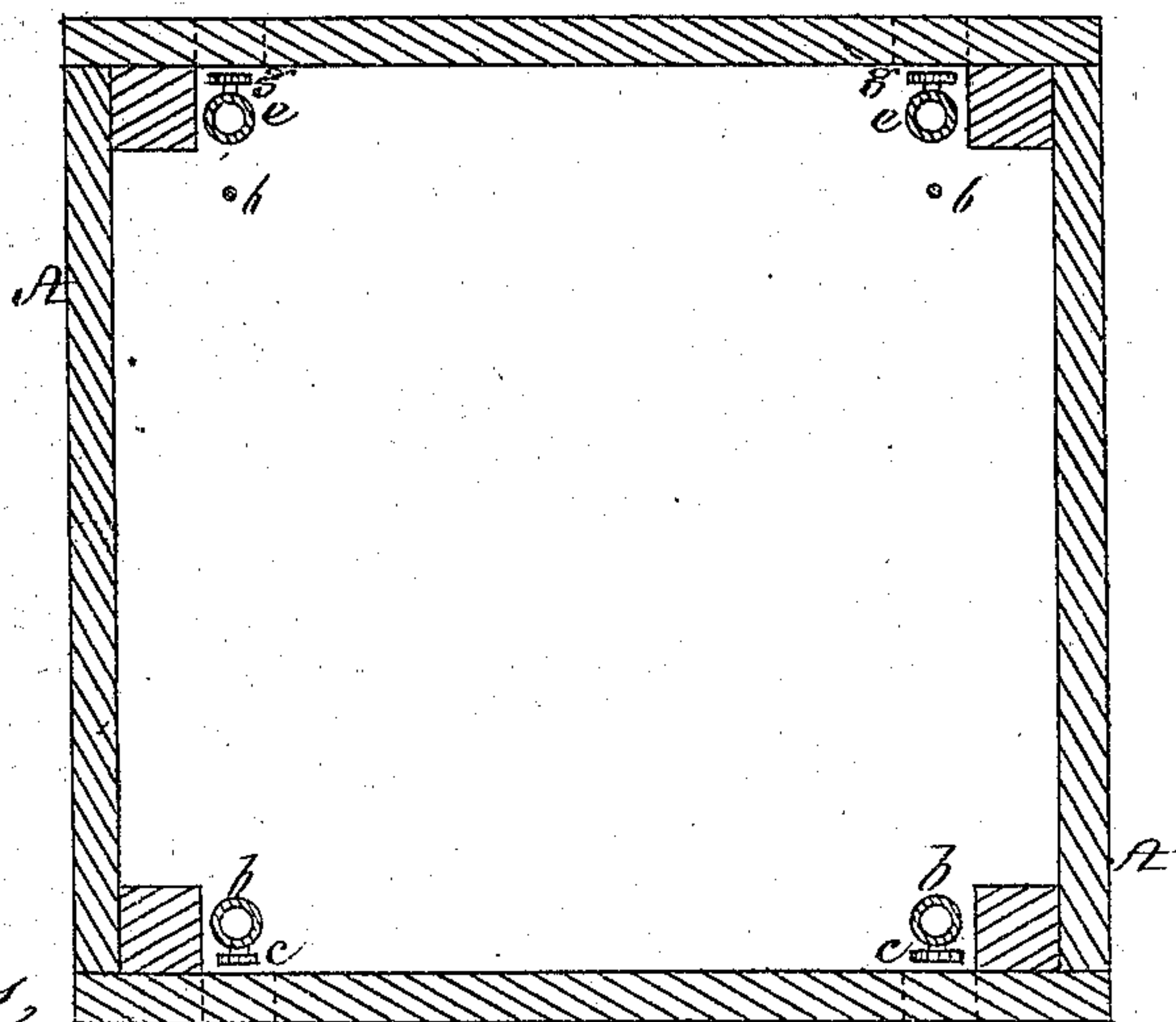


Fig. 3.



Witnesses,
H. E. Schenck
W. W. Stearns

Inventor,
Edward S. Tobey

UNITED STATES PATENT OFFICE.

EDWARD S. TOBEY, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN FIRE-PROOF ROOFS.

Specification forming part of Letters Patent No. 137,038, dated March 18, 1873.

To all whom it may concern:

Be it known that I, EDWARD S. TOBEY, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in the Construction of Buildings; for the purpose of protecting their roofs from fire and preventing a conflagration from spreading from one building to another, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1 is a perspective view of a building, having its roof constructed in accordance with my invention. Fig. 2 is a vertical section through the center of the same. Fig. 3 is a horizontal section on the line *x x* of Fig. 2.

Many extensive conflagrations have been caused by the rapid spread of fire from the roof of one building to those of the adjoining ones, those buildings provided with Mansard roofs being especially liable to destruction from this cause, owing to the very limited protection afforded by the materials of which they are usually constructed.

My invention has for its object to render the roof of a store, warehouse, or other building, whether constructed of wood, iron, or other material, absolutely fire-proof; and consists in constructing the entire top of a building so as to form a tank or reservoir for containing water, which, when the building is threatened by fire, is admitted through one or more supply-pipes connected with the street water-main or other head of water, each of the supply-pipes being provided with a valve, placed in a convenient position, accessible either from the inside or the outside of the building, or both, one or more outlet or discharge pipes having suitable valves being also provided, whereby the tank or reservoir may be emptied and kept clear of water when no danger exists.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawing, A represents a building which is provided with a flat roof, inclined slightly downward from front to rear. The walls of this building extend up on all sides some distance above the level of the roof, thus

forming a large tank or reservoir, B, of which the roof forms the bottom. This roof I prefer to construct of iron plates resting on iron beams, but it may be formed of other suitable materials, if desired. At each corner of the front of the building, on the inside, is a vertical supply-pipe, *b*, the lower end of which is connected with the street water-main, while the upper end outlets into the tank B, where it is curved in the form of a goose-neck. Each of the pipes *b* is provided with a valve, *c*, by opening which the water is admitted into the tank B, which can thus be readily filled on the approach of danger from a fire in any adjacent or distant building; and it is obvious that, as the roof of the building is thus entirely covered with water of considerable depth, all liability of fire being communicated thereto is absolutely avoided.

As soon as the tank B is filled, if the valves *c* are kept open, the water will overflow and run down the front and rear walls of the building, which can thus be kept wet, affording additional security against fire being communicated on the outside to other portions of the building.

When, for ornamental or other purposes, it is found necessary to run the front or other walls to a considerable height above the roof, suitable slots or apertures *d* are provided for the escape or overflow of the water, the apertures being placed at such a height above the surface of the roof as may be deemed most expedient.

The apertures *d* in either wall may be closed by means of plugs 5, or otherwise, so as to increase the overflow of the water on the side of the building most exposed to the fire.

e e are discharge or outlet pipes by which the tank B can be emptied when danger no longer exists, and through which rain or melting snow can escape. These pipes *e*, which may be placed inside or outside the building, are intended to be connected with the sewer or drains, and are each provided with a valve, *f*, at the top, operated by a wire, 6, leading down to the first floor or cellar. As, however, these valves might be obstructed and rendered inoperative by ice and snow, so as to allow the water to escape from the tank in case of fire, I provide each pipe *e* with a second valve, *g*, near the bottom of the building, which is intended to be closed when

the tank is to be filled. These valves *g* are made accessible either from the inside or outside of the building. In addition to the valves *f g* wooden plugs, secured by chains, may be provided, to be fitted into the tops of the discharge-pipes in the event of their valves becoming broken or injured, or in case the upper valve *f* should be out of order and the discharge-pipe itself should burst or be accidentally broken; and the possibility of not being able to fill the tank in case of need, owing to the accidental escape of the water, is thus effectually guarded against.

The supply and discharge pipes should, when practicable, be inclosed in masonry to protect them from being injured by fire within the building itself, or from being affected or obstructed by frost.

My improved roof does not interfere with the construction of scuttles, which are often of the utmost importance, as they afford a means of escape to persons within the building should egress be cut off. When a scuttle is employed it must be provided with water-tight flanges or walls *h*, Figs. 1 and 2, extending up above the line at which the water overflows or escapes, so as to prevent the water in the tank from entering the building. The cover *i* and flanges or sides *h* of the scuttles should be of iron or steel; and, in order to protect the cover of the scuttle from the action of the heat, I provide a pipe, *k*, leading from one of the supply-pipes *b* to a point over the cover, whereby a stream of water may be constantly directed thereon, thus rendering it equally fire-proof with other portions of the roof.

Should a fire occur within the building itself, and the tank be filled with water, it is evident that the fire could not burn through the roof, if of metal, as it would be covered with water, and, by thus preventing the flames from bursting out through the roof, the danger to adjacent buildings and the liability of the spreading of the fire from this cause will be entirely avoided.

It is evident that my improved roof may be applied to dwelling-houses equally as well as to stores or other buildings.

Instead of a number of supply and discharge pipes, one only of each, of sufficient capacity, might be employed, if desired.

It is obvious that the water may be supplied to the tank B by pumping from a reservoir or other source when or where the head or pressure of water is insufficient or inadequate to properly supply the tank, or where there is no water-main from which it can be drawn.

The top of the scuttle-cover *i* may be also constructed in a tank form, so as to hold a given quantity of water, thus making an uniform water-surface on the roof when the scuttle is closed; or the entire scuttle can be so constructed as to be made water-tight when closed, and made of a height in such a relation to the overflow-openings *d d* as to be submerged when the water begins to escape.

I am aware that roofs have been constructed in tank form in order to catch and retain a supply of rain-water, and also that tanks have been placed in the upper parts of buildings and connected with supply and distribution pipes for the purpose of protecting the interior of houses from fire; but these have no effect in protecting the exterior of a building.

Claims.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In combination with a building having its roof so constructed as to form a tank or reservoir, the supply-pipes *b* and *k*, the discharge-pipes *e*, and the slots or apertures *d*, and plugs 5, so as to increase the overflow of the water on the side of the building most exposed to the fire, all constructed and arranged substantially as and for the purpose set forth.

2. The pipe *k* leading from one of the supply-pipes to a point near or over the scuttle, substantially as and for the purpose described.

Witness my hand this 25th day of November, A. D. 1872.

EDWARD S. TOBEY.

In presence of—

P. E. TESCHEMACHER,
N. W. STEARNS.