(No Model.) 2 Sheets—Sheet 1.

J. N. URI.

FIRE ESCAPE.

No. 598,544. Patented Feb. 8, 1898.

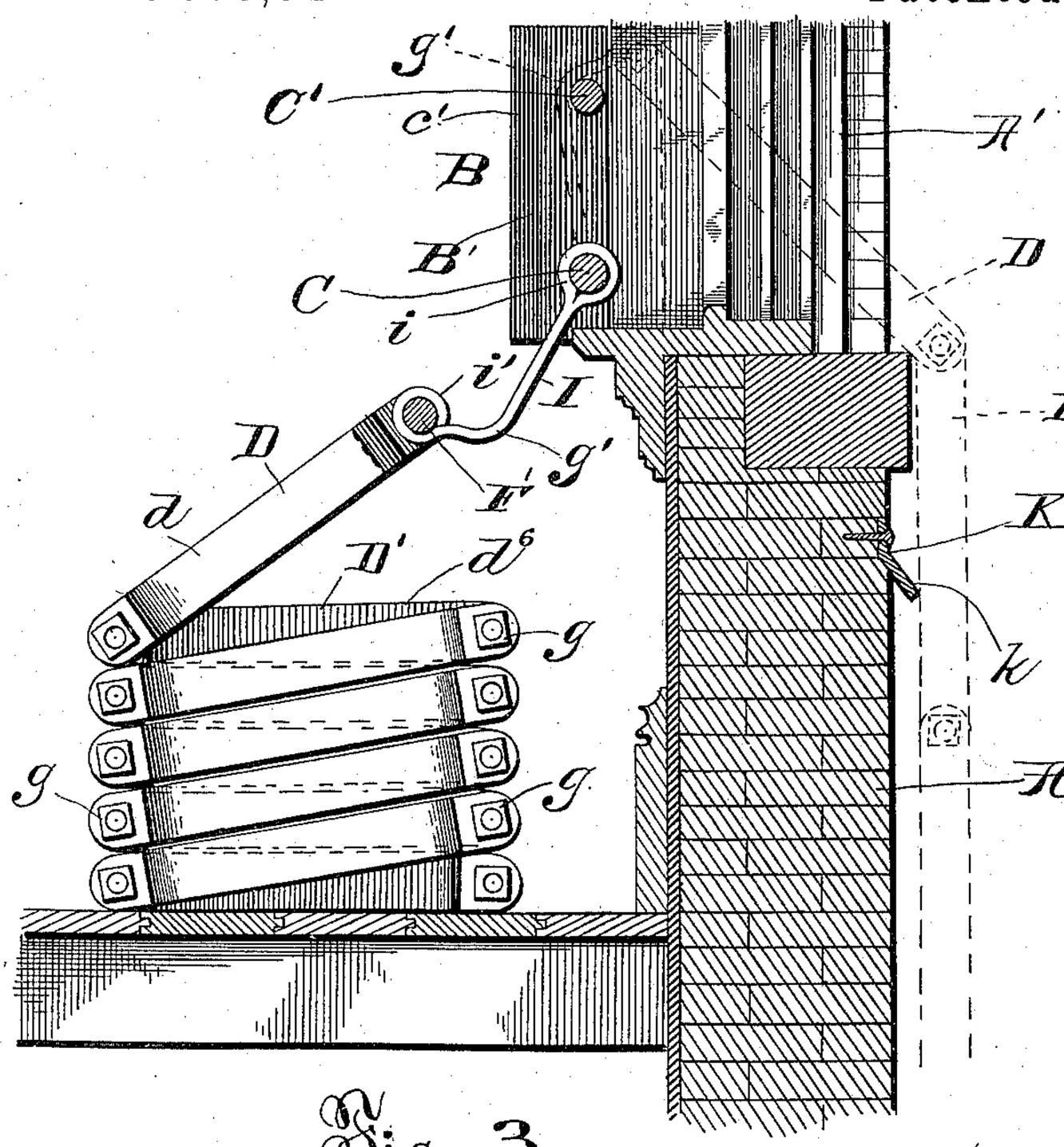


Fig. 1.

Fig. 3.

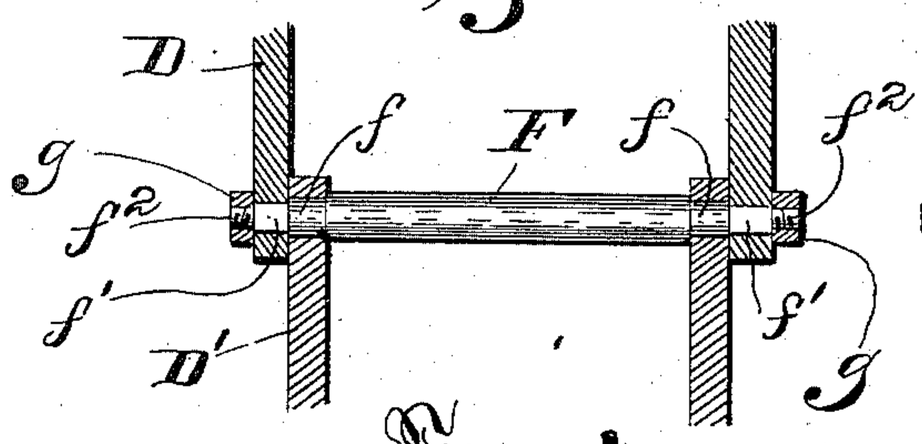


Fig. 4.

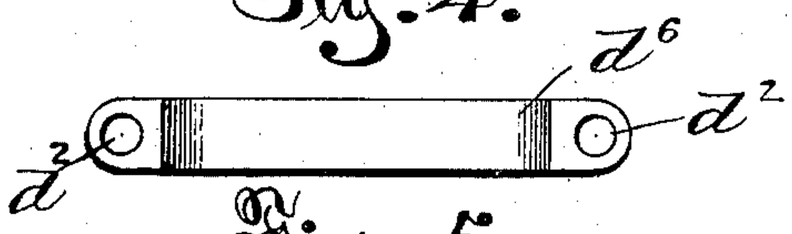


Fig. 5.

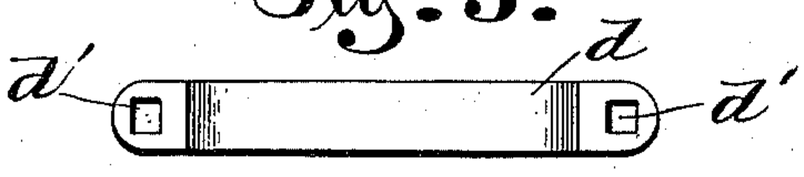


Fig. 6.

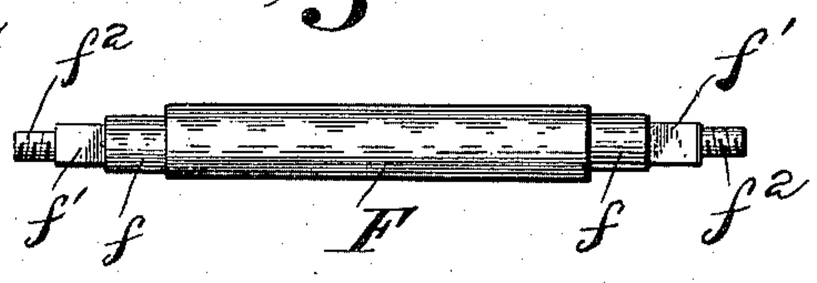
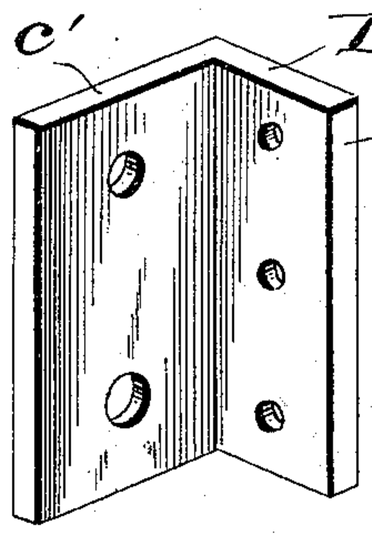


Fig. 7.



Witnesses
Marcus L. Byng.
Victor J. Evans

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by John Wedderburn
Attorney

(No Model.)

2 Sheets—Sheet 2.

J. N. URI.

FIRE ESCAPE.

No. 598,544. Patented Feb. 8, 1898.

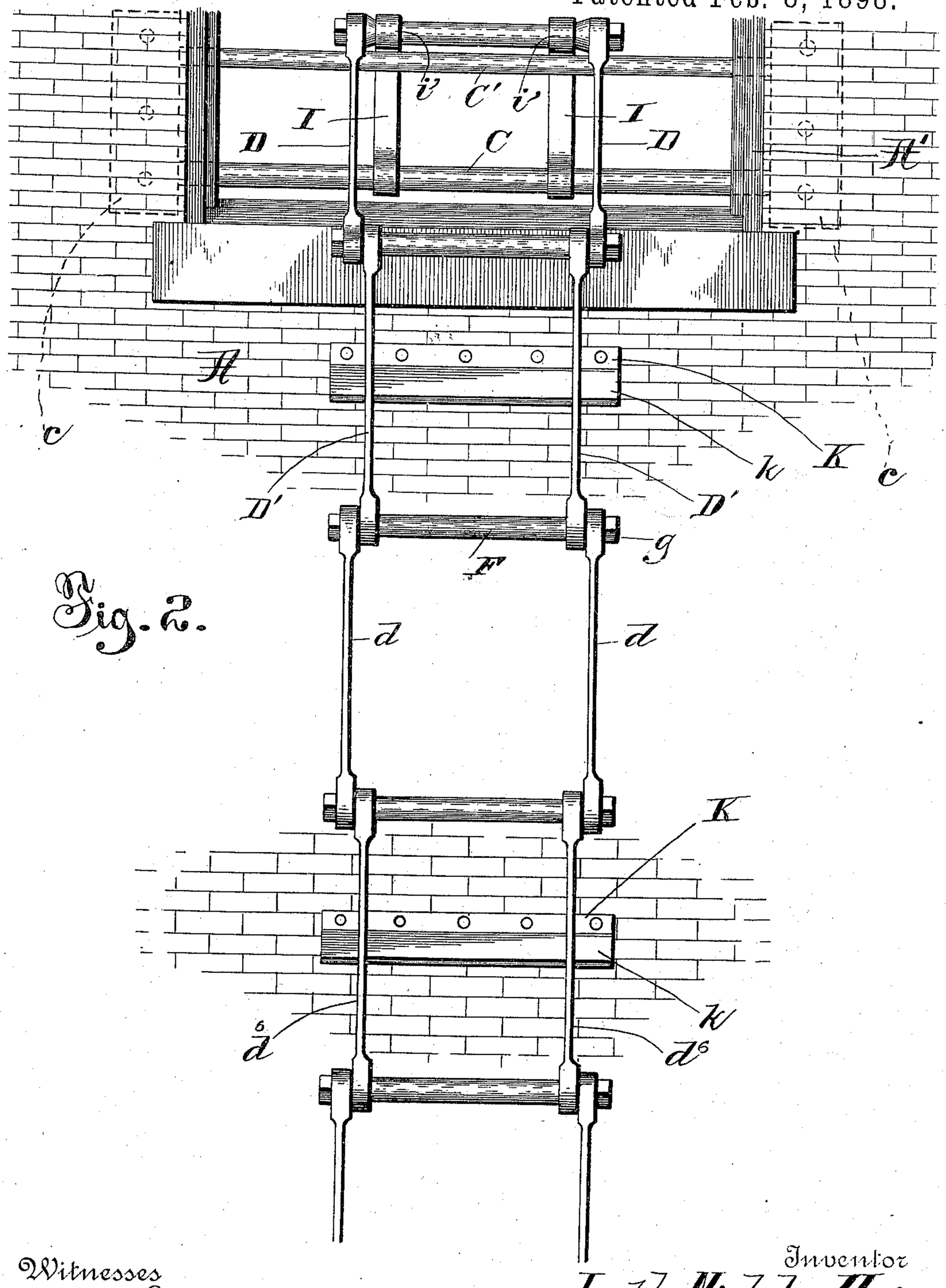

Fig. 2.

Witnesses
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UNITED STATES PATENT OFFICE.

JOSEPH NICHOLAS URI, OF STEINAUER, NEBRASKA.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 598,544, dated February 8, 1898.

Application filed July 12, 1897. Serial No. 644,273. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH NICHOLAS URI, of Steinauer, in the county of Pawnee and State of Nebraska, have invented certain new and useful Improvements in Fire-Escapes; and I do hereby declare the following to be 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.

My invention relates to fire-escapes of the extensible-ladder type; and its object is to provide an improved construction of device of this character wherein provision is made for the compact folding of the ladder-sections and means provided to project the said sections beyond the plane of the wall of the building when in use to enable the feet of the person descending to be placed on the rounds thereof.

A further object is to provide the suspending-bracket with a roller adapted to bend or break, and thus relieve the said bracket of undue strain ensuing from a sudden jar caused by the entanglement and sudden dropping of one or more sections or the accidental release of a plurality of sections while lowering, and to provide a novel construction of side pieces for the ladder-sections, and spindle-rounds connecting the same to insure strength and lightness and free movement of said sections upon one another.

To this end the invention consists in the novel constructions and combinations hereinafter more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a vertical sectional view through the wall of a building, illustrating the application of my device; Fig. 2, a front elevation of the ladder extended for use; Fig. 3, a sectional view through two adjoining ladder-sections; Figs. 4 and 5 are side views, respectively, of the inner and outer plates of two adjoining ladder-sections; Fig. 6, an enlarged detailed view of one of the spindle-rounds, and Fig. 7 a perspective view of one of the wall-supports.

Referring now more particularly to the accompanying drawings, A designates the walls of the building, and A′ one of the window-frames set into the same. The ladder comprises a supporting-bracket B, consisting of two angle-irons supporting plate B′, each having its vertical portion *c* provided with apertures for the passage of bolts securing the same to the wall, said supporting-plates being arranged in practice at opposite sides of the window-frame. The flanged portion *c′* of each bracket-supporting plate extends parallel with the side bar of the window-frame, and said plates of the two brackets are connected by a bolt C, rigidly connected therewith, and a roller C′, journaled in said plates and arranged above the bolt. This roller is of smaller diameter than the bolt and is preferably constructed of some suitable soft metal adapted to bend or break under less strain than the said bolt is capable of enduring, for a purpose hereinafter described.

The ladder comprises a series of foldable and extensible sections D D′, adapted when in folded condition to rest upon the floor adjacent the window, as shown in Fig. 1. The sections D D′ are arranged alternately throughout the length of the ladder, the side pieces of the said sections D′ extending on the inside of the side pieces of the other sections D. The said side pieces *d* of the sections D are formed at each end thereof with rectangular slots *d′*, while the side pieces d^6 of the sections D′ are formed at their ends with enlarged circular slots or openings d^2. The spindles F connecting the adjoining ends of these sections constitute the steps or rounds of the ladder and are formed at each end with a reduced circular portion *f*, a rectangular portion *f′* of smaller size than said circular portion, and a threaded extremity f^2. The ends of the side plates d^6 of the sections D′ fit over and upon the circular portion *f*, and the rectangular slot *d′* of the side pieces *d* of the sections D engage the square portions *f′*, while a nut *g* engages the threaded extremity f^2 and maintains said sections in position. By this construction it will be seen that while the side pieces *d* are fixed with relation to the spindle-rounds the side pieces d^6 are adapted to move thereon to enable the said sections to be folded one upon the other and to extend in angular relation. By this construction and the location of the pivoted side pieces d^6 on the inner side the sections may be moved freely in each other without injuring the threaded

extremity f^2 of the spindle-rounds and rendering the nuts g liable to drop off.

For the purpose of strength and lightness I construct the side pieces of the ladder-sections with a comparatively thin central portion and make the ends thereof, upon which the strain directly comes, comparatively thick, so that they will not wear out from the frequent moving of the sections upon one another.

The ladder is secured to the bracket B by links or connecting-bars I, formed with eyes i to engage the bolt C at one end, and at its opposite or upper end with eyes i' to engage the spindle-round of the upper ladder-section. Adjacent the eyes i the upper ends of these connecting-bars bear against the roller C′ and are curved around the same, as at g', so as to throw the upper section of the ladder toward the center of the window-frame to enable the same to be lowered with ease and facility. When the fire-escape is lowered for use, this roller C′ is adapted to partially rotate to compensate for the jerking of the sections and to bend or break to relieve the bolt of undue strain ensuing from a sudden jar, such as is caused, for instance, by the entanglement and sudden dropping of one or more sections or the accidental release of a plurality of sections from the operator during the operation of lowering the same. This is an important feature of my invention.

In order to prevent the ladder-sections when lowered for use from extending parallel with and abutting against the wall of the building, I have provided supporting-plates K, secured to the outer side of the wall of the building, one below the other, in vertical line with the window and provided with a downwardly-projecting plate k, against which the ladder-sections are adapted to rest. By means of this support the ladder is projected out from the building-wall so that ample space is afforded to enable the person descending to place his feet upon the spindle-round. By making the plates k of these supports to extend downwardly no obstruction is offered to the free descent of the ladder.

It will be seen from the above that I have provided a simple and effective construction of fire-escape which may be manufactured at a comparatively small cost and possessing advantages due to its peculiar construction alone.

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

1. In a fire-escape, the combination of a bracket adapted to be secured to the wall adjacent the window and consisting of two attaching-plates, a bolt connecting the same, a roller journaled in said plates and arranged above the bolt, a ladder consisting of a series of extensible sections, and a connection between the bolt and ladder, said connection being adapted to bear against the roller, substantially as described.

2. In fire-escapes, the combination of a bracket adapted to be secured to the wall adjacent the window and comprising two attaching-plates, a bolt connecting the same, a roller journaled in said plates above the bolt, said roller being adapted to bend or break under less strain than the bolt is capable of sustaining, a ladder consisting of a series of extensible sections, and a connection between the bolt and ladder, said connection bearing against the roller, whereby the said roller is adapted to partially rotate during the lowering of the ladder-sections, and to bend or break under the sudden strain of the sudden dropping or accidental release of said ladder-sections and thereby relieve the bolt of such strain, substantially as described.

3. In fire-escapes, the combination of a bracket comprising two attaching-plates, a bolt connecting the same, a roller journaled in said plates above the bolt and constructed of reduced size and of material adapted to bend or break under less strain than the bolt is capable of enduring, a ladder consisting of a series of extensible sections, and links or connecting-bars formed at each end with eyes engaging the bolt and upper round of the ladder, said links bearing adjacent their upper ends against the roller and curved forwardly around the same, substantially as described.

4. In fire-escapes, the combination of the supporting-bracket provided with a suspending-bolt and a yielding or breakable roller above said bolt, a ladder comprising a series of extensible sections, each comprising side pieces, the side pieces of one section being arranged exteriorly of the side pieces of the next adjoining section, the said exterior side pieces of one section being formed at their ends with rectangular slots and the interior side pieces of the other section with circular slots or openings, a spindle-round connecting the adjoining ends of the side sections and formed at its outer ends with a reduced round extremity to receive the circular opening of the inner side pieces, an intermediate rectangular portion to receive the rectangular slot ends of the outer side pieces, a threaded extremity for the reception of a nut, and a connection between the bolt of the bracket and the upper spindle-round of the ladder, said connection being adapted to bear against the bracket-roller, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOSEPH NICHOLAS URI.

Witnesses:
PEARL P. HASSLER,
C. H. BACON.