

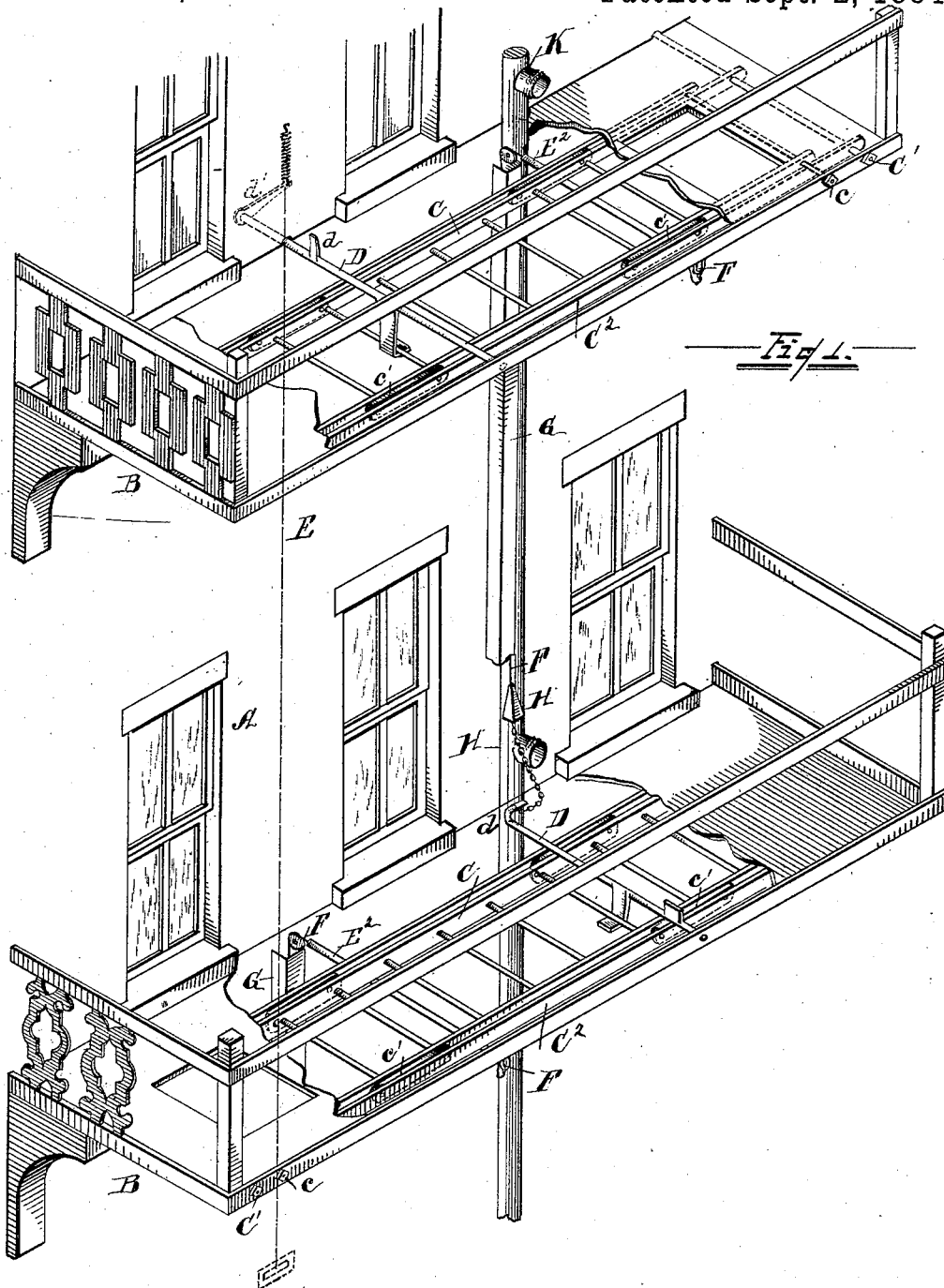
(No Model.)

2 Sheets—Sheet 1.

J. BATTEN.
FIRE ESCAPE.

No. 304,596.

Patented Sept. 2, 1884.



WITNESSES

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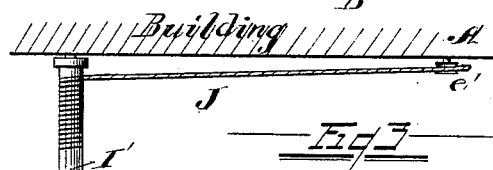
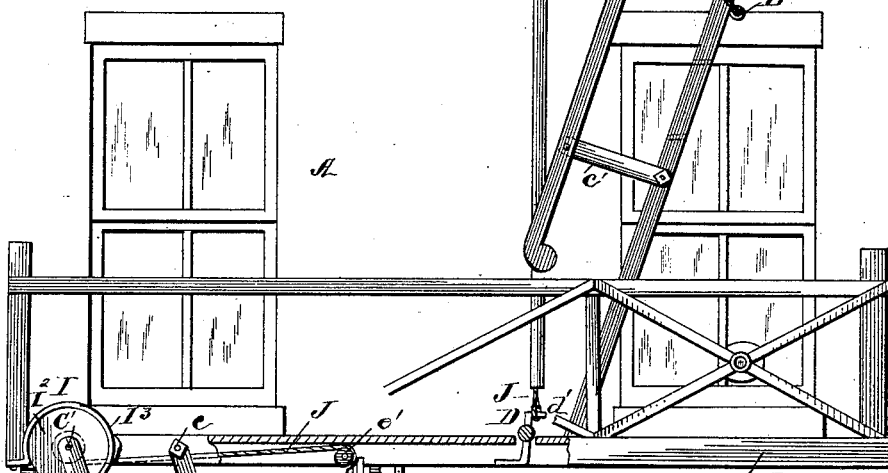
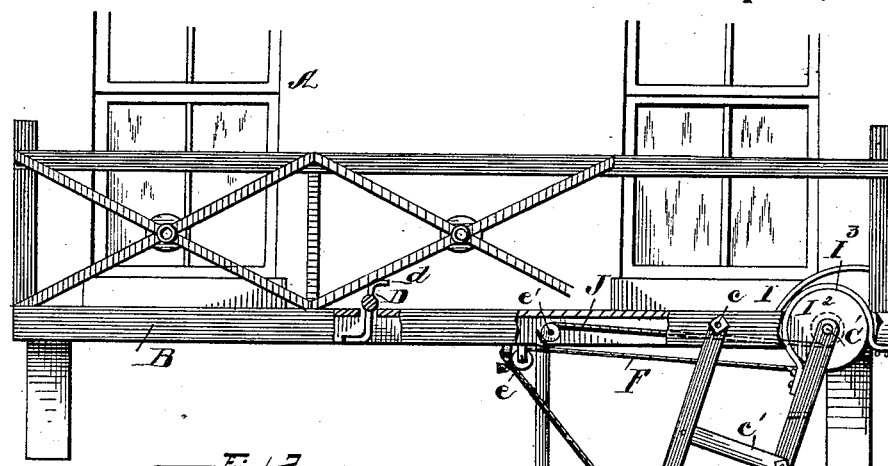
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2 Sheets—Sheet 2.

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FIRE ESCAPE.

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Patented Sept. 2, 1884.



WITNESSES
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UNITED STATES PATENT OFFICE.

JOHN BATTEN, OF DETROIT, MICHIGAN.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 304,596, dated September 2, 1884.

Application filed February 4, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOHN BATTEN, of Detroit, county of Wayne, and State of Michigan, have invented a new and useful Improvement in Fire-Escapes; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form a part of this specification.

My invention consists of the combination of devices and appliances hereinafter specified, and more particularly pointed out in the claims.

As illustrated in the drawings, Figure 1 is a perspective view of a device embodying my invention. Fig. 2 is a front elevation. Fig. 3 is a separate view of one of the parts.

The object of my invention is to provide an improved fire-escape, and more particularly pertains to that class of fire-escapes which are connected with a series of balconies adjacent to the various stories of the building, and in which a series of ladders are constructed and arranged so as to be let down successively from one balcony to another, the construction being such that any ladder may be released at any desired story, which in its descent will automatically release the ladders below it one after another, while any ladders which may be secured to the balconies above will remain folded up in position under the balconies, unless there should be also occasion for their release.

The object of my invention has thus for its purpose the combination, with the several balconies, of ladders hinged thereto, any one of which may be let down from one balcony to another below it by mechanism, which may be operated either from within the building or from without. It also contemplates mechanism in connection with the ladders and balconies, which will ease the fall of the ladders, while also automatically releasing one after another in succession. I contemplate, moreover, combining therewith a fixed water-pipe extending up the side of the building, although this feature may be omitted without departing from the principle of my invention.

I carry out my invention as follows: As

shown in the accompanying drawings, A is the building. B represents a series of balconies secured thereto in any proper manner. These balconies may be of any ordinary construction, except that there are no supporting-brackets intermediate of the ends, so located as to interfere with the descent of the ladders, the strength of the balconies being provided for in any suitable way. The floor of the balconies is left with an opening through which a person may descend upon the ladder, which opening will be so closed when the ladder is folded as to prevent the liability of a person falling through. I prefer to dispense with any trap-door, which in cold and icy weather is liable to be frozen down, and otherwise to interfere with the escape of persons from a burning building. I prefer also that there should be three timbers beneath the floor of the balcony, between the outer two of which the ladder is secured.

C represents the ladders. These ladders are hinged or pivoted at one end to the timbers of the balcony, as shown at C', or in any other suitable manner, so that when released they will swing down to the balcony beneath. These ladders are also preferably provided with an outer bannister or railing, C'', which will fold up at the side of the ladder when it is closed up underneath the balcony, but which in its descent will open so as to afford due protection at that side of the ladder. The ladder might of course be provided with two of these folded hand-rails, one upon each side, without departing from my invention, although the one upon the outer side will ordinarily be sufficient. By omitting the hand-rail from the inside of the ladder greater space is afforded—as, for instance, for a fireman to ascend with the hose. This hand-rail may be constructed to fold and unfold readily in any suitable manner. As illustrated in the drawings, the upper end of the rail is pivoted to the outer timber of the balcony, as shown at c, and is provided with arms c', pivoted thereto and to the frame of the ladder, by which it may be operated. By pivoting the upper end of said hand-rail to the outer timber of the balcony, forward of the pivotal connection of the ladder to said timber, it is obvious that as the ladder descends the hand-rail will be opened

as described, affording ample protection. I prefer also to locate the middle timber of the balcony in such a manner that the ladder may close up between it and the outer timber and well out to the outer edge of the balcony, this construction permitting the floor of the balcony to extend around adjacent to the building; so that a person may walk around the opening through which descent is made upon the ladder. When the ladder is folded up beneath the balcony, it is held in place by a hooked lever, D, which engages with one of the rungs of the ladder. This lever is provided with an arm, *d*, by which it may be thrown into and out of engagement with the rung of ladder from the outside of the building. Said lever extends the width of the balcony, having its bearings in the timbers. The rear end of said lever is also constructed with an angular arm, *d'*. One of these levers is connected with each of the balconies. The upper lever extends preferably through the side of the building and is secured therein to a suitable rope or cable, E, which may be extended downward through a part or all of the stories of the building, so that the entire series of ladders may be released thereby from any point from which said cable shall extend.

F is a suitable cable, which, at its upper end, as shown in the drawings, is secured to the outer timber of the balcony, and which passes underneath the ladder and, preferably, through a tube E² connected therewith, suitable pulleys being provided at each extremity of said tube for this purpose. The inner end of said cable extends adjacent to the wall down through a trough or covering, G, and is connected with a weight, H, the weight being connected by another cable, H', to the inner angular arm of the hooked lever connected with the balcony below. By this arrangement it is evident that as one ladder descends the weight attached to the cable is lifted, in consequence of which the hooked lever supporting the lever below is rotated, releasing said ladder. Each balcony is provided with this cable F, passing beneath the ladder and connected with a weight, as described, by which all the ladders may be released automatically one after another, the weight serving the purpose of easing the fall of the free end of the ladder. The trough or covering through which said cable descends adjacent to the building may be located either upon the outside or upon the inside of the building, as may be desired, in either case the extremity of the hooked lever being connected with a cable therein.

I would have it understood that I do not limit myself to the location of this covering, either upon the outside or upon the inside of the building, as either will serve the purpose, and comes within the scope of my invention. Neither do I limit myself to this precise method of attaching the cable F to the balcony and passing the same down underneath the ladder

through the tube in the manner described. This arrangement affords additional strength to the ladder, in case it should be desired to construct it as light as possible; but the cable might be arranged in any other suitable manner, and connected with the hooked lever below to accomplish the same result—i. e., the automatic releasing of the ladders below, one after another. This feature I desire to cover broadly. Nor do I limit myself to the employment of a weight to ease the descent of the free end of the ladder, as instead I might employ any suitable tension device—for instance, as in Fig. 2, a friction-brake, I, may be employed instead. This brake may be of any suitable construction. As illustrated in Fig. 3, a shaft, I', has its bearings in the frame of the balcony adjacent to the pivoted end of the ladder, said shaft provided at one end with a pulley, I², and a brake I³. Should the weight be dispensed with and this friction device employed instead, the cable F, connected at its outer end to the balcony, as already described, and passing underneath the ladder, is carried over a suitable pulley, *e*, and attached to the shaft of the friction device. Said shaft is also provided with an additional cable, J, attached thereto, passing over a pulley, *e'*, and thence downward, and secured over the angular arm of the hooked lever in the balcony below. The arrangement of this cable upon said shaft is such that as the one unwinds the other winds thereon.

The operation of the device is as follows: Should a person, say at the third story, desire to let down the ladders below, by stepping through the window upon the balcony this may be done by means of the arm of the hooked lever upon the outside of the building. The ladders below would all be released, but the ladders above would remain folded adjacent to the balconies. By means of the cable E, connecting the hooked lever on the upper balcony, he may, from within, let down the entire series of ladders; or a person upon the ground-floor could, by means of said cable, release the entire series in case of danger. By this means, said cable being located inside the building, a burglar would be effectually prevented from letting down from below any ladder above.

By locating in the building one or more alarm-bells it is evident that the descent of the ladders may be caused to ring an alarm upon one or more stories of the building, as may be desired.

In the construction of the ladders it may be very desirable to construct the rungs of metal covered with wood or other substances less liable to be affected by extremes of heat and cold than the metal, so that, in case a person was under the necessity of descending hastily from a burning building, the uncovered foot might be protected from the well-known effects of heat and cold upon the metal.

I prefer to hinge the ladders at alternate

ends, as by this construction the openings in the balconies will also come on alternate ends instead of one below the other, affording greater protection in case of a possible fall from one balcony to another, affording, also, a convenient arrangement in passing from one ladder to another, and giving room for several persons to stand upon the balcony.

This device, it will be noticed, is so arranged that when the ladders are folded up beneath the balconies, as described, the artistic appearance of the building is not marred whatever, as the ladders are never left standing from one balcony to the other, except in times of need. The balconies may themselves be made of ornamental design, so as to add to rather than detract from the appearance of the building.

I prefer to locate the arms *d* of the hooked lever in such a position intermediate of its ends that upon the descent of the ladder above, the foot of the ladder will strike said arm and tilt said lever in case the cable *H'* should not have been properly connected to the angular arm of said lever in the folding up of the ladders. By thus locating said arm the automatic tripping of the lever will be assured in any event.

K is a fixed water-pipe attached to the building adjacent to the balcony, in any suitable location, provided with means for engaging hose thereto at the various stories of the building.

A fire-escape as thus constructed affords every desired means for the escape of the occupants of the building, and also for the ascension of the firemen, while at the same time ladders cannot be lowered by a burglar from the ground upon the outside of the building.

What I claim is—

1. The combination, with a series of balconies, of a series of ladders each hinged at one end to one of the balconies, devices for holding the free ends of said ladders when they are folded up beneath said balconies, and mechanism, substantially as described, connecting one ladder with the tripping device of another, whereby as an upper ladder is dropped the free end of the lower ladder is released, and one ladder after another is thus automatically dropped, substantially as described.

2. The combination, with a series of balconies, of a series of ladders hinged at one end to said balconies, respectively, means for holding the free ends of said ladders when folded up underneath the balconies, and, in connection therewith, mechanism for automatically releasing the ladders below any given balcony, substantially as described.

3. The combination, with a series of balconies, of ladders hinged at one end thereto, means for supporting the free end of each ladder when folded up beneath its balcony, means by which, when any given ladder is released, it will automatically release the lad-

ders below it one after another, and to arrest the fall of said ladders, substantially as described.

4. The combination, with a series of balconies, of a series of ladders hinged at one end thereto, a supporting-lever to hold the free end of the ladder, said lever provided with a cable passing upward adjacent to the wall of the building and connected, over suitable pulleys, with the ladder above, the construction being such that when the upper ladder is released said lever will be automatically tripped, substantially as and for the purpose described.

5. The combination, with a series of balconies, of a series of ladders hinged at one end thereto, said balconies provided each with a support for the free end of the ladder, said support being connected with the ladder above, with intervening mechanism for retarding the descent of the ladders, the construction being such that when one ladder is lowered it will automatically release the ladders below one another in succession, their fall being suitably retarded, substantially as and for the purpose described.

6. The combination, with a series of balconies, of a series of ladders hinged at one end thereto, each of said balconies being provided with a support to engage the free end of the ladder when folded underneath, a cable connected with said support and over suitable pulleys with the ladder above, said cable having an intervening weight, substantially as and for the purpose described.

7. The combination, with a series of balconies, of a series of ladders hinged at one end thereto, a support connected with each balcony for the free end of the ladder, a cable connected with said support and passed upward over suitable pulleys and underneath the upper ladder, the construction being such that by the releasing of the upper ladder the ladders below will be automatically released, substantially as described.

8. The combination, with a series of balconies provided with a series of ladders hinged by one end thereto, of supports for the free ends of the ladders, the support of an upper balcony being connected with a cable passing down in the interior of the building, and each lower support being connected with the ladder above by means of a cable passed over suitable pulleys, whereby, upon the releasing of the ladder to which the cable inside the building is connected, those below it will be automatically released in succession, substantially as described.

9. The combination, with a series of balconies, of a series of ladders hinged thereto, the floors of said balconies constructed with an inclosed opening communicating with said ladders, a support for the free end of said ladders, said supports adapted to be operated from without the building, and provided with a cable extending upward and connected to

the ladder above, the construction being such that all the ladders may be successively released, while any given ladder below balconies above may be released, automatically releasing
5 those below, those above remaining folded, substantially as described.

10 10. The combination, with a series of balconies, of a series of ladders hinged at one end thereto, and adapted to be folded up underneath the balcony, a support for the free end of said ladders when folded up, said support adapted to be operated from the exterior

of the building and connected by a suitable cable to ladders above, said cable passed over suitable pulleys and through a tube underneath the ladder to its outer railings, substantially as described. 15

In testimony whereof I sign this specification in the presence of two witnesses.

JOHN BATTEN.

Witnesses:

ALBERT M. HENRY,
SAMUEL E. THOMAS.