N. BOUVIER.

FIRE ESCAPE APPARATUS.

APPLICATION FILED OCT. 4, 1909.

966,159.

Patented Aug. 2, 1910.

2 SHEETS—SHEET 1.

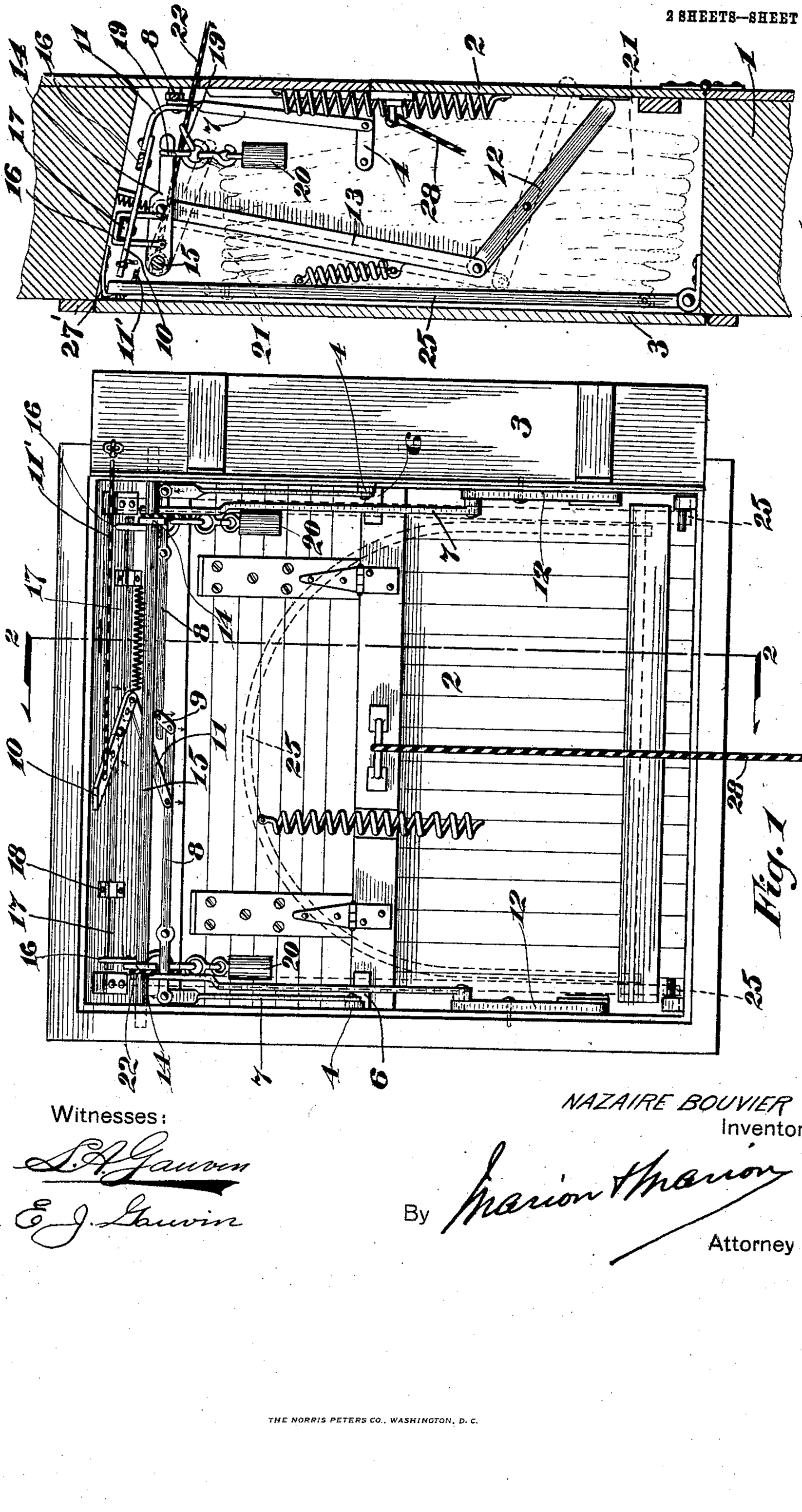

Fig. 2

Fig. 1

Witnesses:

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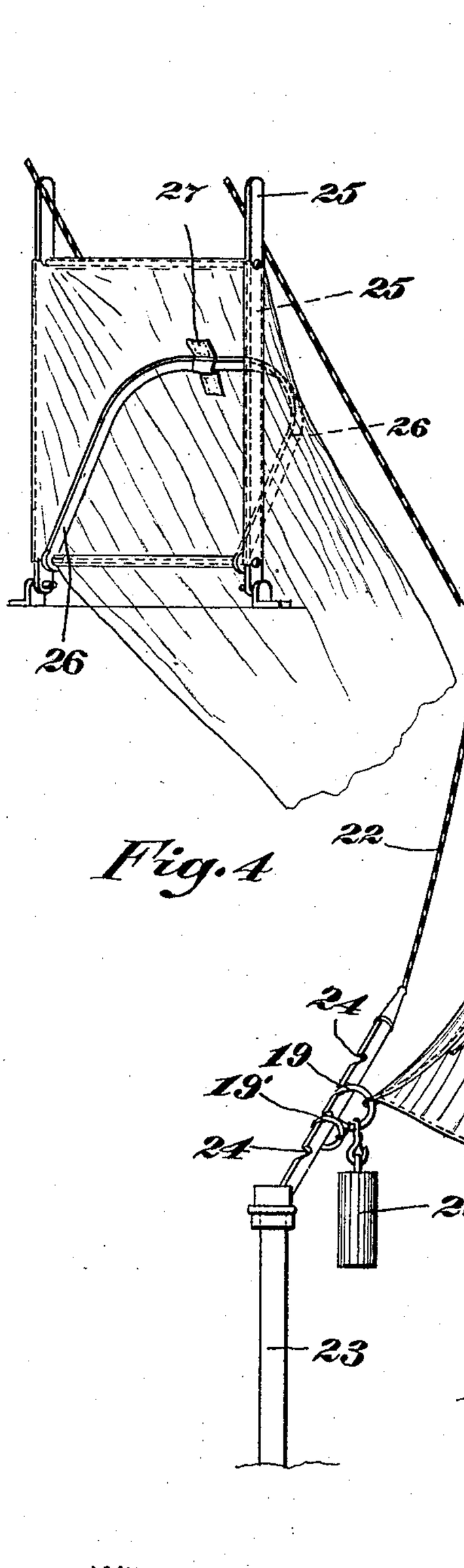

Fig. 4

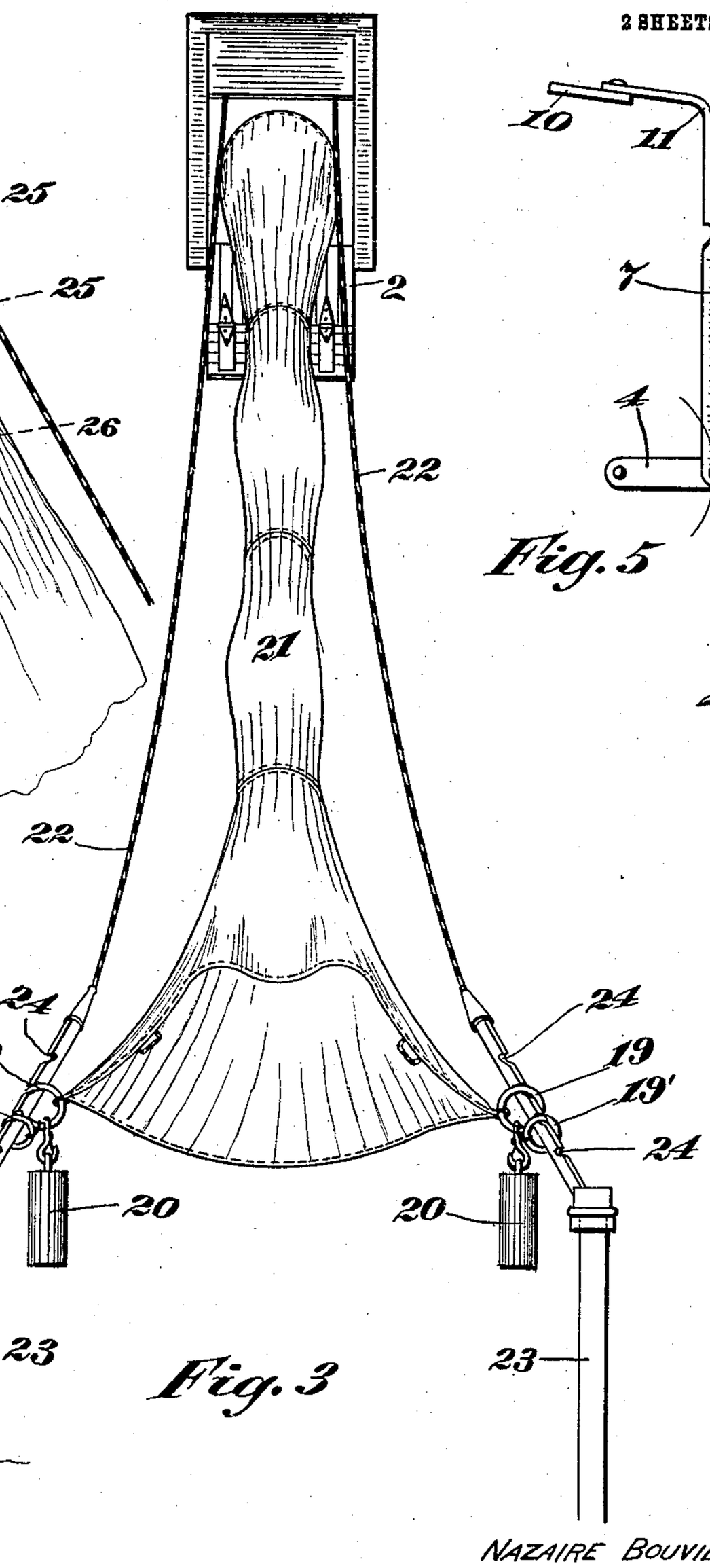

Fig. 3

Fig. 5

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UNITED STATES PATENT OFFICE.

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FIRE-ESCAPE APPARATUS.

966,159. Specification of Letters Patent. Patented Aug. 2, 1910.

Application filed October 4, 1909. Serial No. 520,957.

To all whom it may concern:

Be it known that I, NAZAIRE BOUVIER, a subject of the King of Great Britain, residing in the city and district of Montreal, in the Province of Quebec, Canada, have invented certain new and useful Improvements in Fire-Escape Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention to be hereinafter described relates to fire escapes of the collapsible chute type, and more particularly to an automatically operated door to be used in connection therewith.

Broadly speaking, it comprises a casing provided with front and rear doors, a collapsible fire escape chute within the casing, and means for opening the rear door of the casing, means operated by opening of the rear door and adapted to automatically release and open the front door, means for projecting the chute from the casing as the front door thereof is opened, means for supporting the chute in operative position, means for retracting the chute into the casing, and means for securing the front door in closed position.

In order to more clearly disclose the construction, operation and use of the invention, reference should be had to the accompanying drawings forming part of the present application.

Throughout the several figures of the drawings, like reference characters designate the same parts.

In the drawings: Figure 1 is an inside view of the casing, showing a rear view of the front door; Fig. 2 is a vertical cross section on line 2—2 of Fig. 1; Fig. 3 is a perspective of the chute in projected or operative position; Fig. 4 is a perspective of the upper end of the chute, in operative position, and removed; and Fig. 5 is a detail of the releasing mechanism for the front door of the casing.

The main objects of the invention are to provide mechanism for automatically releasing the front door of the casing and for effecting projection of the fire escape chute simultaneously with the automatic release of the door.

Referring to the drawings in detail, 1 indicates the wall of a building, through which is formed an opening closed by front and rear doors 2 and 3, respectively, to form a pocket or chamber adapted to receive the fire escape chute and its operating mechanism.

In order to hold the door 2 closed and so keep the chute inside of its pocket, catches 4 have been provided. These catches are pivoted to the wall on opposite sides of the pocket, and are provided with hooked ends 5 adapted to engage over plates 6 secured to the inner face of the door 2. In normal position, these hooks hold the door 2 closed.

In order to release the door, it is necessary to disengage the hooks and plates. For this purpose, links 7 and levers 8 are provided. The links 7 are pivotally connected at their opposite ends respectively to the catches 4 and the ends of the short arms of the levers 8. The two levers 8, one for each link, are connected by a link plate 9, so that they will operate in unison. To operate the levers 8, a toggle joint has been provided, comprising one straight arm 10 and one curved arm 11. The straight arm is fulcrumed to the inner top wall of the pocket, while the curved arm is pivotally connected at its opposite end respectively to one end of the straight arm and to one of the levers 8. In order to operate the toggle and disengage the catches 5, a rope 11′ or other flexible means is connected at its opposite ends respectively to the free end of the straight arm 10 and to the inner face of the rear door 3. Consequently, as the rear door is swung open, the catches 5 will be withdrawn and the front door will be free to open. In order to force the front door open as soon as the catches 5 are withdrawn, toggles have been provided, each comprising pivotally connected toggle arms 12 and 13. The arms 12 are fulcrumed to the vertical walls of the pocket, and are so disposed that, while inoperative, their lower ends rest immediately against the inner face of the front door. The upper ends of the arms 13 are pivotally connected to plates 14 fixed to and movable with a rock shaft 15 which is journaled in the vertical walls of the pocket.

In order to hold the plates 14 in inoperative position, they are each provided with a loop or yoke 16, adapted to slidably receive the end of a locking rod 17 slidably mounted in a strap or guide plate 18 secured to the upper wall of the pocket. These rods 17 have their inner ends pivotally connected

to the straight arm 10 on opposite sides of its fulcrum, so that they will both be operated at the same time. The outer ends of the plates are each provided with a notch adapted to receive a ring 19, from which is detachably suspended a weight 20. The upper edge of the lower end of a collapsible fire escape chute 21 is connected either directly or indirectly to the ring 19 from which the weight 20 is suspended. The weights are designed to project the chute 21. To that end, the rings 19 are adapted to slide freely along inclined ropes, cables, or similar guides 22, extending downwardly from the rock shaft 15 to stakes, posts or similar anchors 23. These guides diverge slightly from the pocket to their anchors, and have their lower ends provided with holding bars 24 having notches into which the rings 19 and auxiliary rings 19′ drop as the chute reaches its lower limit. Thus, a double grip will be provided, so that should one fail, the other will hold.

In order to hold the upper end of the chute distended and in operative position in the wall pocket, a frame 25 is provided. This frame is pivoted at the rear lower edge of the pocket, and its vertical members are extended upward so as to engage the rock shaft 15, which will act as a stop to prevent further forward movement. To further retain the upper end of the chute in open position, a hoop 26 is provided. This hoop is pivoted about the lower member of the frame 25, and swings outward at an angle to the frame, being retained in operative position by a loop 27 on the inner face of the chute.

In order to limit the rearward swing of the frame 25, stops 27′ have been provided, which engage the upper ends of the upright members of the frame 25 which would otherwise be forced against the door 3 by the compressed chute 21 while in the wall pocket.

A cord 28, or similar means, may be provided for returning the front door 2 to closed or operative position when the chute has been collapsed and placed within the pocket.

It is thought that the operation and use of the invention will be clear from the preceding detailed description.

Changes may be made in the construction, arrangement and disposition of the several parts of the invention, without in any way departing from the field and scope of the same, and it is meant to include all such within this application, wherein only a preferred form has been disclosed.

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

1. A fire escape apparatus of the character described, comprising a wall pocket provided with front and rear doors, a collapsible fire escape chute adapted to be held between the doors of said pocket, connections between said front and rear door for automatically releasing the front door upon opening the rear door, and means for simultaneously projecting the fire escape chute.

2. A fire escape apparatus of the character described, comprising a wall pocket provided with front and rear doors, a collapsible fire escape chute adapted to be held between the doors of said pocket, connections between said front and rear door for automatically releasing the front door upon opening of the rear door, means for simultaneously projecting the fire escape chute, and means for holding said chute in projected position.

3. A fire escape apparatus comprising a wall pocket provided with front and rear doors, means for automatically releasing said front door upon opening of said rear door, a collapsible chute adapted to be contained within said pocket, means for projecting said chute simultaneously with the release of the front door, and means for forcing the front door open as the chute is projected.

4. In a fire escape apparatus, the combination of a wall pocket provided with front and rear doors, a catch pivoted to the side of said wall pocket, a plate connected to the front door and adapted to be engaged by said catch, a link connected to said catch, a lever connected to said link, a toggle connected to said lever, and connections between said toggle and the aforesaid rear door, whereby opening of the rear door will cause release of the front door.

5. In combination with a fire escape apparatus, a wall pocket provided with front and rear doors, a collapsible chute adapted to be contained within said pocket, a rock shaft mounted in said pocket and provided with notched plates, weights suspended from said plates, connections between said weights and said chute, inclined supporting members leading from said pocket outwardly, sliding connections between said members and said weights, means for holding said notched plates in raised position to retain said weights in inoperative position, and means for automatically freeing said plates to allow release of said weights and projection of the chute.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

NAZAIRE BOUVIER.

Witnesses:
T. MYNARD,
W. S. BABCOCK.