M. F. GORE.

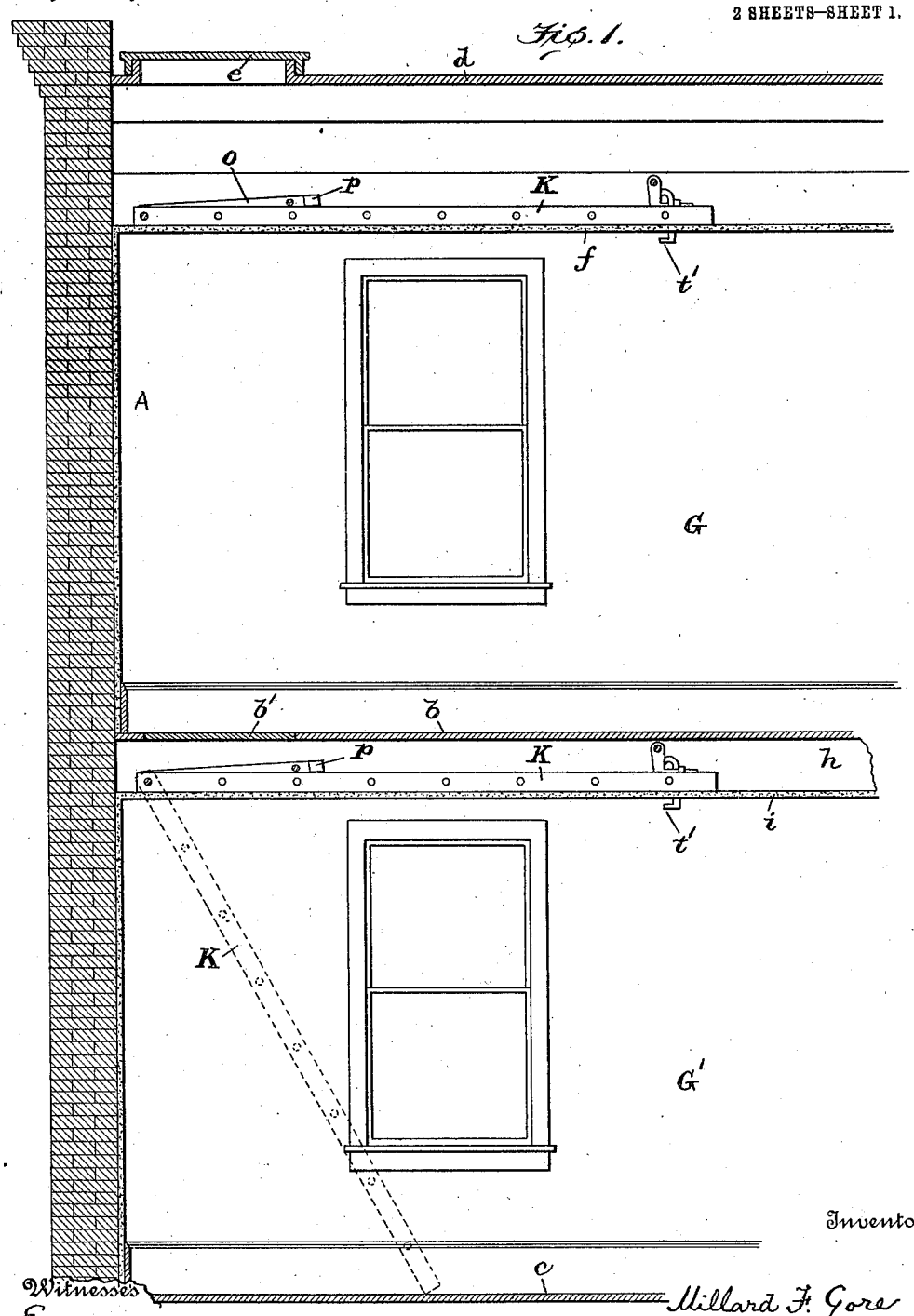
FIRE ESCAPE.

APPLICATION FILED JUNE 16, 1911.

1,002,146. **Patented Aug. 29, 1911.**

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 2.

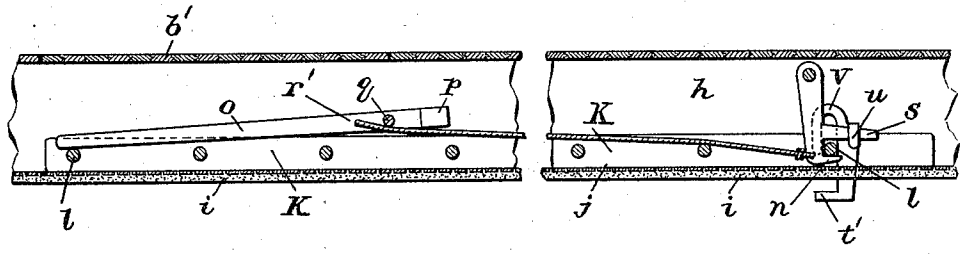


Fig. 3.

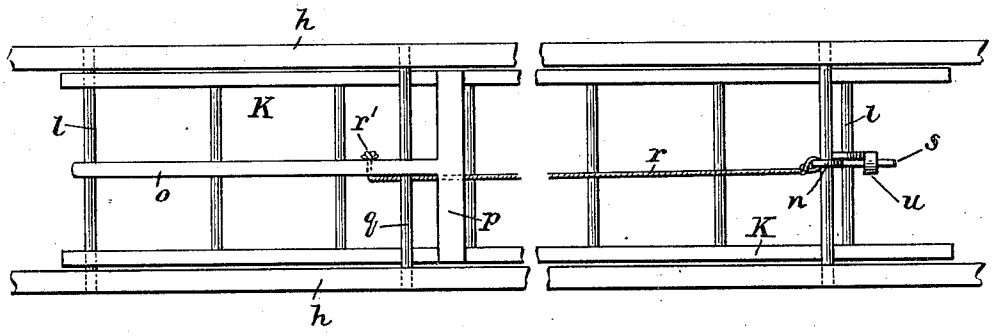


Fig. 4.

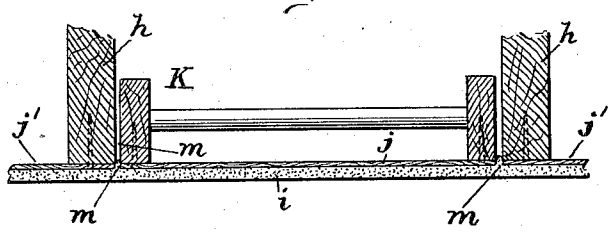


Fig. 5.

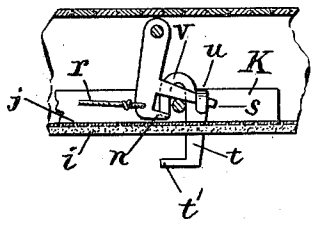
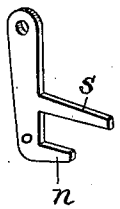


Fig. 6.



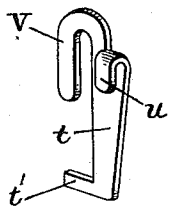


Fig. 7.

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UNITED STATES PATENT OFFICE.

MILLARD F. GORE, OF BALTIMORE, MARYLAND.

FIRE-ESCAPE.

1,002,146. Specification of Letters Patent. Patented Aug. 29, 1911.

Application filed June 16, 1911. Serial No. 633,535.

To all whom it may concern:

Be it known that I, MILLARD F. GORE, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Fire-Escapes, of which the following is a specification.

This invention relates to an improvement in fire escapes of the kind that are attached as fixtures to a building.

An object of the invention is to provide for buildings a ladder concealed in the floor between the boards of the said floor of one story and the plastered ceiling immediately below said boards—being the ceiling of the story next below, and to also provide means likewise concealed for supporting the ladder while concealed, and for releasing the said support and forcing one end of the ladder to move down and thereby break the plaster of the lower ceiling, thus in case of fire enabling a person on an upper floor to escape through the floor to a room below.

Another object is to provide concealed means by which, when a fire occurs, a person in a lower room may release the ladder-supporting means concealed in the ceiling and pull downward one end of the ladder thus breaking the ceiling plaster and placing the ladder in position for use to enable the person to ascend through the ceiling and escape by way of an upper room, or by way of the roof.

It will be understood that the ladder and the means for operating it are not only concealed as described but that the ceiling of the room will be plastered and coated with paint or paper and that the ladder itself will support some of the plaster, thus the concealed fire-escape will produce no unsightly effect in the room.

The invention is illustrated in the accompanying drawing in which—

Figure 1 is an elevation showing in vertical section two upper stories of a building provided with my improvement in fire escapes. Fig. 2 is a vertical section of a floor showing the hinged ladder, the hook supporting the free end of the ladder, and the device by which the hook is released and the ladder pulled down by a person below. Fig. 3 is a plan view of two joists of a floor and the hinged ladder between them, and the device for releasing the ladder and forcing it downward. Fig. 4 is a vertical cross-section on the line 4—4 of Fig. 3, showing that the concealed ladder supports some of the plaster of the ceiling. Fig. 5, shows the ladder-supporting hook and one of the hook-release devices all in their location of concealment, and the hook swung back to its position of disengagement from the rung of the ladder. Fig. 6 is a perspective view of the ladder-supporting hook. Fig. 7 is a perspective view of a combined hook-releaser and ladder down-puller.

The building may be of any construction. The letter, A, designates one of the walls of the building; the topmost floor is designated, *b*, the next floor is designated, *c*.

The letter, *d*, designates the roof; *e*, a trap-door opening through the roof and, *f*, the first ceiling under the roof and over a room, G, on the top floor. The boards of the upper floor have a trap-door, b^1, which lies loose on the joist, *h*, and may be raised easily by anyone. Immediately below the boards of the upper floor, *b*, is the plastered ceiling, *i*, sustained as usual on laths, *j*, (see Figs. 2 and 4) nailed on the lower edges of the joist, *h*. The ladder, K, is extended between two joists, *h*, and has one end pivoted by the ends of its upper rung, *l*, entering the said two joists—see Fig. 3; the other end of the ladder is free and in case of fire may be moved down to the position shown in broken lines in the room, G^1, on the lower floor, see Fig. 1.

By reference to Fig. 4 it will be seen the ends of the ceiling laths, *j*, nailed to the two two side bars of the ladder, K, terminate flush with the outermost side of said bars, and that the ends of the other laths, j^1, that are nailed to the joist, *h*, terminate flush with that side of the joist that is next to the ladder bar; by this construction the two narrow crevices, *m*, between the ladder bars and the joist, *h*, is closed or covered only by the plaster, *i*, of the ceiling; it is therefore practicable to break the plaster along the lines of said two crevices when it is desired, as in case of fire, to force the ladder from its concealed position down to the position for use.

As this invention provides for a person or persons to escape either through the floor to a room below, or through the ceiling to a room or the roof above, I have arranged so that every floor shall have a ladder concealed below the floor, and another ladder concealed above the ceiling; and special means whereby a person on a given floor may put

the lower ladder in position, and escape by going downward, and partially different means whereby the same person, if desired, may put the upper ladder in position and escape by going upward.

When the ladder is in the horizontal position its free ends is supported by a vertically-pivoted hook, *n*, engaging one of the ladder rungs, *l*, as shown in Fig. 2. One means to release the hook is concealed like the ladder. Said means comprises not only a hook-releaser but also a lever whereby a person in an upper room may force the ladder downward into a room below. This lever, *o*, is pivoted on a cross-rod, *q*, whose ends are in the two joists; and the short arm of the lever carries a T-head, *p*, which latter bears on the two side bars of the ladder, K; the long arm of this lever is directly under the trap door, b^1, in the floor. A wire or cord, *r*, has one end connected with the pivoted hook, *n*, and extends under the T-head, *p*, and its other end, r^1, is attached to the lever arm, *o*. By this construction when the long arm, *o*, of the lever is raised two effects or results will be produced, namely, the first is to cause a pull on the wire or cord, *r*, which releases the hook, *n*, from the ladder-rung as seen in Fig. 5, and the second effect is to cause the T-head, *p*, to press down on the ladder and thereby force the ladder to break the ceiling plaster, *i*, along the two crevices, *m*, and thus lower the free end of the ladder and cause it to take the position for use, shown by broken lines in the lower part of Fig. 1. Should a fire occur this first described means would be used by a person in an upper room desiring to escape through the floor to a room below. Provision is also made of a second means to be used by a person in case of fire, desiring to escape by ascending through the ceiling of a room to an upper room, or to the roof. This means comprises a special hook-release and also a device to enable the ladder to be pulled down. In this second means the shank of the vertically-pivoted hook is provided above the hook, *n*, with a rigid lateral arm, *s*, which projects in substantially the same direction as the hook itself, see Figs. 2, 5, 6 and 7. The hook-releaser comprises a vertical shank, *t*, having at its lower end any suitable means, such as an eye or a hook, t^1, to enable the said shank to be pulled downward; the upper part of said shank, *t*, has two hooks, *u*, *v*, of different altitudes; the first of these hooks, *u*, being the lower one engages the lateral arm, *s*, on the ladder-supporting hook, *n*, as shown. The second hook, *v*, is the higher one and has a long down-pointed beak, and engages, or takes loosely over, one of the ladder rungs, *l*.

The two hooks, *u*, *v*, have position above the ceiling plaster, *i*, and the shank, *t*, extends downward through said plaster; the eye or hook, t^1, is the only part of the entire device that is exposed to view below the said plaster.

The operation of this second means is similar to that of the first, and is as follows— by using a rod or pole having an eye or a hook on its end, a person in a room may engage the exposed hook, t^1, and pull downward; the first effect produced will be to cause the lower hook, *u*, to press down on the arm, *s*, which in turn will release the hook, *n*, or swing it from under the ladder-rung, *l*, as shown in Fig. 5; a continuation of the pull downward brings the higher hook, *v*, down until it engages the same ladder-rung, and then by a further pull sufficient strain may be brought on the free end of the ladder to break the ceiling-plaster, *i*, along the two crevices, *m*, and thus the ladder over-head will be lowered and will take the position for use shown by broken lines in Fig. 1 and a person could then ascend the ladder, raise the trap-door, b^1, and escape.

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

1. In a fire escape for buildings, the combination of a floor having joists; a ladder pivoted by one end and concealed in the floor between two joists; a pivoted hook supporting the free end of the ladder while in a horizontal position; a lever pivoted above the ladder and the short arm of said lever bearing on the ladder; and a flexible connection between the supporting hook and lever whereby the action of raising the lever will release said hook and also force the ladder downward.

2. In a fire escape for buildings, the combination with a floor of the building having joists and boards on top of the joists, of a ladder pivoted by one end between two joists and forming two crevices between the ladder bar and joists; a pivoted hook supporting the free end of the ladder while it is in a horizontal position; ceiling laths nailed only to the two side-bars of the ladder and said laths terminating flush with the outermost side of said bars; a plastered ceiling below the same joists and said two crevices closed only by said plaster; a lever above the ladder and pivoted to the joists and the short arm of said lever bearing on the ladder; and a flexible connection from said pivoted supporting-hook and extending under the short arm of the lever and attached to the lever, whereby upon raising the long arm of the lever the supporting hook will be released from its engagement with the ladder, and the ladder will be forced downward causing the plastered ceiling to break only the line of the two crevices.

3. In a fire escape for buildings, the combination of a floor having joists; a ladder pivoted by one end and concealed in the

floor between two joists; a pivoted hook supporting the free end of the ladder while in a horizontal position; a lever pivoted above the ladder and the short arm of said lever bearing on the ladder and said lever enabling a person standing on the floor in which the ladder is concealed to force the ladder down; and means also concealed in the floor and operated by a vertical shank whose upper part connects with said supporting hook and whose lower end is exposed below the floor and by pulling which a person standing in a room below said floor in which the ladder is concealed may release said hook and pull the ladder down.

In testimony whereof I affix my signature in presence of two witnesses.

MILLARD F. GORE.

Witnesses:
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G. FERD. VOGT.