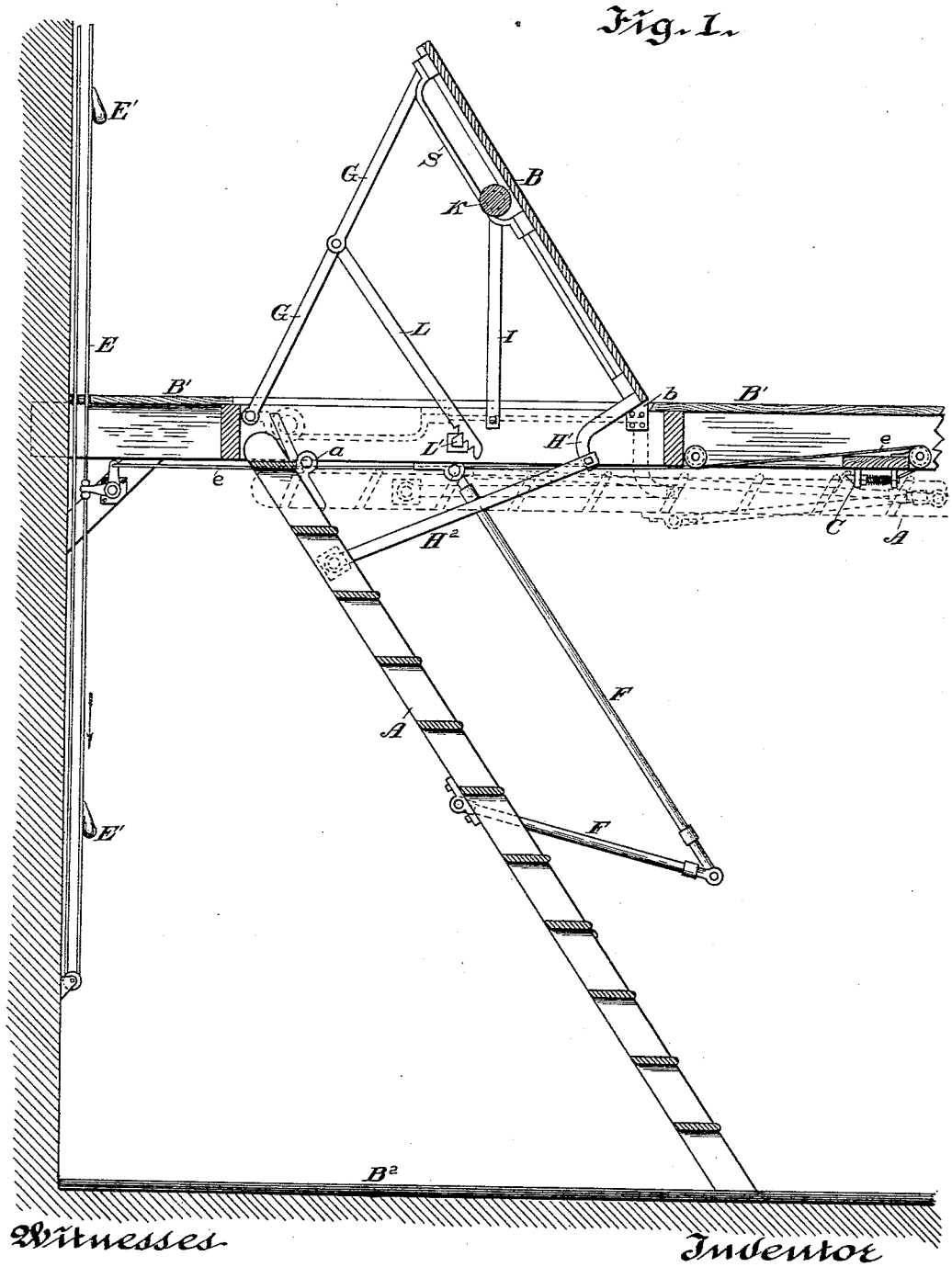
(No Model.) 2 Sheets—Sheet 1.

S. T. RAWLINGS.

FIRE ESCAPE.

No. 476,409. Patented June 7, 1892.

Fig. 1.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

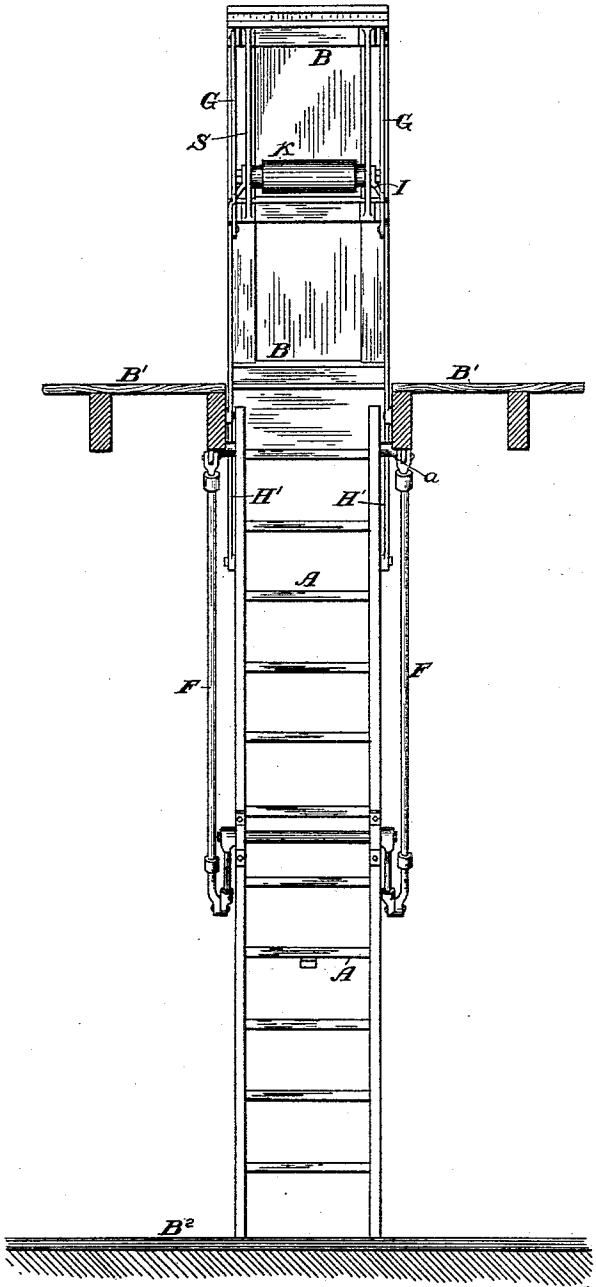
(No Model.) 2 Sheets—Sheet 2.

S. T. RAWLINGS.

FIRE ESCAPE.

No. 476,409. Patented June 7, 1892.

Fig. 2.



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UNITED STATES PATENT OFFICE.

SAMUEL TOVEY RAWLINGS, OF FROME, ENGLAND.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 476,409, dated June 7, 1892.

Application filed March 12, 1891. Serial No. 384,836. (No model.) Patented in England July 24, 1890, No. 11,600; in France October 21, 1890, No. 195,828, and in Belgium October 21, 1890, No. 69,491.

To all whom it may concern:

Be it known that I, SAMUEL TOVEY RAWLINGS, a subject of the Queen of Great Britain, residing at Frome, in the county of Somerset, and in the Kingdom of Great Britain, have invented a new and useful Improvement in Fire-Escapes, (for which I have obtained a patent in Great Britain, No. 11,600, dated July 24, 1890; in France, No. 195,828, dated October 21, 1890, and in Belgium, No. 69,491, dated October 21, 1890,) of which the following is a specification.

My invention refers to apparatus or appliances applicable in case of fire or for use in other emergencies, whereby communication is established between one floor and another or from the bottom to the top of a building through every floor thereof, and for this purpose trap-doors are provided in the floors of the upper rooms, and light staircases are kept suspended under the ceilings by a catch on the releasing of which they immediately drop and open the trap-doors, which are so balanced as to allow the stairs to fall gently to the ground or floor.

The accompanying drawings illustrate the manner in which my invention may be carried into effect.

Figure 1 is a sectional side elevation, and Fig. 2 is a sectional elevation taken at the back of the stairs, of an emergency staircase constructed according to my invention, and similar letters of reference refer to like parts in the two figures.

According to my invention I form a hole or holes in the floor or floors of the building above the ground or basement floor, and I provide such hole or holes with a trap-door B or cover, which may, when fitted into the hole, lie flush with the floor B′ and hinged to the floor at *b*. Below the hinged door I provide a ladder or staircase A, hereinafter for the purpose of this specification termed "ladder," which is supported at its upper end by hinges *a*, attached to the beams forming the sides of the opening from which the door is hinged.

For the purpose of simultaneously operating the door B and ladder A, I have provided the following connections: The door B is provided with a bent arm H′, rigidly attached to it at its lower end.

H^2 represents a lever or rod, one end of which is pivoted to the side of the ladder A and the other end to the outer end of the bent arm H′. Thus the door and ladder are so connected that as the ladder is lowered from its normal position the door is raised, and vice versa.

K represents a weight pivoted at the end of lever-arms I, which are in turn pivoted to the beams at the sides of the openings. The weight K slides in guides or ways S on the under side of the door B, bearing down on the same and partly balancing the ladder A, thereby making it more easy to raise the ladder and also to prevent the ladder from dropping to the floor with a hard knock when released.

G G, Fig. 1, are the guards at the side of the trap-door opening, and F F are the hand-rails to the side of the ladder.

When in the raised position, the ladder A is under the floor or ceiling, and the door B and ladder A are so balanced, (by weight or otherwise,) as before described, for example, that the ladder A has a tendency to turn on its hinge and its opposite end to descend to the floor B^2 beneath, at the same time lifting the door B, and when in its raised or normal position it is held by a suitably-constructed catch C, which catch C may be operated by wire or cord connection from any part of the room or house or where there are a number of floors fitted with communicating ladders. According to my invention the various catches may be so connected as to be operated simultaneously by, for example, wires and levers similar to ordinary bell-pull apparatus. Such pull apparatus is illustrated by the letters E and *e*, on pulling which the stairs are released and the trap-door is opened, and are or may be so arranged that the cord being pulled the whole of the traps from top to bottom are opened and the corresponding ladders brought down simultaneously.

The ladder hand-rails F at the side or sides are joined in such manner that they will fold when the ladder is raised and open when the ladder is lowered. I may provide the door

with a web of canvas or other suitable material on either side, so that when the door is opened the webs will form sides, and it is only the front that will be open for ascent or descent.

L L are levers joined to the rod G for securing the door B when fully opened in position by a rack L′, as shown, or other suitable means may be adopted for such purpose, such as by slotting the ends of the levers L and passing them over studs.

By my invention ladder or staircase communication may be had from one floor to another or from floor to floor by simply pulling or turning a cord or handle and without such ladder or staircase or apparatus occupying any of the ordinary available space.

The dotted lines in Fig. 1 show the ladder in the raised position and the trap-door closed. The full lines show the apparatus opened out and ready for use.

The pull-handles E′ may be placed in cupboards with glass fronts, so that in case of necessity the glass would be broken or the cupboard unlocked, and the handles on being pulled would release the catches G. The stairs A then drop down simultaneously, at the same time opening all the trap-doors B in the various floors, extending the hand-rails F and guards G on each side of the opening, as well as the locking-levers L, which keep the trap-doors B in position while open, so that they cannot be moved until the catches are released. These ladders or stairs can be placed directly under one another in a continuous length, at right angles to each other, or in any other desired position.

The apparatus is suitable for and applicable to any building in which a number of persons are likely to be on upper floors at any one time, and the apparatus can be made plain or ornamental, in harmony with the other rooms or corridors in which they may be placed.

It is desirable that these emergency stairs or ladders should be applied at the farthest possible point from the ordinary staircase.

I am aware that prior to my invention it has been proposed to hinge ladders to balconies outside buildings, so that a ladder can be caused to descend to the balcony below or to the ground, and ladders have also been hinged to floors for the purpose of economizing space and for affording temporary communication when required between the floors of buildings. I lay no claim, broadly, to such hinged ladders; but

What I claim is—

In emergency staircases, the combination, with an elevated floor or platform provided with an opening, of a ladder A, hinged beneath the platform, the trap-door B, pivoted to the platform and arranged to swing upward therefrom, suitable connecting mechanism between the ladder and door, whereby they are caused to move simultaneously, and the weight K, pivoted to the platform and provided with guide S for balancing the ladder, substantially as specified.

SAMUEL TOVEY RAWLINGS.

Witnesses:
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