(No Model.)

# W. BUSHNELL.

## FIRE ESCAPE LADDER.

No. 268,078. Patented Nov. 28, 1882.

Fig: 1.

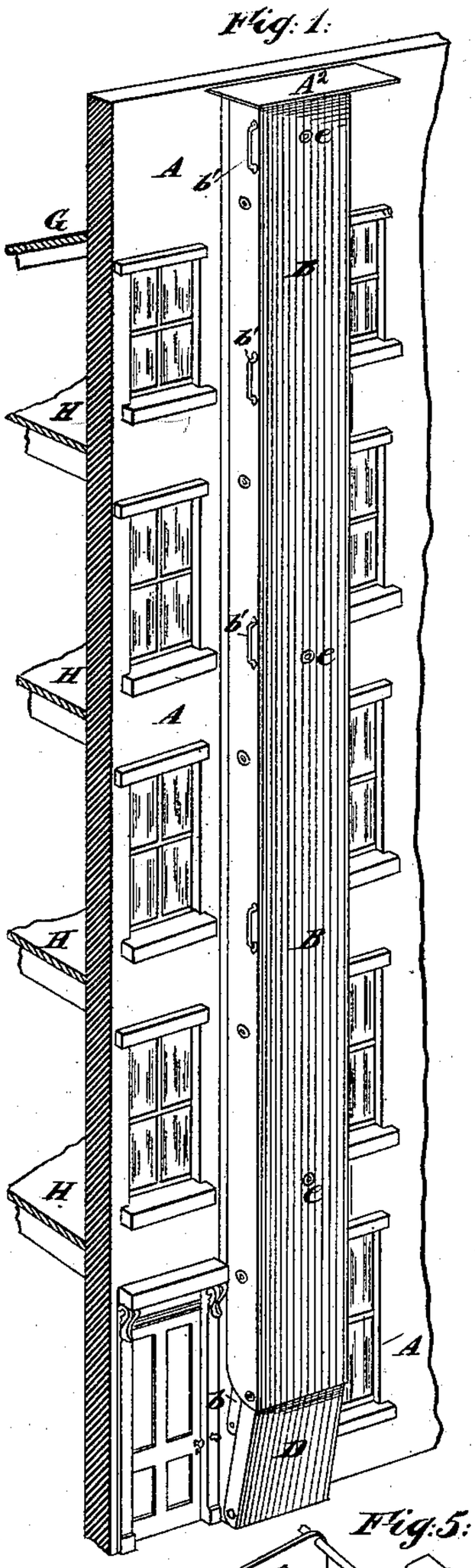



Fig: 2.

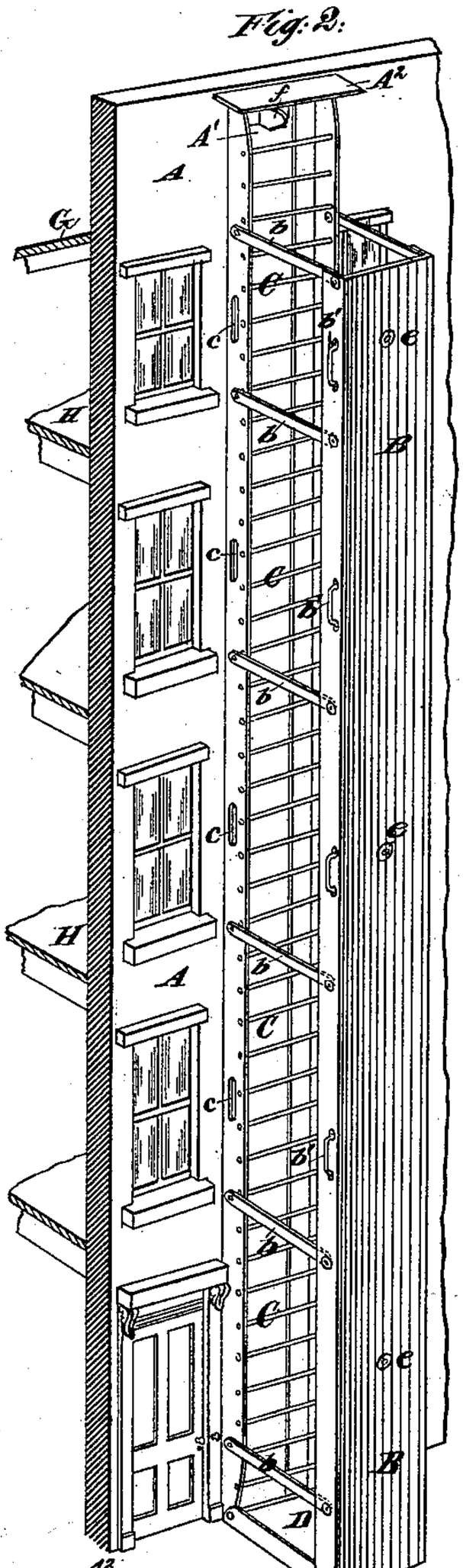



Fig: 3.

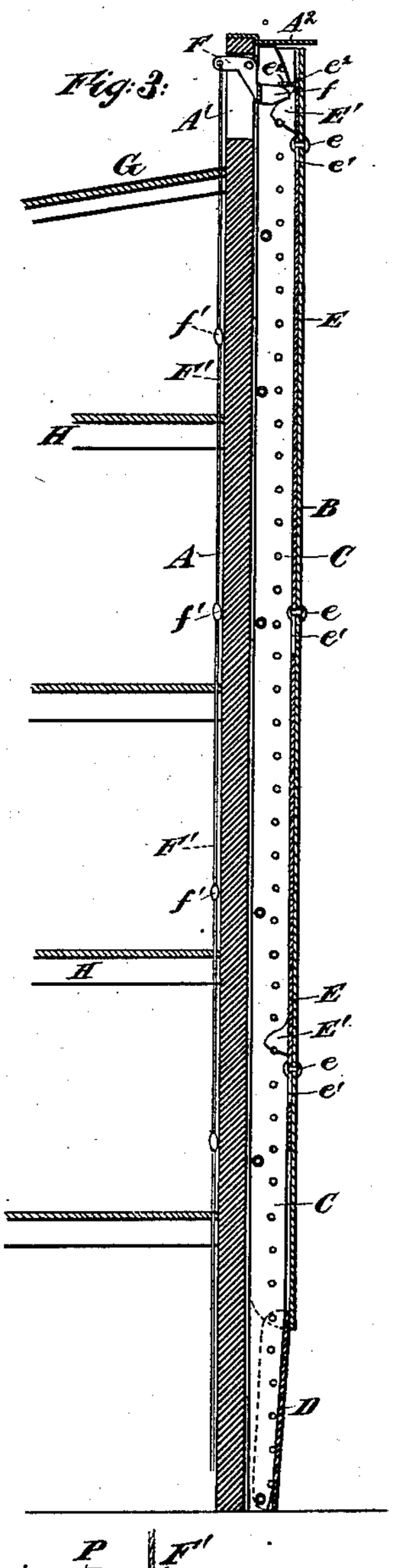



Fig: 5.

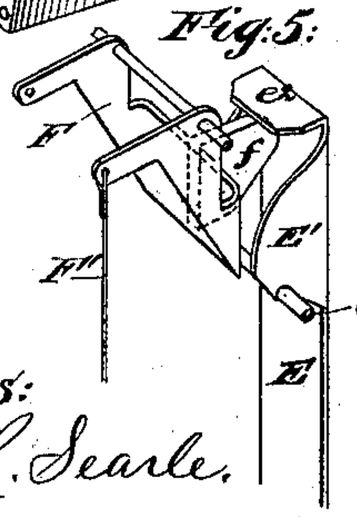



Fig: 4.

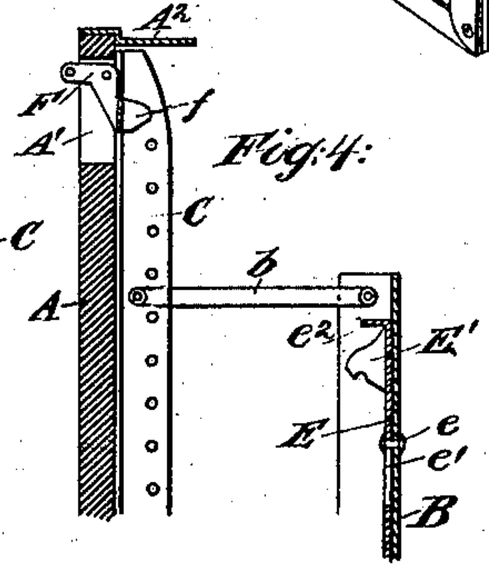
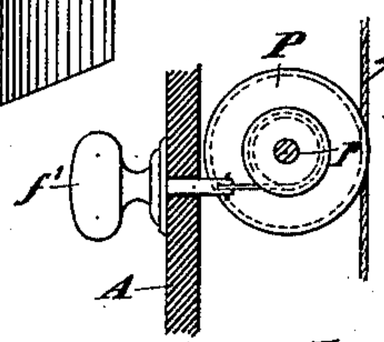



Fig: 6.




Witnesses:
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M. E. Twombly

Inventor:
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# UNITED STATES PATENT OFFICE.

WILLIAM BUSHNELL, OF BROOKLYN, NEW YORK.

## FIRE-ESCAPE LADDER.

SPECIFICATION forming part of Letters Patent No. 268,078, dated November 28, 1882.

Application filed June 20, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM BUSHNELL, a citizen of the United States, residing in the city of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Fire-Escape Ladder, of which the following is a specification.

My said invention relates to improvements in fire-escape ladders which are attached directly and permanently to the walls of buildings; and the objects and purposes of my invention and improvements are, first, to provide a strong and firm fire-escape ladder, which shall be promptly and easily accessible to the occupants of each and every story or floor, as well as from the roof of the building to which it shall be attached; second, to provide a fire-escape ladder which shall render the descent from high buildings perfectly safe for all persons, and especially for infirm persons and children, and for those who are liable to nervous attacks; third, to produce a fire-escape ladder which cannot very readily be used by burglars and thieves as a means of entering buildings. These objects and purposes I attain by constructing a fire-escape in all its parts wholly of iron and bolting or otherwise firmly attaching the side pieces or rails of the ladder to the outer face of the wall of the building which it is to serve, and fitting the rounds of the ladder in the side pieces, parallel with and about five or six inches from the face of the wall, thus forming a very substantial and firm ladder. To these side pieces or rails I attach or hinge, by means of movable arms, a case or cover with a jointed section at its lower end, corresponding in its length with the length of the said movable arms, so that in opening and closing of the main case this section will move in the same direction as the arms; in fact, constituting, as it were, the lower pair of arms connecting the case with the sides of the ladder, the special use of this jointed section being to cover the lower end of the ladder, which without it would be exposed when the main case or cover is drawn up and closed over the upper part of the ladder. The case or cover of my ladder is especially designed and adapted to shield and protect persons against falling while descending the ladder in the haste and under the excitement naturally incident to an enforced exit from a burning building, while at the same time it serves to protect the ladder from the inclemency of the weather, as well as against evil-disposed persons, all of which is shown and illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the fire-escape attached to the wall of a building, A, the ladder being shut out from view by the closed case B, with section D jointed thereto. Fig. 2 is also a perspective view, showing the same, with the case B standing open, in a vertical position and section D lying horizontally upon the platform or foundation, and also showing the ladder C and the arms *b* connecting the case with the ladder. Fig. 3 represents a vertical section of the wall of a building at right angles with its face, showing the several floors or stories, H H, &c., and the roof G, together with a vertical section of the fire-escape through the center of the ladder C, case B, and the jointed section D. Fig. 4 represents a sectional side view of the upper part of the fire-escape at right angles with the wall of the building, showing the connection of the case B with the ladder C, and of the sliding bar E with the case B, together with the hook E′, attached to the sliding bar E, and the pivoted tilting-cam F. Fig. 5 is a perspective view of the upper end of the sliding bar E, the hook E′, and the tilting-cam F. Fig. 6 represents a bell pull or knob, *f*, and a pulley, P, fitted in the wall A, and connected with a small wire rope, or a chain extending and attached to the tilting-cam F, whereby the cam is operated.

Similar letters refer to similar parts throughout the several views.

In the construction of my fire-escape I use for the sides or rails of the ladder C C angle-iron, or plate-iron bent in the form of angle-iron, one angle of which should be about six inches wide and the other about two inches wide, the widest to contain the rounds of the ladder and the other to be bolted firmly and securely to the wall of the building. The rounds should have shoulders formed upon them, so as to fit snugly against the inside of the rails or side pieces, and the holes in the rails, into which the rounds are to be fitted, should be countersunk on the outside, in order that the ends of the rounds may be riveted down smoothly and evenly with the surface of the rails.

The case B B, I make of sheet or plate iron of any required thickness, and plain or corrugated, and otherwise ornamental. The arms *b b*, connecting the case with the ladder, I make of flat bar-iron about one and a half inch wide and one-half of an inch thick, more or less, and of a length sufficient to form an entrance to the ladder, when the case is thrown open, of from twenty to twenty-four inches in width. The arms are not limited as to the number to be used, but there must be one on each side of the ladder about on a level with the sill of each window or door from which it is desired to provide an exit, and there should also be one on each side of the ladder, from five to five and a half feet above the sill of each window or door for the purpose of giving firmness and stability to the case when it is closed over the sides of the ladder, as well as when it is open. To facilitate the entrance from the windows or doors into the fire-escape, I attach to the building, just under the sill of each window or door, by means of strong and substantial hinges, a small swinging balcony or platform, (not shown in the drawings,) so arranged that it is automatically operated by the opening and closing of the case B B—that is, it is raised to a horizontal position and there firmly and securely held by opening the case, and is again closed downwardly closely against the wall by the closing of the case. Still further to facilitate and add to the safety of entering the fire-escape, I make hand-holes or slots in the sides or rails of the ladder, as shown in Fig. 2, (letters *c c c c*,) and also attach handles or rings to the outside of the case, as shown in the same figure, (letters *b b b*,) at convenient points to be grasped by persons entering the escape.

The vertical bar, (letter E,) provided with slots *e'* at or near its upper and lower ends, as shown, near its upper end in Fig. 4, is attached to the inside of the case B by means of guide-pins, (letter *e*,) upon which it is made to slide in a vertical line, carrying with it at its upper end the hook E', as shown in Fig. 4, which, when the case is closed over the ladder, grasps or hooks over the uppermost round of the ladder, as shown in Figs. 3 and 5, together with a similar hook for similar use near the lower end of the ladder, and as many more as may be desired to hold the case very firmly and securely to the ladder, every hook grasping or hooking over a round.

In order that the occupants of every story of the building to which my fire-escape may be attached may open the case I locate and arrange on each story a bell-pull, Fig. 6, or in lieu thereof a lever, to which is attached a wire rope or rod, F', connected at its upper end with the tilting-cam F, whereby the sliding bar E is raised and the rounds of the ladder set free from the grasp of the hooks E', and thus causing the case B to fall open and give an entrance to the ladder from every floor and from the roof of the building. A small door (not shown in the drawings) I also place in the side of the case B, near its lower end, which may be opened by a fireman's key, and the opening of which will raise the sliding bar and throw open the case. At the extreme upper end of the case I attach a wire rope running over a compound pulley and around a crank-shaft, properly placed and fitted for the purpose, upon or above the roof of the building, by means of which the case may be readily drawn up and closed whenever occasion requires it to be done.

I am aware that patents have been granted to A. S. Riches, No. 194,467, to Charles C. Chamberlain, No. 213,544, and to I. P. and William E. Dunn, No. 250,901, for folding fire-escape ladders, or ladders with pivoted or movable rounds, with one of the side rails forming a cover to the rounds when the ladder is closed up, and as my ladder is in no sense a folding ladder, but simply a plain substantial ladder with fixed immovable sides and rounds, the latter running parallel with the wall of the building, I disclaim the construction shown and described in each and every one of those inventions.

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

1. The case or cover B, combined with section D, jointed therewith, substantially as and for the uses and purposes herein described.

2. The combination, with the ladder C, of the case or cover B, with its jointed section D, for the safety and protection of persons using the ladder, as herein specified.

3. The vertical sliding bar E, with the hooks E', attached to the inner side of the case B, for the use and purpose described.

WILLIAM BUSHNELL.

Witnesses:

JOHN J. SLATER,

JNO. D. COUGHLIN.