

JAMES W. OSGOOD.

Improvement in Hoisting Apparatus and Safety Hatches.

No. 124,614.

Patented March 12, 1872.

Fig:1.

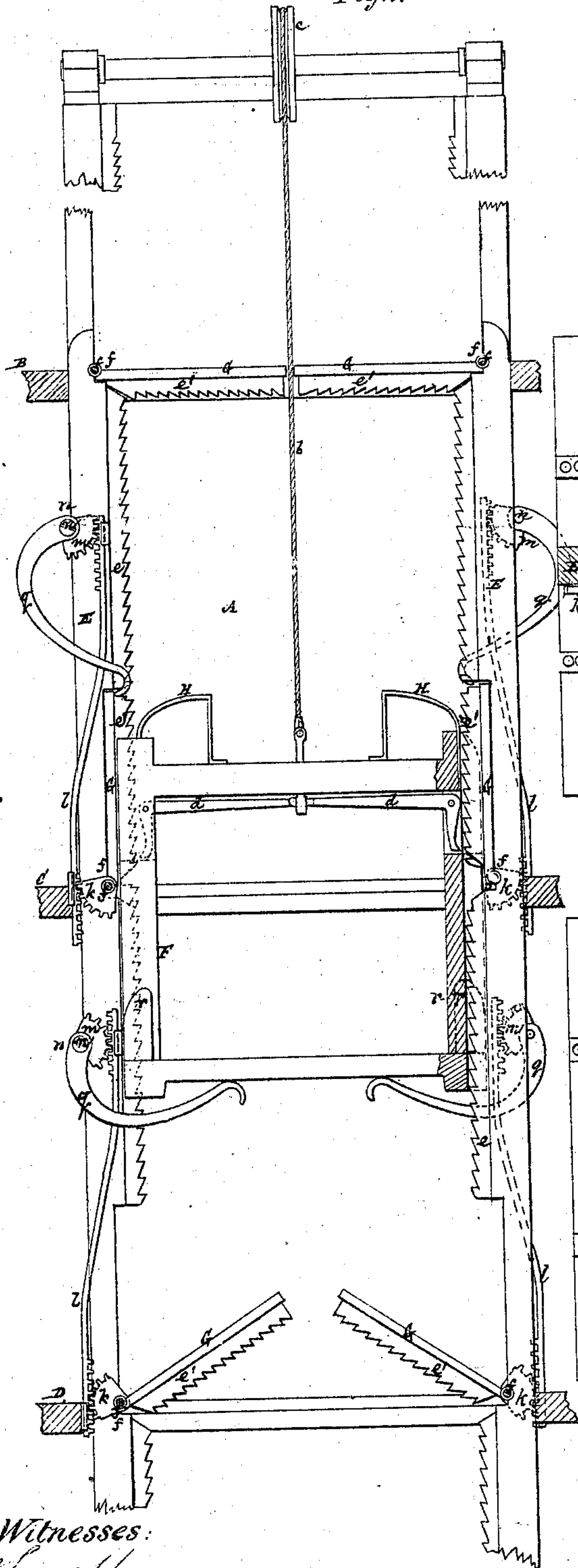


Fig. 2.

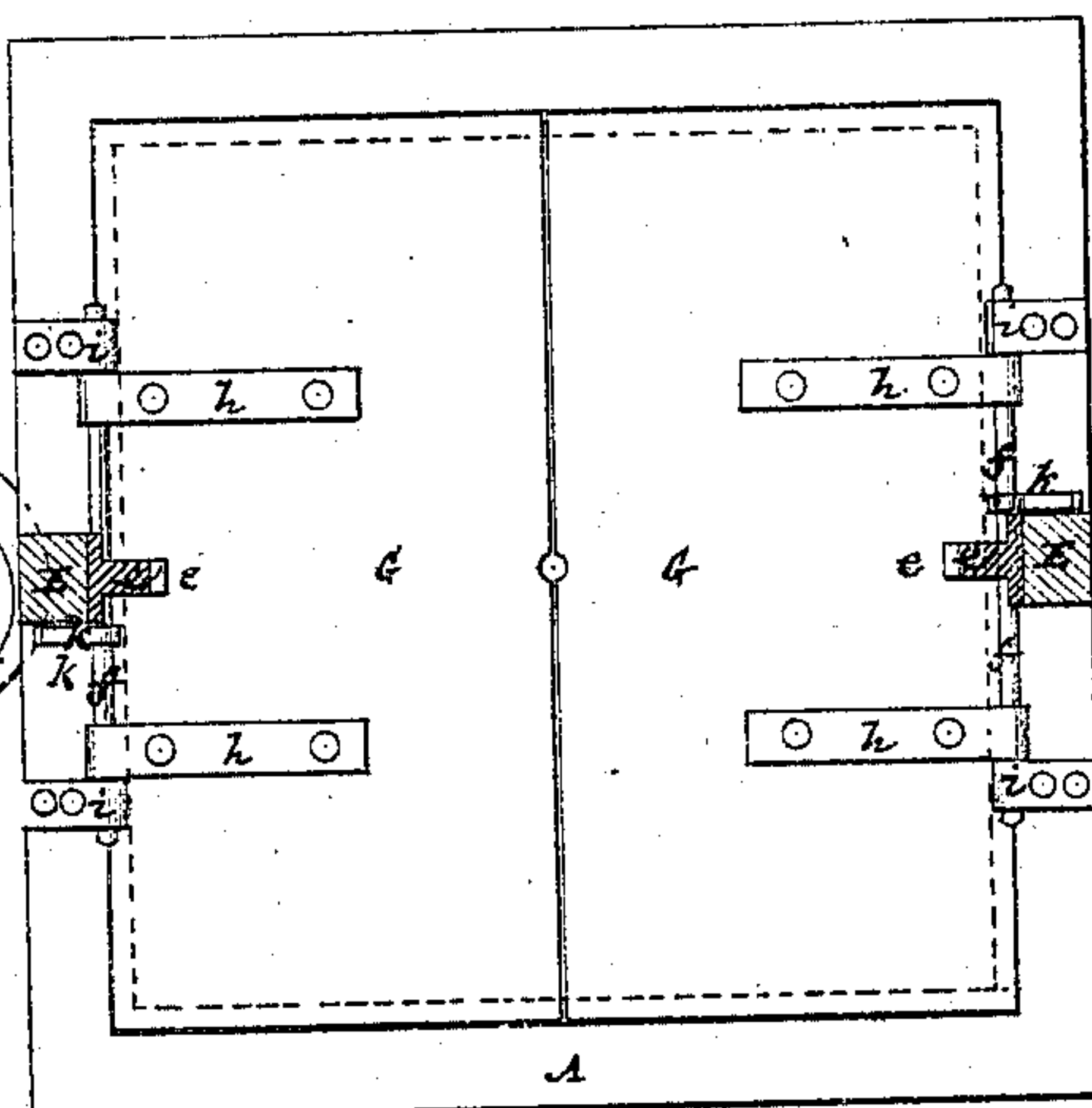
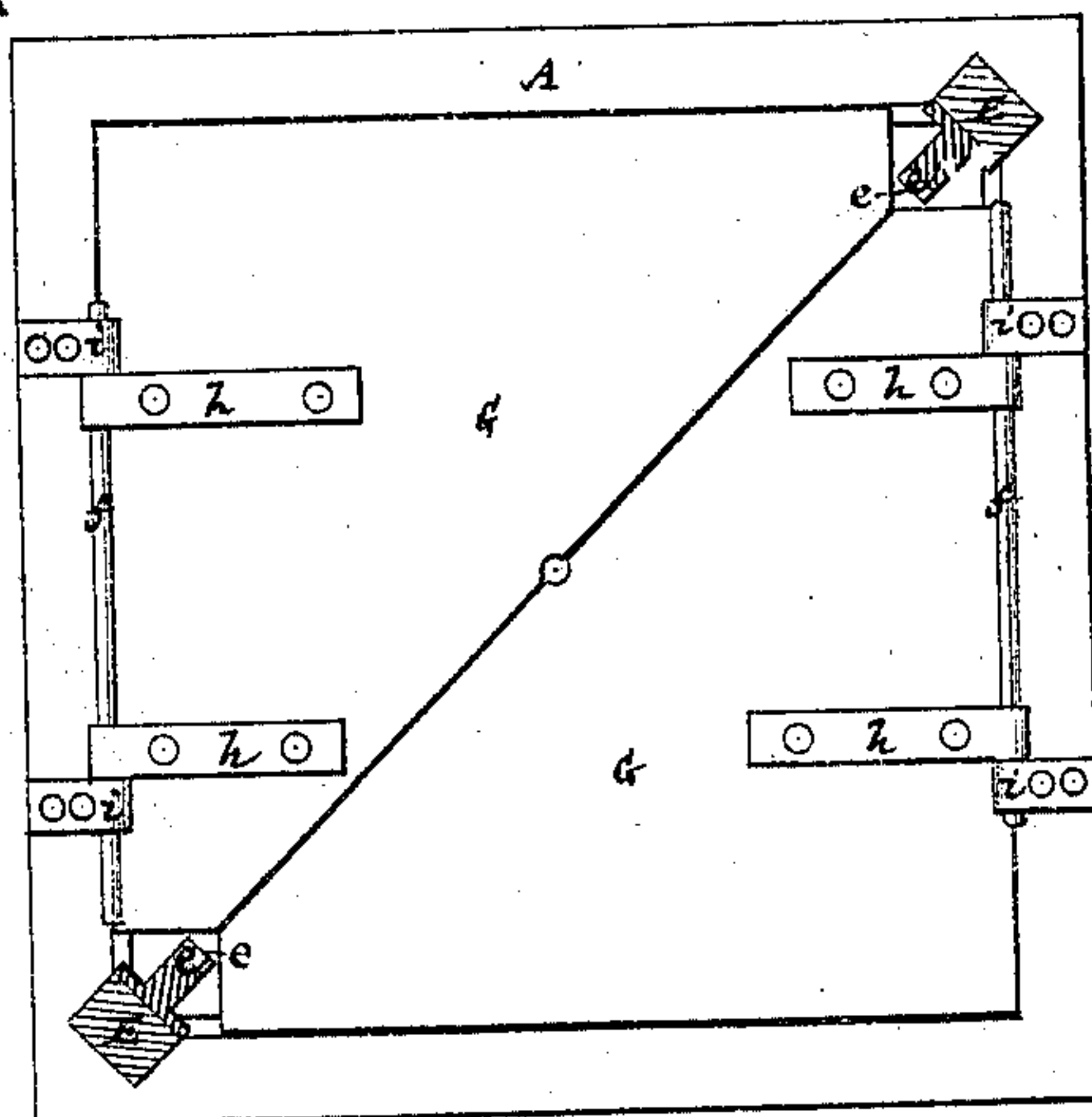


Fig: 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

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OF SAME PLACE.

IMPROVEMENT IN HOISTING APPARATUS AND SAFETY-HATCHES.

Specification forming part of Letters Patent No. 124,614, dated March 12, 1872.

To all whom it may concern:

Be it known that I, JAMES WENTWORTH OSGOOD, of the city, county, and State of New York, have invented certain new and useful Improvements in Safety-Hatches and Hoisting Apparatus Combined; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing forming part of this specification.

This invention relates to hoisting apparatus for buildings of various kinds in which the hoisting-cab or platform is designed to pass up and down through a series of floors or rooms one above the other. The object of the invention is to construct a safety-hatch for use in connection with a hoisting apparatus that shall be both opened and closed in a gradual or easy manner by the apparatus as its cab or platform passes from one floor to another, either in ascending or descending, whereby all slamming of the hatches is avoided, and the hatches, which are hinged, form walls or guards when raised, and when lowered or shut by the apparatus not only prevent persons or goods from falling through or down the hatchway, but exclude draught, so that in case of a fire the risk of its spreading or communicating from floor to floor is avoided. To these ends, the invention consists in a combination with a hinged hatch, or pair of half-doors forming a single hatch to each floor, of mechanism connected with the hinged portion of the hatches for effecting a gradual lowering of the hatches after the cab or platform has passed up through, and for opening said hatches in the descent of the cab or platform, both movements being effected by the action of the latter through the intervention of levers connected with said mechanism. The hatches are opened, during the ascent of the cab, in a gradual and easy manner by curved lifters attached to the cab or platform, which lifters also serve to gradually lower the hatches after the cab in its descent passes them. Furthermore, the invention consists, in a combination with each hinged half or portion of the hatch, of sectional racks or ratchets arranged on the under side of the hatch, and so that on the latter being opened or raised said racks form continuations of the safety-racks ordinarily employed up the sides

of a hatchway for safety-pawls, applied to the cab or platform to bite into in case of accident or derangement of the hoisting-rope. The invention also comprises a hatch formed of two hinged portions divided diagonally in relation with the hinges to provide for a close fit of the hatch with the uprights or guides of the hatchway when said guides are arranged opposite the angles or corners of the cab, as in hatchways situated in proximity to two adjacent walls of a building and under other circumstances.

Having thus specified the object or objects and nature of the invention, its description will be proceeded with in reference to the accompanying drawing.

Figure 1 represents a sectional elevation of a hatchway and hoisting apparatus therein, with the improved safety-hatches, under one form of construction, applied thereto; Fig. 2, a horizontal section of the same taken immediately above one of the safety-hatches; and Fig. 3, a plan view of a hinged hatch divided diagonally in relation with its hinges and to the guides or uprights of the hatchway, up and down which the cab or platform works.

Similar letters of reference indicate corresponding parts throughout the several figures.

Referring, in the first instance, to Figs. 1 and 2 of the drawing, A is a hatchway, intersecting floors B, C, and D of a building, and up and down side guides or uprights E E, in which a cab or platform, F, of a hoisting apparatus is arranged to travel, *b* being the hoisting-rope, which passes over a drum or pulley, *c*, at top of the hatchway, and *d d* safety-dogs or levers connected with the hoisting-rope and serving, in case of breakage or slackening of the latter, to shoot into gear with safety-racks or ratchets *e e*, arranged up the faces of the guides E E, and in continuations on the under faces of the hatches, as hereinafter described. The hatches G G, the tops of which are flush or thereabout with the floors B C D, are each made up of two portions or halves hinged to the hatchway on opposite sides of it, and with their dividing line parallel to the hinges. These hinged hatches open upward, and are preferable to horizontally-sliding hatches by not interfering, as the latter do, with the joists

or main timbers of the floor; also in being easier to work, and in forming walls or guards when raised. The hinges, by which the halves of either hatch are fastened to the sides of the hatchway, are what may be termed rigid ones, consisting of pivot-pins, *f f*, carried by straps, *h h*, on said halves of the hatch, and working in metallic loops *i i* fast to the sides of the hatchway, so that the pins *f f* work with the hatch when raised or lowered. On these hinge-pins are secured toothed sectors *k k*, which are arranged to gear, by means of racks *l l*, sliding in guides on the sides of the uprights *E E*, with similar sectors *m m*, fast to horizontal spindles *n n*, disposed at some distance below the floor next above either hatch, which is the arrangement for the several hatches. Secured to these spindles *n n* are bent levers *q q*, arranged so that when thrown out they lie under the cab *F*, but occupying a downward position when thrown back to allow of the cab passing them, and being shaped at their outer ends to facilitate their adjustment or operation by the cab. Arranged on the under sides of either divided portion of each hatch *G G* are racks or ratchets *e' e'*, which form continuations of the safety-racks *e e* when the hatches are raised, so that the same protection will be afforded to the cab by the dogs *d d* when passing through the hatches as when traveling between the floors. *H H* are curved lifters secured to the top of the cab and bearing in a gradual or sweeping manner on the faces of the rack-continuations *e' e'* to lift the divided or half-hatches in the ascent of the cab from floor to floor.

The operation is as follows: As the cab *F* in ascending passes a hatch, *G G*, the lifters *H H* gradually open and raise it, and in so doing cause the toothed sectors *k k* of such hatch to operate the racks *l l* in gear with them, and thereby to set in motion the toothed sectors *m m*, forming part of the mechanism of that hatch, so as to set the levers *q q* in a downward position or to one side, in order that the cab may pass them. Guides *r r* may be applied to the cab to give said levers their final adjustment in the direction specified and to secure a full opening of the hatch. After the cab has cleared the one set of levers *q q*, then the divided or hinged portions of the hatch below them, and with which they are connected by the sectors and racks, are gradually projected under the cab by the weight of the hatch in closing, aided, if desired, by a running counter-balance applied to said levers that, bearing on the under side of the cab, cause the closing hatch to shut only gradually, thus doing away with slamming, the speed at which it closes being commensurate with that of the cab. In the descent of the cab *F* the same levers *q q* serve to gradually open the hatch immediately below the cab, by the lat-

ter depressing or turning said levers to one side, and by the racks and sectors connected with them, causing the hatch to be opened for the passage of the cab. The hatch thus opened is gradually closed again after the cab has passed it by the hinged halves or portions of said hatch following along or over the curved lifters *H H*. In this way or by these means the hoisting-cab or platform is caused to gradually open and close the hatches as it passes up or down through them.

In cases where the guides or uprights *E E* occupy a diagonal relation to the hatchway, as when the latter is arranged within the corner or angle of a building, and under other circumstances, then it is preferred to arrange the dividing line of either hatch *G G* diagonally in relation with the hinges thereof, and guides or uprights *E E*, as represented in Fig. 3 of the drawing. By this construction of the hatch its divided or hinged portions are made to hug said uprights in a closer manner, or so as to leave a diminished opening or gap about the uprights to permit of the free opening of the hatch than when its hinged halves or portions have their divided line parallel with the hinges.

What is here claimed, and desired to be secured by Letters Patent, is—

1. The combination, with a hinged hatch or hatches, of mechanism for actuating the same and controlled by the cab or platform in passing up or down the hatchway, whereby the cab is made to automatically open and close each hatch in succession in a gradual or easy manner, commensurate with the speed of the cab or platform, substantially as specified.

2. The combination of the fast hinges or hinge-pins *f f* with the halves or portions of either hatch *G G*, the toothed sectors *k k* and *m m*, the racks *l l*, and the levers *q q*, for operation by the hoisting-cab or platform *F*, essentially as described.

3. The combination, with the hinged sections or portions of either hatch *G G*, of the safety-rack or ratchet continuations *e' e'*, substantially as described.

4. The curved lifters *H H*, in combination with the safety-rack or ratchet continuations *e' e'* of either hatch *G G*, essentially as specified.

5. A hatch formed of two hinged parts or portions constructed so that when closed their edges of junction occupy a diagonal relation with the hinges and with the uprights *E E* of the hatchway, up and down which the hoisting-cab or platform is guided in its travel, substantially as described with reference to Fig. 3 of the drawing.

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Witnesses:

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