C. W. SCHUMANN.

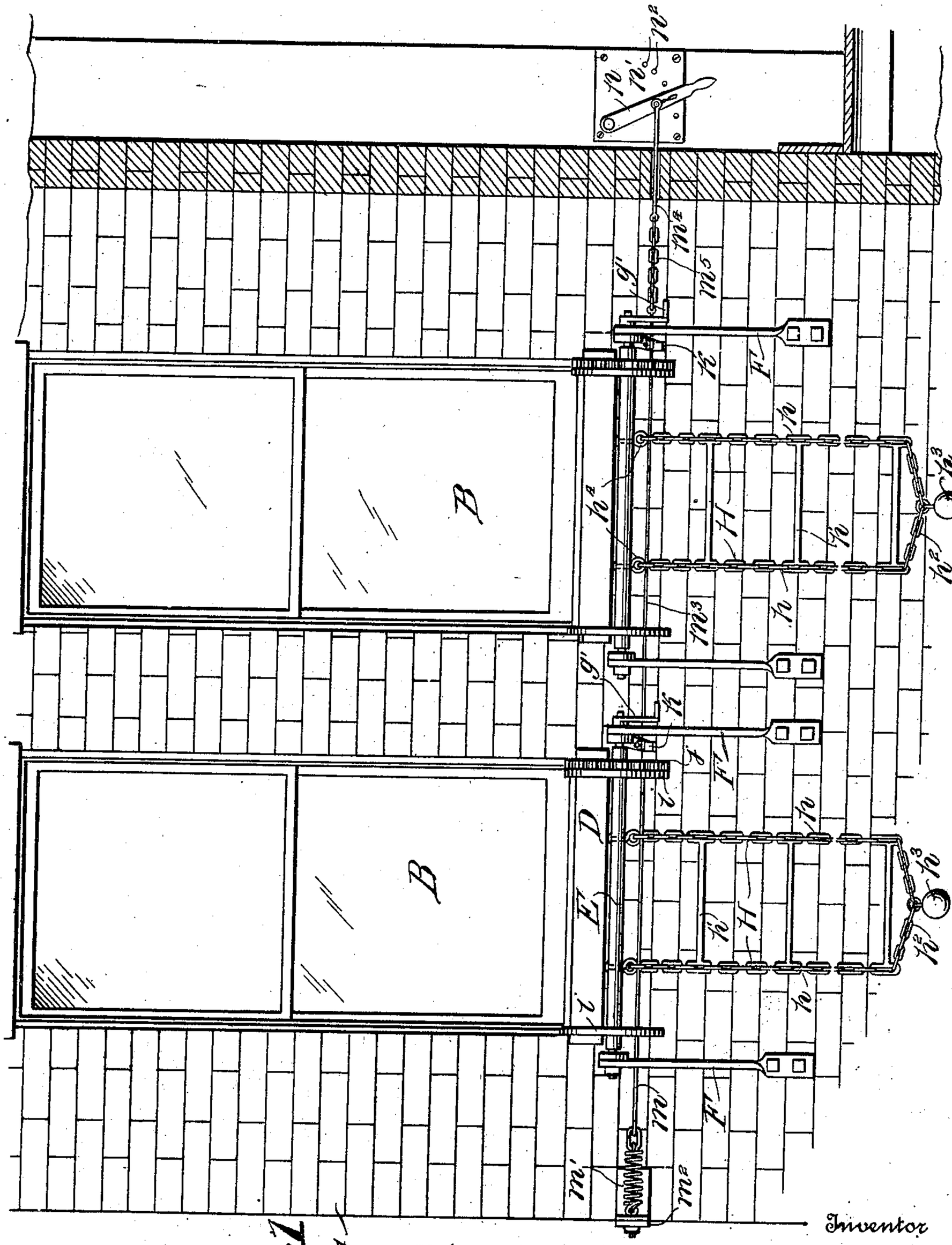
FIRE ESCAPE.

APPLICATION FILED JULY 16, 1909.

983,775.

Patented Feb. 7, 1911.

2 SHEETS—SHEET 1.



C. W. SCHUMANN.

FIRE ESCAPE.

APPLICATION FILED JULY 16, 1909.

983,775.

Patented Feb. 7, 1911.

2 SHEETS—SHEET 2.

Fig. 2

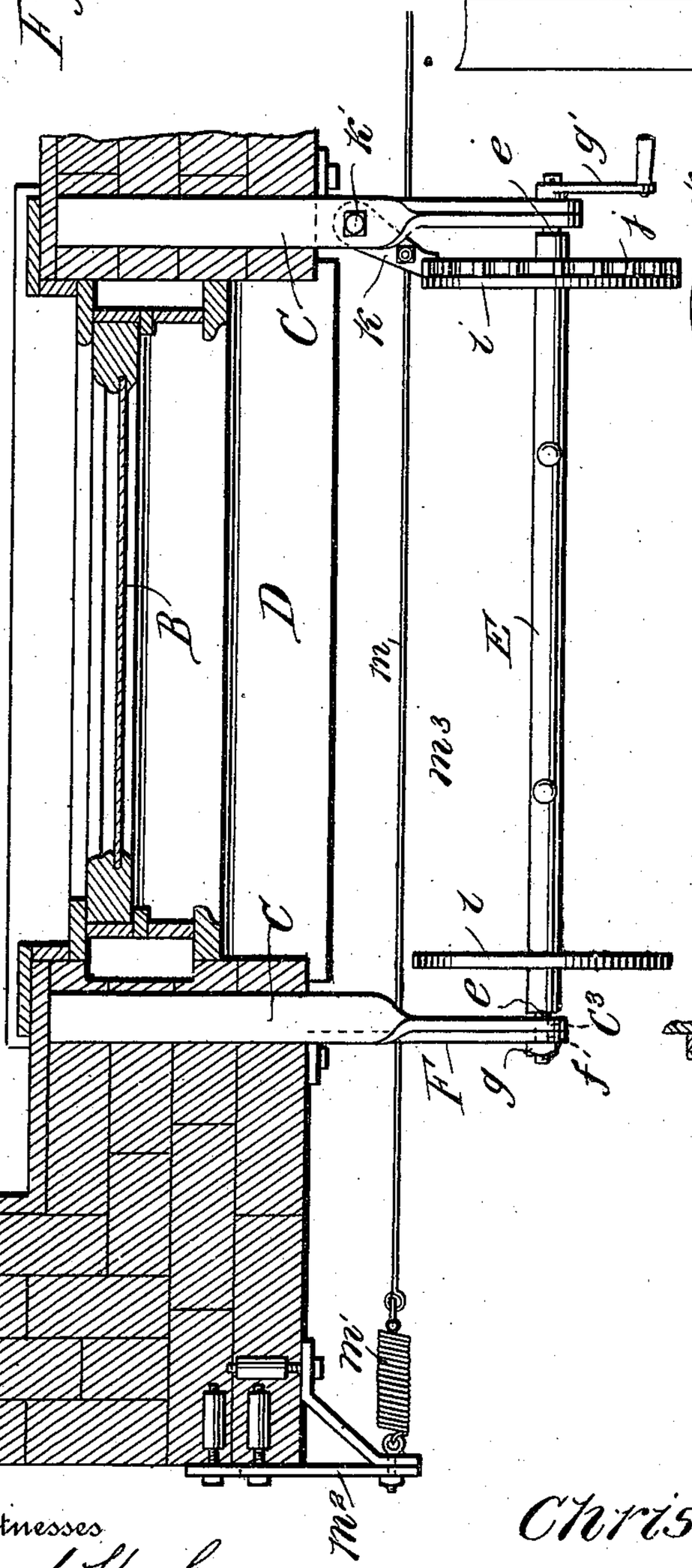


Fig. 3

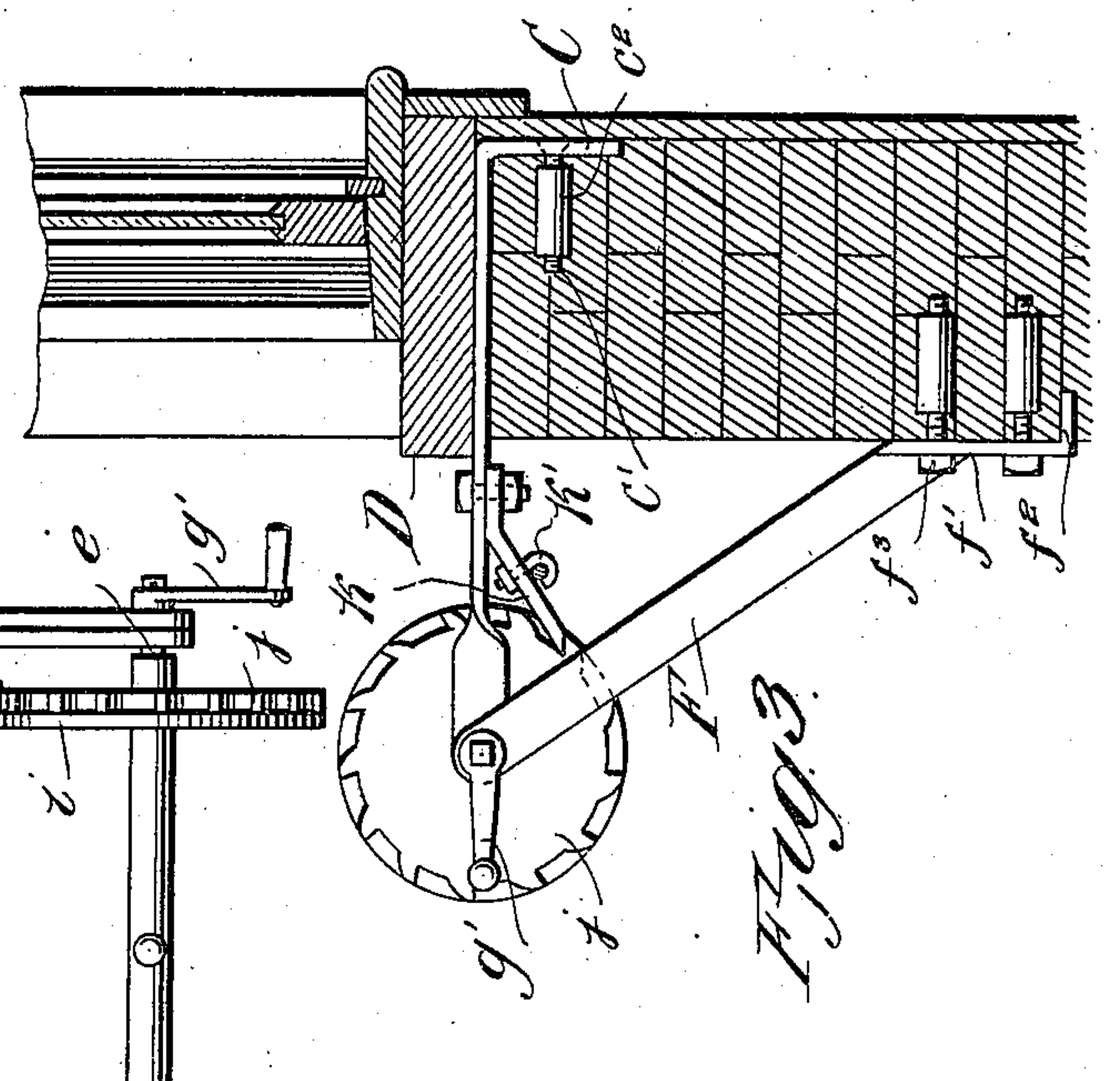
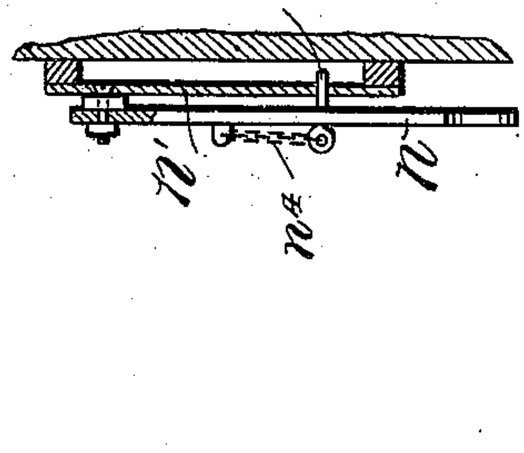


Fig. 4



Witnesses

Frank Hough

C. C. Hines

Inventor

Christopher W. Schumann

By Victor J. Evans

Attorney

UNITED STATES PATENT OFFICE.

CHRISTOPHER W. SCHUMANN, OF MARSHALLTOWN, IOWA.

FIRE-ESCAPE.

983,775. Specification of Letters Patent. Patented Feb. 7, 1911.

Application filed July 16, 1909. Serial No. 508,015.

To all whom it may concern:

Be it known that I, CHRISTOPHER W. SCHUMANN, a citizen of the United States, residing at Marshalltown, in the county of Marshall and State of Iowa, have invented new and useful Improvements in Fire-Escapes, of which the following is a specification.

This invention relates to improvements in fire escapes of the winding-drum and flexible-ladder type, one object of the invention being to provide a simple, inexpensive, strong, durable and efficient fire-escape of this character wherein the parts are constructed and combined so as to be packed in close compass for storage or shipment.

A further object of the invention is to provide a fire escape having locking means for holding the ladder wound upon the shaft and for releasing the same for automatic descent, said locking means being so arranged as to permit one or more fire escapes to be released from the interior of the building or from an adjacent point, such as through a window or doorway close to which the escape is arranged.

In the accompanying drawings;—Figure 1 is a front elevation, with parts in section, showing my invention arranged in operative relation to the windows of a building. Fig. 2 is a horizontal section through the wall of a building looking down upon one of the fire escapes shown in Fig. 1. Fig. 3 is a vertical section through the wall of a building, showing one of the fire escapes in end elevation. Fig. 4 is a detail section through the releasing lever and its holding means.

Referring to the drawings, A designates the wall of a building having one or more windows or similar outlets B. Arranged upon the exterior of the wall adjacent to and preferably below each window is a fire-escape comprising a pair of horizontal supporting brackets C embedded between courses of the brick work below the sill D of the window, each of said brackets, which is preferably formed of strap iron, being provided with a down-turned inner end c bearing against the masonry on the inner side of the wall and firmly fastened in position by a screw c' engaging an expansible threaded anchoring member c^2 firmly fastened in the masonry.

The outer ends of the brackets C are bent or quarter-twisted to stand vertically and are formed with bearing openings c^3 for the passage of the reduced ends e of a winding shaft E, which are journaled for rotation therein. The said reduced ends of the shaft also pass through openings f in the outer ends of inclined braces F which extend downwardly and rearwardly from the outer ends of the bracket arms and are provided with angular portions f' bearing against the brick work and provided with anchoring tongues or projections f^2 entering the same. The portion f' of each bracket is apertured for the passage of screws f^3 which enter expansible anchoring devices f^4 embedded in the brick work thereby firmly fastening said braces in position to stay and support the outer ends of the bracket arms and the winding shaft.

One of the journals e of the shaft E is preferably threaded to receive a retaining nut g by which it is held from endwise movement in one direction, while the other journal of the shaft is provided with an actuating crank g', by which said shaft may be turned to wind the flexible ladder thereon. The ladder H may be of any suitable length and comprises a pair of link chains h connected at intervals by cross rods or rounds h'. A suspension portion h^2 is connected with the lower or free end of the ladder and carries a weight h^3 adapted to automatically unwind the ladder by gravity from the shaft when the latter is released for rotation. The upper ends of the ladder chains are connected with the shaft in any suitable manner, as by eye-bolts h^4. The shaft carries a pair of spaced flanges or disks i forming therewith a winding drum or reel for the ladder, said disks acting in the usual manner to cause the ladder to wind evenly or regularly upon the shaft and serving to prevent lateral displacement thereof. The ratchet wheel j is integral with one of the flanges or disks i, and the teeth thereof are adapted to be engaged by a dog or pawl k. This dog or pawl is pivotally mounted for lateral movement upon the pin or bolt k' passing through the adjacent bracket C, so that it may be thrown laterally into and out of engagement with the ratchet teeth. The teeth of the wheel j need not necessarily be of ratchet shape, but may be of any suitable form to adapt the pawl for locking engagement therewith.

In the present instance I have shown two windows or the like, below each of which is arranged an escape of the construction de-

scribed, and the building throughout may be equipped in this manner, if desired.

I provide for use in conjunction with the fire-escape a means for throwing the pawls into and out of action so that the pawls may be released from within or without the building. Preferably the pawls or dogs of adjacent fire-escapes are controlled by a single actuating device, as herein illustrated. Each dog is connected by a hooked bolt k with an operating rod m extending parallel with the wall A and yieldingly connected at one end by a coil contractile spring m' with a bracket m^2 fixed to the wall. The opposite end of the rod m extends through the wall into some suitable portion of the building and is pivotally connected with a controlling or operating lever n mounted upon a supporting plate n' having a series of openings n^2 arranged in an arcuate path and adapted to receive a locking pin n^3 to hold the lever in a variety of adjusted positions. As shown, this pin is adapted to be passed through an opening in the lever and is attached thereto by a short pin or flexible connection n^4. By moving this lever in one direction or the other the rod m may be thrown in one direction against the resistance of the spring m' to retract the pawls k and permit descent of the fire-escapes, or the rod may be freed for movement in the reverse direction by the spring m' to throw the pawls into locking engagement with the ratchet or locking wheels. It will thus be understood that in event of a fire, an occupant of the building by releasing the pin and swinging the lever n may retract the dogs and allow the fire-escapes to descend by gravity. It is desirable, however, to permit the locking dog of either fire-escape to be manually released from the exterior in the event that a person entrapped in a burning building is unable to reach the operating lever. For this purpose the rod m is made of two sections m^3 and m^4 connected or jointed by a chain or other flexible connection m^5 which may in practice be sufficiently slack to allow the section m^3 to have independent movement to the extent necessary to retract the pawls. Hence it will be seen that a person prevented from reaching the lever n, on opening a door or window adjacent to which a fire-escape is arranged, may grasp the rod section m^3 and pull the same in a direction away from the spring m' so as to throw the dogs out of locking engagement and release the adjacent escape or escapes for descent. By this means the fire escapes may be controlled from within or without according to the contingency of the occasion.

Having thus described the invention what is claimed as new is:—

The combination with a building structure, of a plurality of supporting brackets mounted thereon in transverse alinement with each other, winding drums carried by said supporting brackets and provided with ratchet teeth, a flexible ladder connected with each drum, pivotally mounted laterally swinging locking pawls for holding the drums from movement, a rod extending longitudinally in rear of the brackets and between the same and the wall of the structure and pivotally connected with said dogs, a spring connected with one end of said rod for normally holding said rod and dogs in locking position, a second rod, a supporting plate on the interior of the building and provided with keeper openings, a lever mounted upon said plate and connected with said second rod, a locking pin adapted to be engaged with said lever and any one of said keeper openings for securing said lever in its adjusted position, and a flexible connection between the rods adapting the same to be moved in unison by the lever and also adapting the first-named rod to be moved independently of the lever and second-named rod to effect retraction of the pawls.

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

CHRISTOPHER W. SCHUMANN.

Witnesses:
F. E. NORTHUP,
H. C. LONNSBURY.