

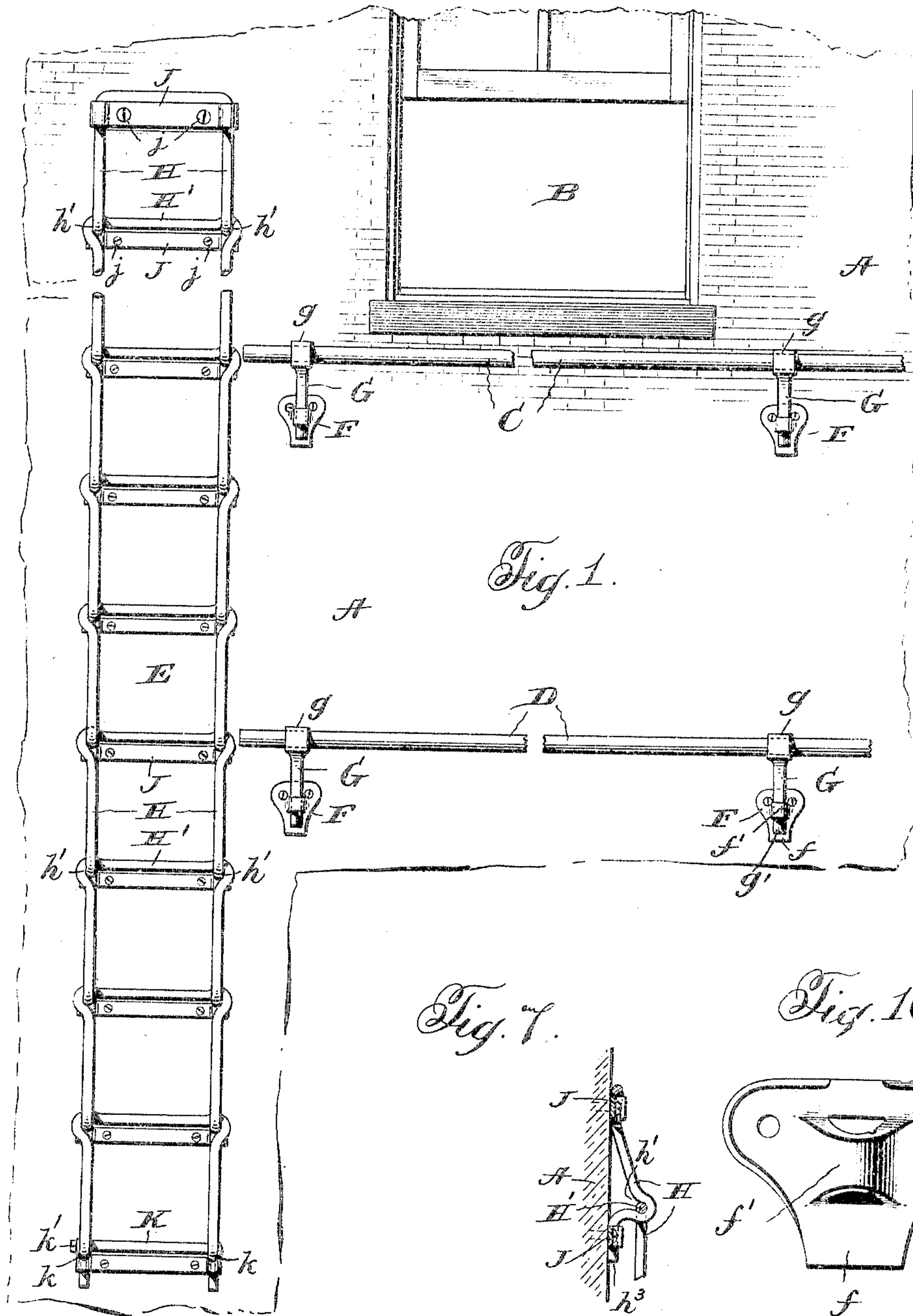
No. 793,770.

PATENTED JULY 4, 1905.

J. C. COVERT.
FIRE ESCAPE.

APPLICATION FILED SEPT. 19, 1904.

2 SHEETS—SHEET 1.



Witnesses:

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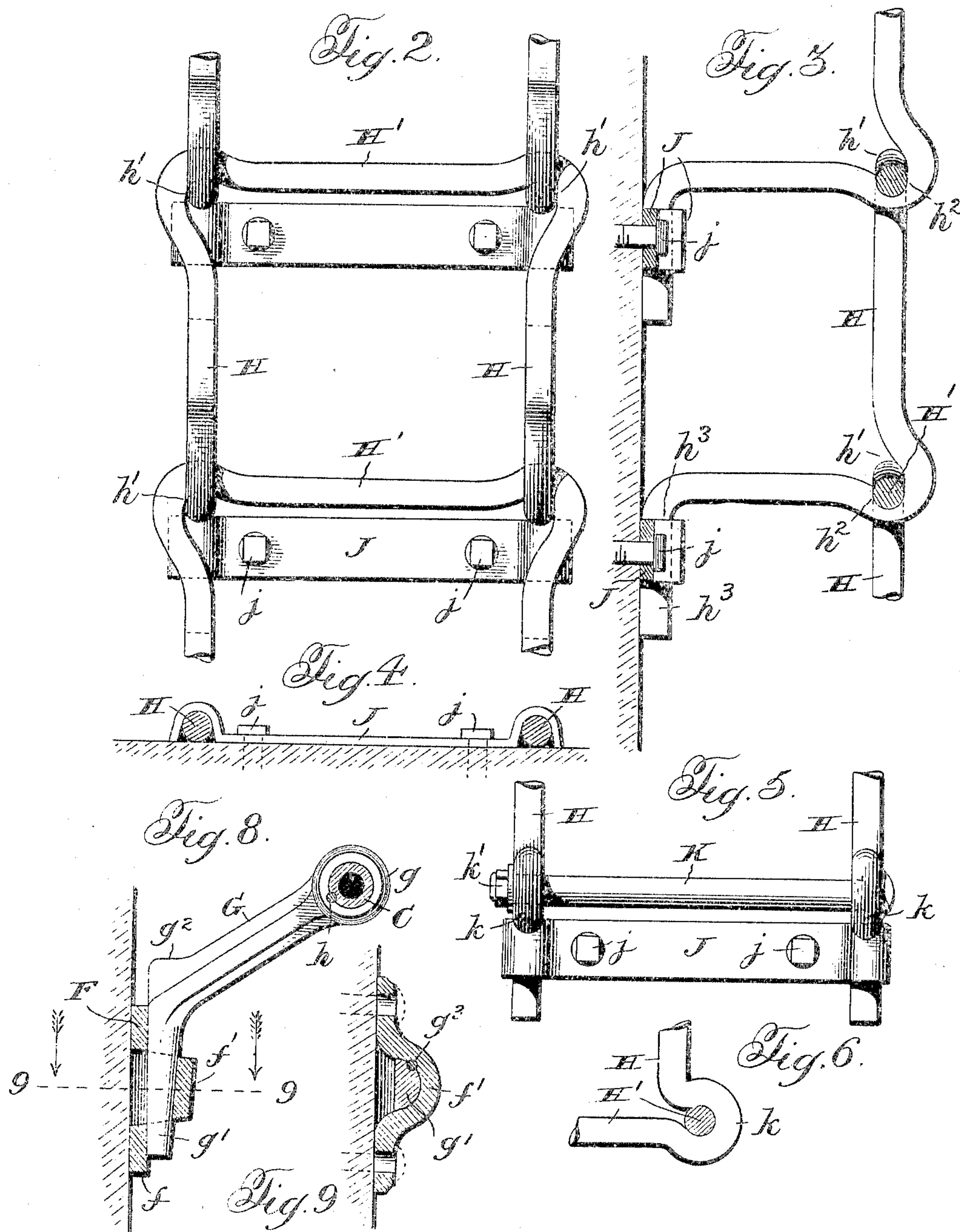
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UNITED STATES PATENT OFFICE.

JAMES C. COVERT, OF WEST TROY, NEW YORK.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 793,770, dated July 4, 1905.

Application filed September 19, 1904. Serial No. 225,097.

To all whom it may concern:

Be it known that I, JAMES C. COVERT, a citizen of the United States, residing at West Troy, in the county of Albany and State of New York, have invented certain new and useful Improvements in Fire-Escapes, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to an improvement in fire-escapes, and is embodied in the construction and arrangement of parts presently to be described, and defined in the claims.

The invention relates more particularly to that type or character of fire-escapes now known as "foot and hand rail" type—that is to say, a construction for equipping buildings which consists of a rail which extends across the front of the building and on which a person can stand and a rail commonly known as a "hand-rail" located a convenient distance above the standing or foot rail. Such a construction is illustrated in my former patent, No. 712,504, dated November 4, 1902.

From experience in manufacturing I have ascertained that commercially it is very desirable to have a ladder structure so composed or constructed that the various vertical link portions will remain substantially vertical, so as to get as much foot-space as possible without materially increasing the width of the ladder, and, further, to provide a member of the ladder with suitable seats of loop portions interengaging with corresponding loops or seats of the adjacent member, thus avoiding lateral displacement. It has also been found that in equipping buildings with the fire-escape it is desirable to avoid the use of a multitude of securing bolts or screws and yet necessarily to have a rigid attaching connection for the ladder members with the building or support. It has also been found desirable to form the bracket-supporting members for the foot and hand rails so that the base or securing part will constitute a unit and the supporting-arm also a unit detachable from the base. This enables the constructor to first equip the building with the base unit and thereafter easily and readily apply the rails and the supporting bracket or arm members.

The above-referred-to improvements are the objects of the present invention in addition to other features, which will be presently described.

In the accompanying drawings I have shown a structure embodying the various features of the invention; but manifestly the constructions can be departed from or modified in various particulars without necessarily departing from the nature and principle of the invention.

In the drawings, Figure 1 is an elevation of a portion of a structure, showing a hand and foot rail and a section of the ladder in their respective positions. Fig. 2 is a detail view of a section of the ladder. Fig. 3 is a side elevation thereof, showing parts in section. Fig. 4 is a bottom plan view of the securing-bar. Fig. 5 is a detail view of the lower section of the ladder. Fig. 6 is a side elevation of the lower part of the ladder, showing the lower cross-bar in section. Fig. 7 is a side elevation of the upper member of the ladder, showing the parts in section. Fig. 8 is a side elevation of the bracket, showing the base member or unit in section. Fig. 9 is a cross-section through the line 9 9 of Fig. 8, and Fig. 10 is a front elevation of the bracket.

The wall of the building or structure is indicated at A broken away in parts, and on the face thereof below the window B is a hand-rail C, while D designates the foot-rail, located a short distance below the hand-rail. These two rails extend from the escaping-ladder to any desirable point on the building, conveniently below the line of windows. I have found it convenient in the present developments of this invention to terminate the two rails at the ladder, placing adjacent the ladder suitable supporting-brackets, as shown in Fig. 1.

The fire-escape is designed as a permanent fixture for a building, and with that end in view manifestly it is necessary to equip the building in a substantial and permanent fashion, and yet with a view of expediting the equipment many requirements are necessarily to be considered. With this end in view I have found it advantageous to form the sup-

porting-brackets of two members. The base or attaching member (designated at F) consists of a casting having a base portion formed with two openings at or near the upper and outer corners or ends thereof, as shown in Fig. 10. The bracket below these openings is extended down to form a tailpiece f , and at the center of the bracket is a curved retaining and clamping bar f' , between which and the base of the member F is fashioned or provided a space into which the toe of the supporting-arm member extends. This bar f' is inclined inwardly from its upper edge, thus forming a wedge-shaped recess between the same and the base, and for convenience in manufacturing the space immediately below the bar is left vacant, as indicated in Fig. 8. These base or securing members F are secured to the building by expansion bolts or screws or other convenient means passing through the apertures in the upper part of the member, while the tailpiece serves as a fulcrum - point upon which pressure is centered, the same being resisted by the attaching-bolts. Such a structure forms a very secure and exceedingly simple member.

G designates the supporting-arm, formed with an oblique portion having a substantially cylindrical seat g at its outer end and having its inner end formed with an extended toe part g' , inclined on its outer face and fashioned to correspond with the shape of the inner-seat portion of the base member. This toe part is designed to pass into the space between the base part of the member F and the bar f' and there be wedged into a holding position. To securely seat the toe in the base member, a suitable heel g'' is provided on the supporting-arm, against which force can be applied to force the toe firmly into position. I have found it convenient in this construction to provide a removable key, as at g''' , which passes in between the side of the toe part and the bar f' . This key serves largely as a means to take up any looseness which may possibly occur and prevent rattling, as well as serving as an additional means for normally fixing the parts against separation.

The rails are passed into the cylindrical seats g and are composed conveniently of gas, water, or ordinary commercial piping. They are secured against turning and are held fixedly in the seats by any suitable means, conveniently by keys, as indicated at h , Fig. 8, driven in between the same and the walls of the supporting-arm, a suitable groove being provided in the latter.

The above construction refers largely to the rail feature of the invention, and in this connection the workman first places the base-pieces in their proper positions, thereafter sleeving the supporting-arms on the pipe, and then moves the respective arms to the various brackets or supports and position the same therein. This can be done very readily. The

parts are thereafter securely keyed in position if found necessary.

The ladder structure which I shall now describe comprehends in its structure a series of sections similar in some respects to those mentioned in my former aforementioned patent; but each section comprises in the present instance two parallel vertical side bars H, united at their upper ends by cross-bars H', the corners being bent outwardly and slightly upward to form upwardly and outwardly curved seating portions h' , as shown in Fig. 2. The lower portions, as shown in Fig. 3, are curved outwardly and downwardly and thence back and upward a short distance and finally are carried at an angle rearward, their extreme ends being turned down, the outwardly and downwardly and upwardly extending portions constituting a seat h'' , while the downturned end portions constitute the securing ends h''' . Each section of the main portion of the ladder is similar or a duplication of the other, so that, in assembling, the seating portions h'' receive the corresponding or interengaging seating portions h' of the adjacent members, thereby forming what may be properly termed a "double" lock for the joint of the respective members. This feature I regard as important, in that it serves to maintain the ladder-sections in their proper relative position and also affords the maximum foot-space between the upright side bars. It is necessary in this type of fire-escape ladder to secure the ladder fixedly to the building, thereby preventing outward movement, which would tend to frighten parties descending thereon. With this end in view and with a view of securing a substantial support for each section and to securing a substantially permanent structure I provide a single-piece clamp J, having its outer ends of hook formation and designed to take over the end pieces h''' of the ladder-sections. These bars J are positioned adjacent to the horizontal rearwardly-extending portions of the sections and are fixedly secured by bolts j or other means to the building, the said bolts being arranged conveniently at opposite ends adjacent to the hooked end portions, as shown in Fig. 2. By this means the ladder is not only held against vertical but also against lateral deflection or movement when the person is on the ladder. The upper round of the ladder is fashioned substantially as stated in my aforesaid patent, with the exception that the upper part, as well as the lower part, of the section is secured by a bar similar to bar J, above described. The bars J require but two bolts or securing members, and thus avoid materially the defacement of the building and render the act of application less laborious and expensive. The lower section of the ladder is provided with a fixed permanent cross-bar K, the loops or seats h' being more pronounced than the loops h'' and form retaining and locking seats for

the bar K, preventing transverse movement thereof, while the bar K is headed, connecting permanently at one end, the other end being provided with a suitable nut k' for attaching purposes, as shown in Fig. 5. Other construction of bar manifestly can be employed.

In operation the ladder-sections can be secured in sections to a building, while the rail parts, as above stated, can be very easily applied at comparatively small expense. The party seeking escape by the fire-escape reaches out of the window, grasps the hand-rail, swings down until his feet reach the foot-rail, and thence moves along until he reaches the ladder, escaping thereby.

I will make no claim herein to the hand or foot rails and the means for securing them in place, inasmuch as this matter more properly constitutes the subject for a divisional application.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a fire-escape for buildings, ladder-sections to be secured to the building, each section comprising a cross-bar and vertical parallel side bars, said sections having transverse and downwardly-bent seating portions at their lower ends and inwardly-extending supporting parts, and the upper portion of said sections between the cross-bar and the side bars being offset transversely and vertically and extending upwardly beyond the horizontal plane of said cross-bar to form seats, substantially as described.

2. In a fire-escape, ladder-sections comprising parallel side bars and a cross-bar, a portion of the material between the cross-bar and the side bars being bent outwardly, upwardly beyond the horizontal plane of said cross-bar and downwardly to form curved seats, the ends of the side bars being bent outwardly at right angles to the upper or other seat portions, thence downwardly, back and upward to form seating parts, the ends of said side bars being extended rearwardly.

3. In a fire-escape for buildings, a ladder member comprising a series of independent sections, each having side bars and curved seats formed at the opposite ends of the side bars and a cross-bar, the ends of the side bars being extended inwardly and bent downwardly, and locking-bars having hooked-shaped extremities engaging over the downwardly-extended parts of the side bars, and means for securing the said locking-bars to the building.

4. In a fire-escape for buildings, the combination with a ladder member composed of a series of independent sections each section

having side bars and curved seating parts at the opposite ends of the side bars, said side bars being extended rearward and thence downward, in combination with securing means consisting of bars extending from one downwardly-extending portion to the other and having hooked-shaped extremities embracing the downwardly-extending parts of the side bars, and means between the ends of the securing-bars for attaching the same to the building.

5. In a fire-escape, a ladder member comprising a series of independent sections engaging each other, said section having side bars, and means for securing the individual sections to the building consisting of bars having attaching parts located wholly between the side bars of the respective sections and having hooked-shaped extremities engaging over a part of the said sections, substantially as described.

6. In a fire-escape, a ladder-section having side bars and an integral cross-bar, the lower ends of the said bars being bent to form circular locking-seats, and a cross-bar fitted in said seats having a head at one end and a removable fastening device at the opposite end.

7. In a fire-escape, a ladder-section having rigid side bars bent to form locking-seats, and a cross-bar fitted in said seats having a head at one end and a removable fastening device at the opposite end.

8. In a fire-escape, a ladder-section having rigid side bars bent to form locking-seats, and a removable locking device engaging said seats to connect said side bars, and means for clamping said locking device upon said side bars.

9. In a fire-escape, a ladder-section having side bars provided with inwardly-extending ends and intermediate seat portions, means for securing said ends in place and supporting the same, and a locking device engaging and clamped to said intermediate seat portions.

10. A fire-escape comprising a plurality of sections the adjoining sections having interlocking portions and each section having inwardly-extending ends, and locking and supporting means for each section engaging the inwardly-extending ends thereof, said devices terminating substantially flush with the outside edges of the ladder, and means located wholly intermediate the sides of the sections for securing said locking and supporting means in place.

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

JAMES C. COVERT.

Witnesses:

L. S. BACON,

EDWIN S. CLARKSON.