No. 779.463. PATENTED JAN. 10, 1905.

E. M. BRAS.

FIRE ESCAPE.

APPLICATION FILED MAR. 25, 1904.

Fig. 1

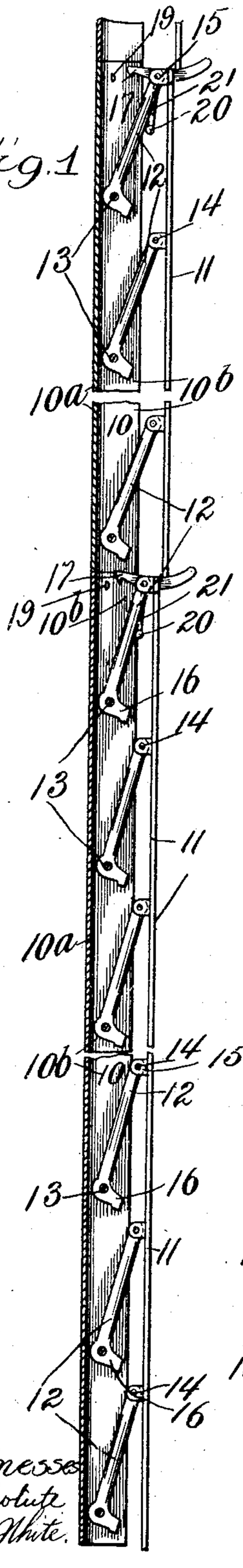


Fig. 2

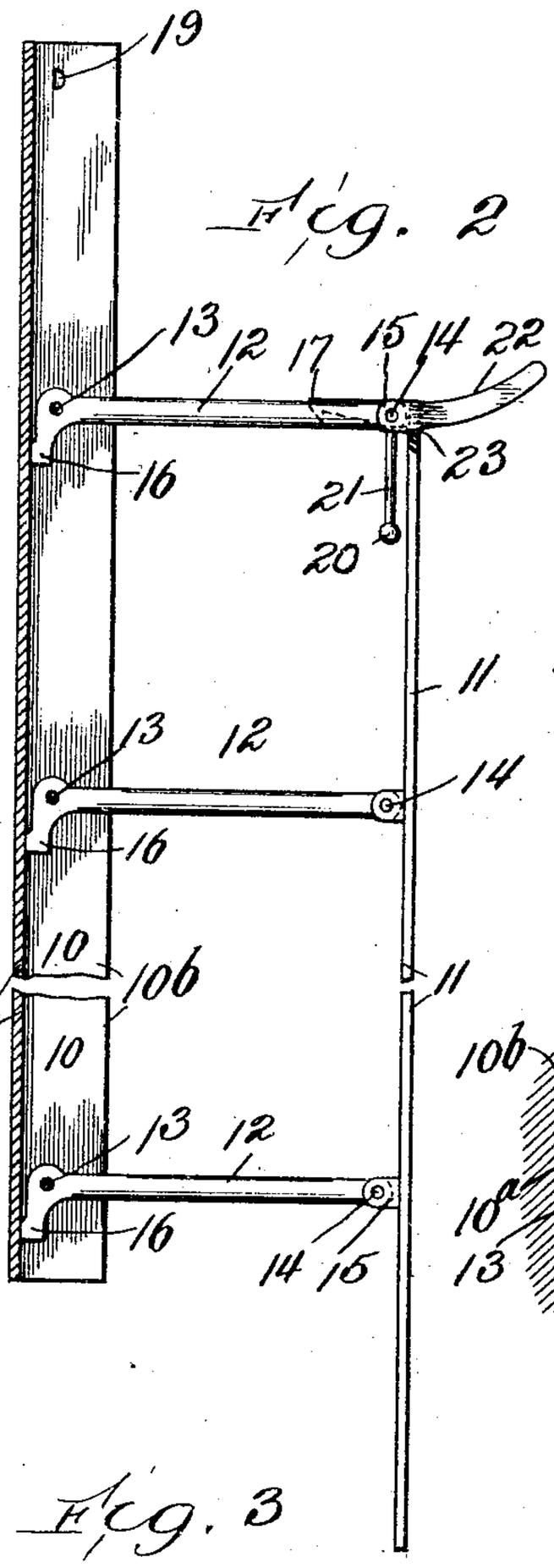


Fig. 5

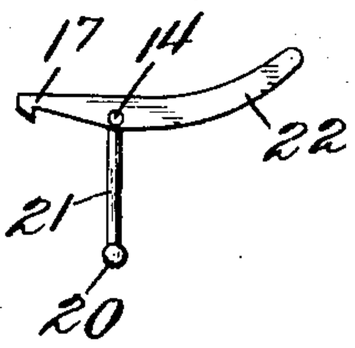


Fig. 4.

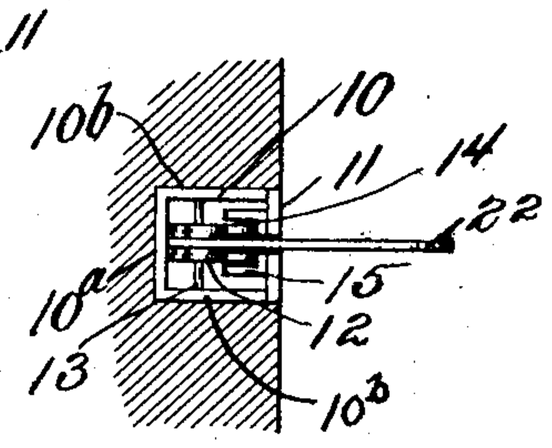
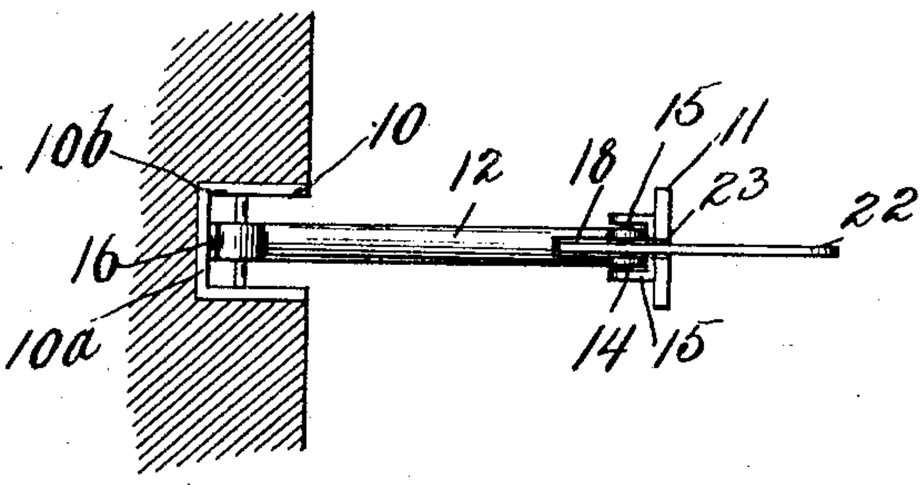


Fig. 3



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No. 779,463. Patented January 10, 1905.

UNITED STATES PATENT OFFICE.

EDWIN M. BRAS, OF CHICAGO, ILLINOIS.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 779,463, dated January 10, 1905.

Application filed March 25, 1904. Serial No. 199,896.

To all whom it may concern:

Be it known that I, EDWIN M. BRAS, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Fire-Escapes; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in fire-escapes, and more particularly to fire-escapes comprising a series of superposed independent ladders or ladder-sections each having a fixed side rail, a vertically-movable side rail, and rungs pivoted to both of said side rails, so that the ladder structure may be folded to occupy a relatively small lateral space.

The primary object of my invention is to provide a fire-escape of the class described wherein is provided a latching device for each ladder-section arranged to be automatically operated to release said ladder-section by the descent to open position of the movable side rail of the ladder-section next above.

A further object of my invention is to generally improve the construction and arrangement of fire-escapes of the class described.

In the drawings, wherein I have illustrated an embodiment of my invention, Figure 1 shows portions of three superposed ladder-sections, the casing of each being shown in section. Fig. 2 is a detail of one of the ladder-sections in open position. Fig. 3 is a plan view of the parts in the position shown in Fig. 2. Fig. 4 is a similar view showing the parts in closed position. Fig. 5 is a detail of the latch.

Throughout the drawings like numerals of reference refer always to like parts.

As each of the ladder-sections is an exact duplicate of every other, I will first describe the construction of one of said sections.

10 indicates a casing member comprising a back plate 10^a and integral side plates 10^b and open along its remaining side. This casing-section forms one of the side rails of the ladder and is in practice preferably embedded directly in the wall of a building, with its open side outward, as indicated in Figs. 3 and 4.

11 indicates a flat cover-plate adapted to close the open side of the casing and constituting the movable side rail of the ladder.

12 12 indicate rungs each at one end pivoted upon a pin 13, bearing in the sides 10^b of the rail 10 and at its opposite end pivoted upon a pin 14, bearing in ears 15, suitably made upon the inner face of the plate 11. At its inner end each of the rungs 12 is provided with an offset end portion 16, depending below the pivot-point 13 and forming a stop to limit the downward movement of the rung about its pivot 13. When the ladder is in open position, as indicated in Fig. 2, the offset portions 16 16 bear firmly against the back portion 10^a of the carrying member 10 and serve to maintain the rung positively in horizontal position.

It will be apparent that by the construction described the plate 11 may be swung upward and inward in vertical position to close the front side of the casing member 10 or swung down so that the rungs are horizontal.

At the upper extremity of each ladder-section I provide a means for latching the section in closed position.

In the present illustrative embodiment, 17 indicates a hooked latch-tongue pivoted upon the pin 14 of the uppermost rung 12 and arranged to play in a slot 18, formed in said rung.

19 indicates a stationary latch member with which the hooked end of the tongue 17 is adapted to engage to hold the ladder-section in closed position. Any suitable means may be provided for normally maintaining the tongue 17 in latching position, such means being herein shown as the weight 20, suspended beneath the latch by a stiff stem 21; but any other gravity or positively operated latch might be employed. A means is also provided for moving the latch against the effort of the weight 20 to disengage the hook of the latch-tongue from the stationary member 19. Such means in the present embodiment comprises a lever-arm 22, formed integrally with or otherwise secured to the latch-tongue 17 and projecting outward from the pivot 14 beyond the front of the plate 11.

The arm 22 is arranged to play in a slot 23, made in the upper end of the plate 11, the

bottom of said slot forming a positive stop to limit the downward movement of the arm 22.

In use a number of ladder-sections corresponding to the number of floors in a building are so arranged that their upper ends are in proper proximity each to a window or other opening of exit from the building, so that the latch-releasing arm 22 of any ladder-section may be readily manipulated by a person on the corresponding floor of the building. The ladder-sections are superposed one upon the other in such relation that each latch-releasing arm 22 lies directly in the path of descent of the movable side rail 11 of the ladder-section next above.

It may be readily seen from Fig. 1 of the drawings that if the latch of a given section of ladder be operated to release said section the movable rail 11 moves downward and outward in descent under the influence of gravity and strikes upon the outwardly-extending latch-releasing arm 22 of the next subjacent section, depressing the same until it is stopped by impingement upon the lower end of the slot 23 and lifting the hook end of the latch 17 out of engagement with the stationary latch member 19. The weight of the ladder-section first released also operates to positively force the next subjacent ladder-section downward, and said ladder-section in its descent operates upon the ladder-section third in downward sequence to release its holding device and force it downward. This operation will obviously continue throughout any number of sections of ladder; but it will be apparent that the release of any ladder-section does not disturb the ladder-sections thereabove.

In restoring the parts to normal condition the ladder-sections should be lifted, beginning with the uppermost one of the operated series.

While I have described in some detail one operative embodiment of my invention, the novel details whereof I claim as part of my invention, it will become apparent to those skilled in the art that the scope of my invention is not limited to the exact structural features shown, but that numerous changes might be made in its specific embodiment without departing from the spirit of the invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. A fire-escape, comprising a series of superposed ladder-sections, each section comprising a fixed side rail, a movable side rail, rungs pivoted to both of said side rails, a latch device, a means for releasing said latch device, the releasing means of the latch device of each ladder-section being arranged for actuation by the descent of the movable side rail of the ladder-section next above.

2. A fire-escape, comprising a series of superposed independent ladder-sections each comprising a fixed side rail, a movable side rail, rungs pivoted to both of said side rails, a latch device and a means for releasing the latch device comprising a lever-arm arranged in the path of descent of the movable side rail of the ladder-section next above, whereby the release of any ladder-section of the series serves to release in sequence the ladder-sections therebelow.

3. A fire-escape, comprising a series of superposed ladder-sections each comprising a fixed side rail, a movable side rail, rungs pivoted to both of said side rails and a latch device consisting of a stationary portion carried by the fixed side rail, and a movable portion carried by the movable side rail, a lever carried by the movable side rail arranged when depressed to move the latch device to releasing position, and having a positively-limited range of downward movement, the lever-arm of each ladder-section being arranged in the path of descent of the movable rail of the ladder-section next above, for actuation thereby.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

EDWIN M. BRAS.

In presence of—
MARY F. ALLEN,
GEORGE T. MAY, Jr.