

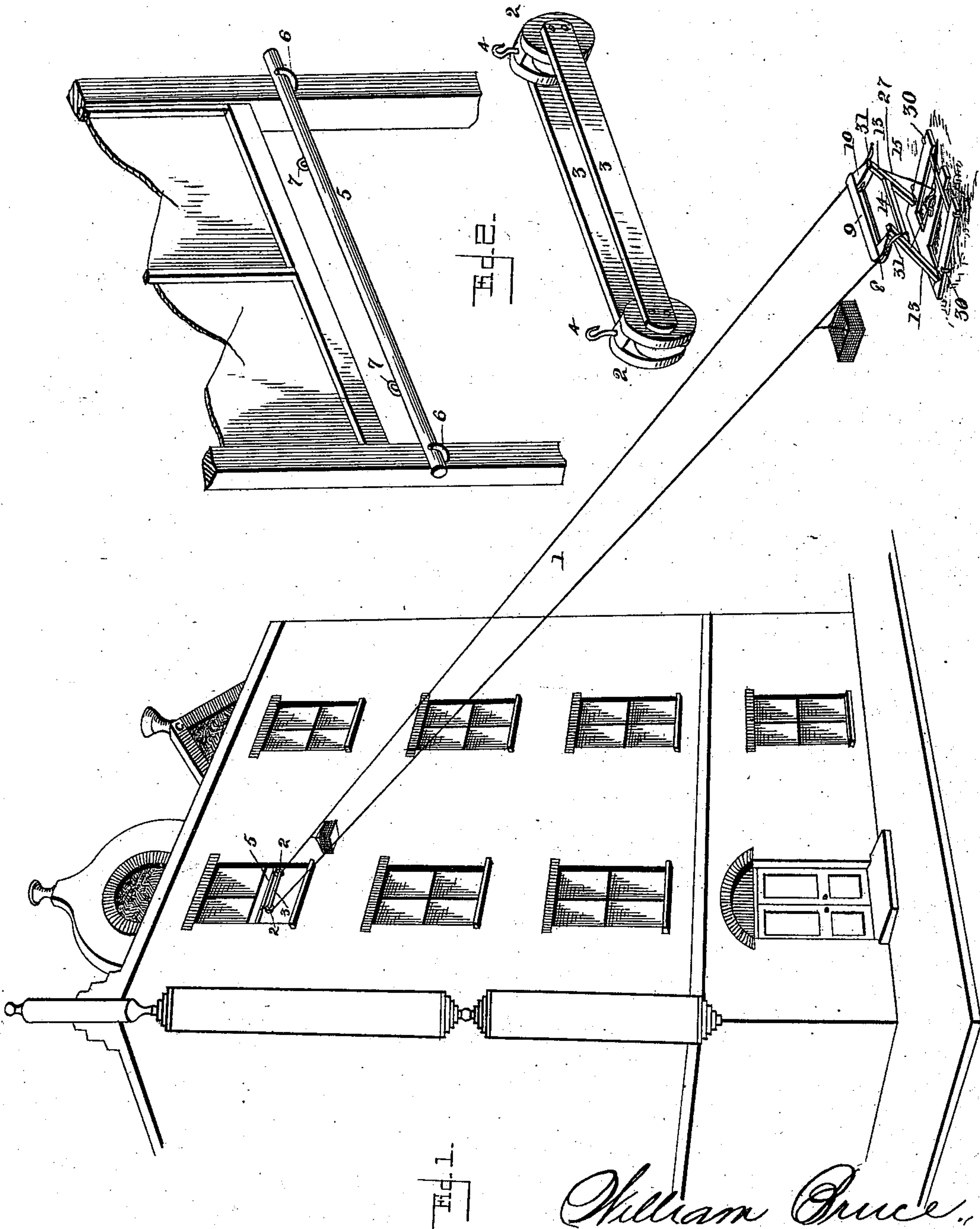
(No Model.)

2 Sheets—Sheet 1.

W. BRUCE.
FIRE ESCAPE.

No. 380,179.

Patented Mar. 27, 1888.



WITNESSES,
F. L. Ourand
J. F. Reilly.

William Bruce
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Attorneys.

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Fig. 3.

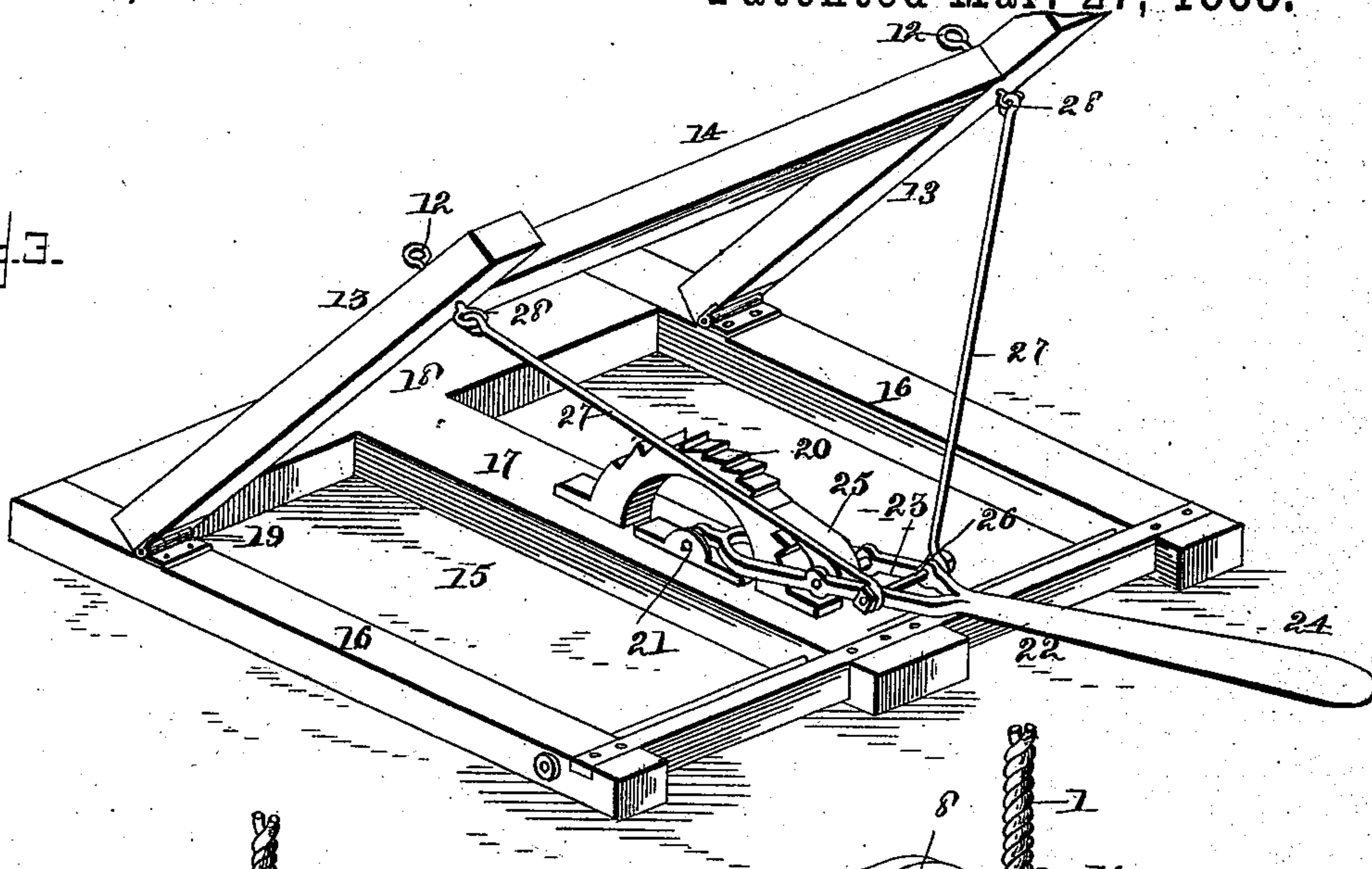


Fig. 4.

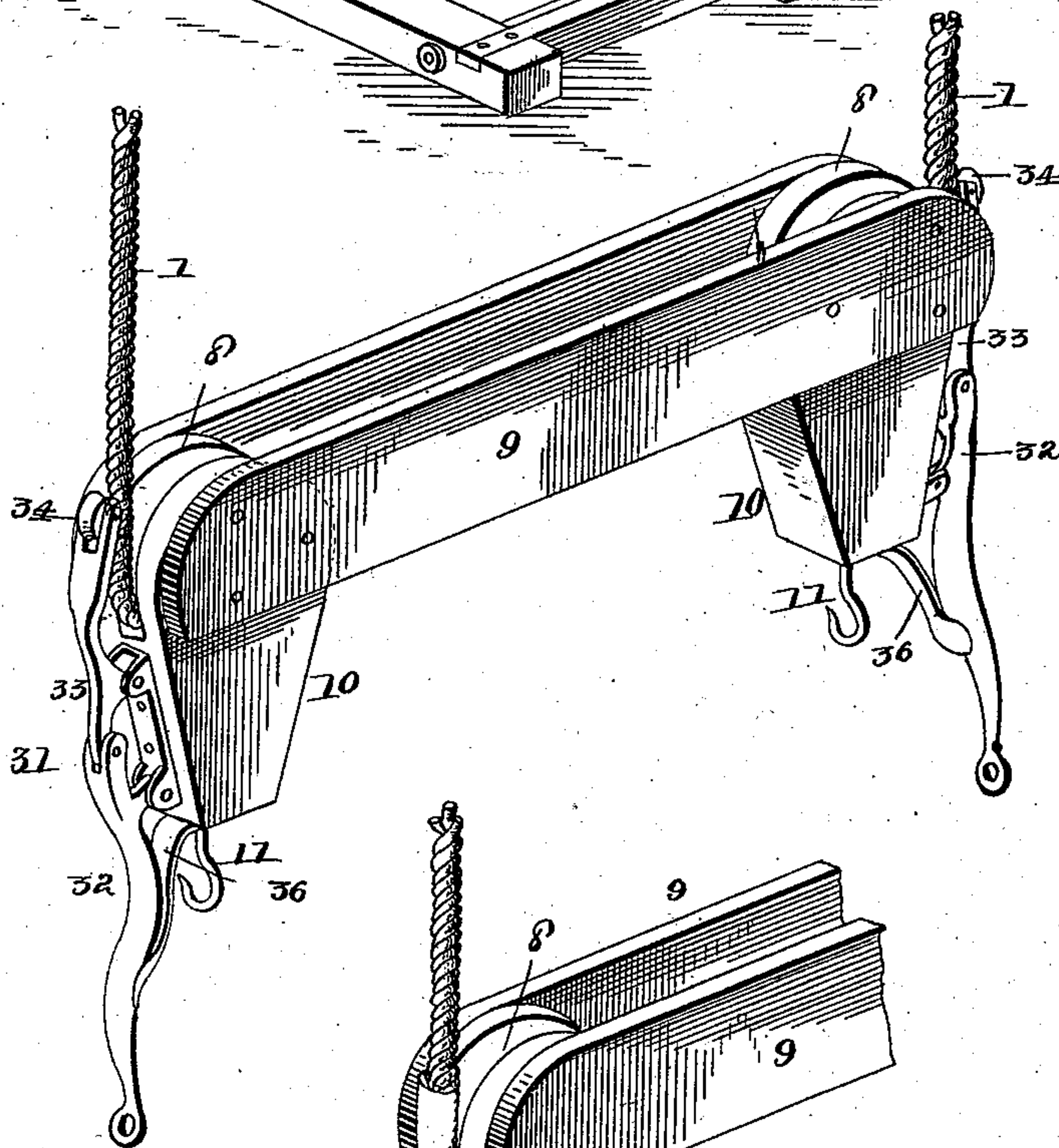
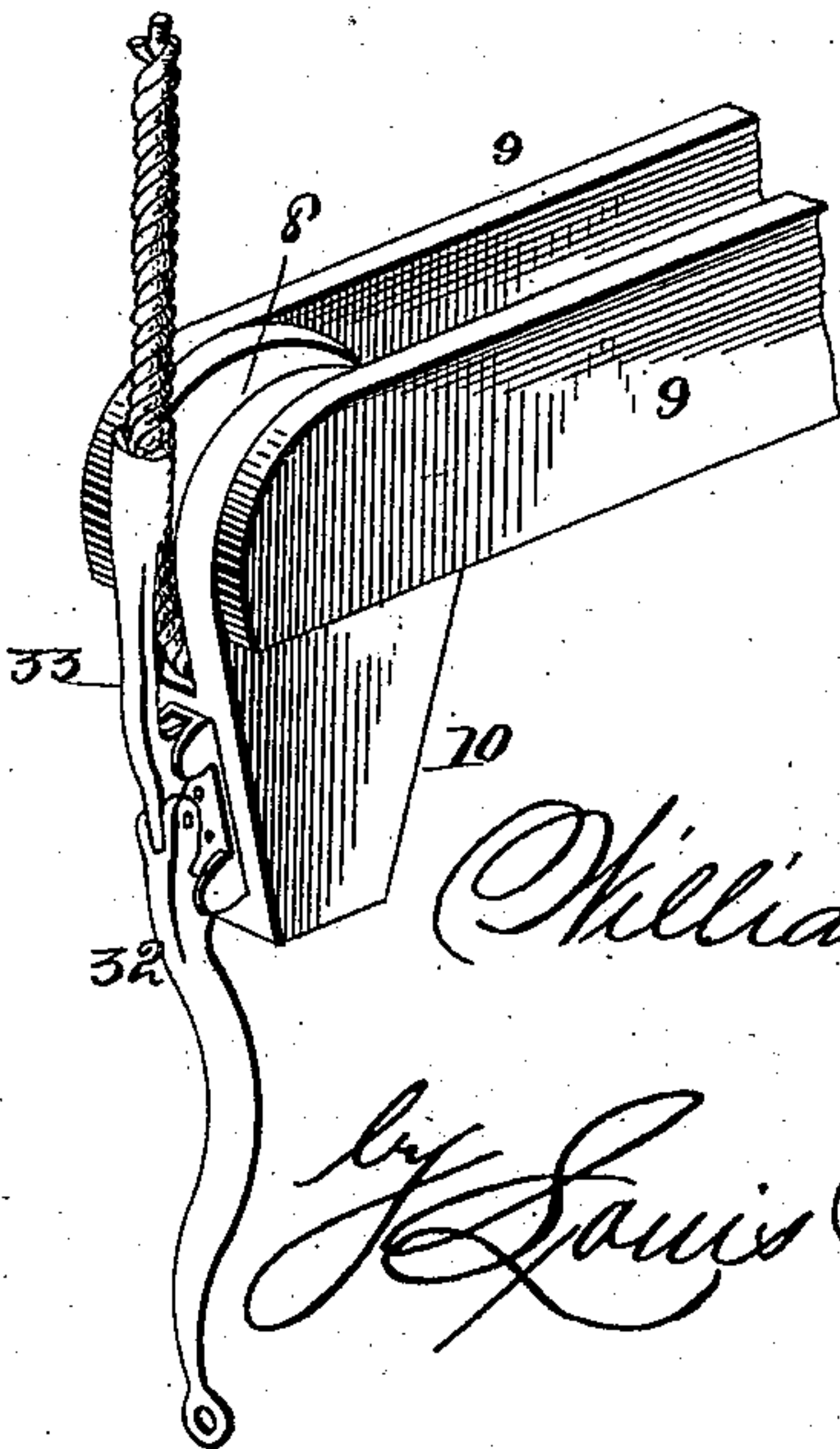


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM BRUCE, OF WELLSVILLE, NEW YORK.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 380,179, dated March 27, 1888.

Application filed November 21, 1887. Serial No. 255,761. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM BRUCE, a citizen of the United States, and a resident of Wells-ville, in the county of Allegany and State of New York, have invented certain new and useful Improvements in Fire-Escapes; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a perspective view of my new and improved automatic fire-escape, showing the same adjusted in operative position from the window of a four-story house. Fig. 2 is a detail view showing the iron bar which is secured across the inside of the window-frame. Fig. 3 is a perspective view of the "street frame." Fig. 4 is a perspective view of the lower pulley-frame with its end brakes, and Fig. 5 shows a slightly different form of the said end brakes.

The same numerals of reference indicate corresponding parts in all the figures.

My invention consists in a new and improved fire-escape, which will be hereinafter fully described and claimed.

Referring to the several parts by their designating numerals, 1 indicates an endless rope which forms one of the leading features of my new and improved fire-escape. This rope passes through four blocks or pulleys, two of which are placed at the window from which the descent is to be made.

2 2 indicate the two upper pulley-blocks, which are preferably connected by the side braces, 3 3, for convenience in handling them. These pulley-blocks are provided at their upper ends with the hooks 4, which fasten or engage with eyes, which may be secured to the outside of the window-frame, about half-way up the same; but I prefer, in order to avoid all possibility of the eyes pulling out, to employ a strong iron bar, 5, which in use is placed across the inside of the window, resting on two solid hooks, 6 6, which are fastened to the inner side of the window facing or frame half-way up the same, just below the bottom of the lower sash, when the said sash is raised, this

bar 5 being provided with two strong eyes, 7 7. The two upper pulley-blocks are hooked to these eyes, and the endless rope passes through these pulleys and down to the ground through the lower pulleys, 8 8. These lower grooved pulleys are journaled, for convenience in handling, in the ends of a frame composed of the side braces, 9 9, and the rearwardly-extending end blocks, 10 10. The free rear end of these end blocks are provided with the hooks 11 11, which are hooked in eyes 12 12 in the upper ends of two parallel uprights, 13 13. These uprights are connected and braced near their upper ends by a cross-bar, 14, and are hinged at their lower ends to the forward end of a flat stationary wooden frame, 15, so as to form a hinged, movable frame. This stationary frame 15, which rests flat upon the ground, is formed of a front cross bar or beam four or five feet long, from which extend back three beams, 16 16 17, one at each end and one in the center, and the rear ends of these three parallel beams are connected and braced by a rear cross-beam, 18, the whole forming a strong frame, which rests solidly upon the ground.

The strong uprights 13 13 of the hinged frame are beams four or five feet long and hinged at their lower ends by strong hinges 19 19 to the front end of the stationary frame. On the middle beam, 17, of this stationary frame is secured vertically a semicircular rack, 20, the teeth of which incline rearwardly, and to the middle of this beam, beneath the center of the curved rack, is pivoted in a bearing, 21, the lower end of a ratchet-lever, 22, the middle portion of which is formed with a longitudinal slot, 23, through which the curved rack passes, while the upper end of the lever is formed with a handle, 24, the handle proper of this lever being four or five feet long, giving great leverage-power. In the slotted portion of the lever is pivoted a dog, 25, which engages with the teeth of the curved rack and holds the lever and through it the hinged frame, firmly to the point to which it is drawn back or adjusted. A pivot-bolt, 26, passes through the upper end of the slotted part of the lever, and on the ends of this bolt are secured the eyed inner ends of two metal rods, 27 27, which branch out to the sides and are hinged at their eyed outer ends in eyes 28 28

on the back of the upper ends of the uprights 13 13, as shown.

Upon the endless rope A are secured two baskets, 29 29, or any other suitable means for receiving the persons using the escape, these baskets being secured to the endless rope equidistant from each other and on opposite sides of the rope, so that when one basket has reached the ground in operation the other will have just reached the window.

The endless rope, with the four pulleys and one of the baskets, is kept in the room of the hotel or building on the floor on which the escape is to be used. The device is kept close to the window, a coil or two of the rope, with the upper pulleys, 2 2, on top, being laid in one compartment of a locker constructed for the purpose, and the remainder of the rope, with the lower pulleys, 8 8, and the frame in which they are mounted on top, is kept in another compartment of the locker; or the rope may be coiled in the foregoing manner in the basket 29, with the iron rod 5 on top, and placed in the locker. In case of fire the iron rod is placed in position, the window-pulleys 2 2 are hooked to the eyes 7 7 of the iron rod, and then the lower pulleys are lowered to the ground, these lower pulleys being preferably protected by being incased in a bag containing some soft material, to prevent injury to the metal brakes or drags hereinafter described, in case the said pulleys should be thrown to the ground instead of being lowered from the window in the excitement of a fire. When the frame containing the lower pulleys is lowered to the street, it is caught, and the hooks 11 11, at the rear ends of the end blocks of the said frame, are hooked into the eyes at the upper ends of the uprights 13 13 of the hinged frame. The stationary frame 15 is meanwhile firmly secured to the ground by means of about five spikes, 30, driven down over the said stationary frame, as shown in Fig. 1 of the drawings, which will hold the frame firmly and strongly. Then, by drawing back the handle of the ratchet-lever, the handle of which, being four or five feet long, gives great power to the lever, the endless rope A is tightened to any desired extent. The first basket being up at the window on one side of the endless rope, the second basket is secured firmly to the other side of the rope at the ground.

Upon each of the end blocks, 10 10, is secured a brake or drag, 31, consisting each of the two small centrally-pivoted levers 32 33, the inner end of the outer hand-lever being bifurcated and slotted longitudinally, while in this slotted bifurcated end is pivoted the inner perforated end of the other or inner lever, while in the outer or operative end of each inner lever, 33, is journaled a small grooved wheel, 34, which runs on the rope in the same plane with the pulley at its end of the lower pulley-frame. By means of these end brakes the speed of the rope and of the passengers in the baskets can be regulated exactly. A spring, 36, is secured at the back of the handle

of each brake. The operative ends of the brakes may be formed as shown in Fig. 5 of the drawings, dispensing with the small grooved wheels 34 and forming the said ends of the concaved or spoon shape; but I prefer to employ the small grooved rollers or wheels, as they run more evenly on the endless rope, without any jerk or jar whatever.

When the endless rope has been tightened by the ratchet-lever, and the second basket, which is kept with the ratchet-frames in a room on the ground floor of the building, has been attached to its side of the endless rope, the escape is all ready for use. One, two, or more persons step into the basket which is then at the window, and their weight will cause the basket to descend, at the same time raising the second basket, so that when the loaded basket reaches the ground the empty basket on the other side of the endless rope will have reached the window, the two end drags or brakes 31 regulating the speed of the descent and preventing the full basket from descending too rapidly. The second basket is now filled and descends, while the empty first basket rises to the window.

From the foregoing description, taken in connection with the accompanying drawings, the construction, operation, and advantages of my invention will be readily understood. It will be seen that the escape is simple and strong in construction, and can be easily handled by any person. The construction admits of great strength in the material, sufficient to lower two or more persons at once in one basket, which can be made large enough for the purpose.

The escape is perfectly safe in its operation and easy to get into in the case of frightened and excited persons. It is very speedy in its operation and will empty a building rapidly, one basket reaching the window the instant the other reaches the ground.

The escape is automatic, the weight of the loaded basket raising the other to the window. One or two firemen can be raised to the window from the ground for the purpose of controlling excited persons and aiding in the systematic and speedy escape of the occupants from the burning building. It is superior to the railed platform and ladders, as it does not, like them, offer facilities for burglars. It is cheaper than the single devices—one for each person—as two or three of my new and improved automatic escapes will be sufficient for one floor of a large building, owing to the rapidity with which it can be worked. I can also regulate the speed of the baskets to any extent by means of the ratchet-lever, for by drawing back this ratchet-lever by the hand, and thus tightening the rope, the pressure on the grooved wheels is such that the speed is lessened in proportion to the strain on the ropes, and I can stop the descending rope and basket in mid-air by means of this lever, if desired.

Having thus described my invention, what I

claim, and desire to secure by Letters Patent of the United States, is—

1. In a fire-escape, the combination of the window-pulleys having the end hooks, the eyes secured at the window, the lower pulley-frame having the grooved end pulleys and the end brakes or drags, and adapted to be secured to a suitable support, and the endless rope having two baskets secured to it on opposite sides, substantially as set forth.

2. In a fire-escape, the combination of the window-pulleys having the end hooks, the eyes secured at the window, the lower pulley-frame having the grooved end pulleys, the hooks at the rear ends of its end blocks, and end brakes or drags, the stationary frame having the curved rack, the movable frame hinged at its lower end upon the stationary frame and having the front eyes near its upper ends, the lever, the connecting-rods, and the endless rope having two baskets secured to it on opposite sides, substantially as set forth.

3. In a fire-escape, the combination of the window-pulleys having the end hooks, the iron bar having the eyes, the lower pulley-frame having the grooved end pulleys, the

hooks at the rear end of its end blocks, and the end brakes or drags having the small grooved wheels journaled in their inner ends, the stationary frame having the curved rack, the movable frame hinged upon the stationary frame and having the front eyes near its upper end, the lever, the connecting-rods hinged at their ends, and the endless rope having the two baskets secured to it on opposite sides, substantially as set forth.

4. In a fire-escape, the combination of the window-pulleys, the endless rope having the two baskets secured upon it on opposite sides, the lower pulley-frame having the grooved end pulleys and the hooks at the rear ends of its end blocks, the stationary frame having the curved rack, the hinged frame having the front eyes, and a ratchet-lever and connecting-rods, substantially as set forth.

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

WILLIAM BRUCE.

Witnesses:

NELSON L. WILLIAMS,
JAMES R. FREELAND.