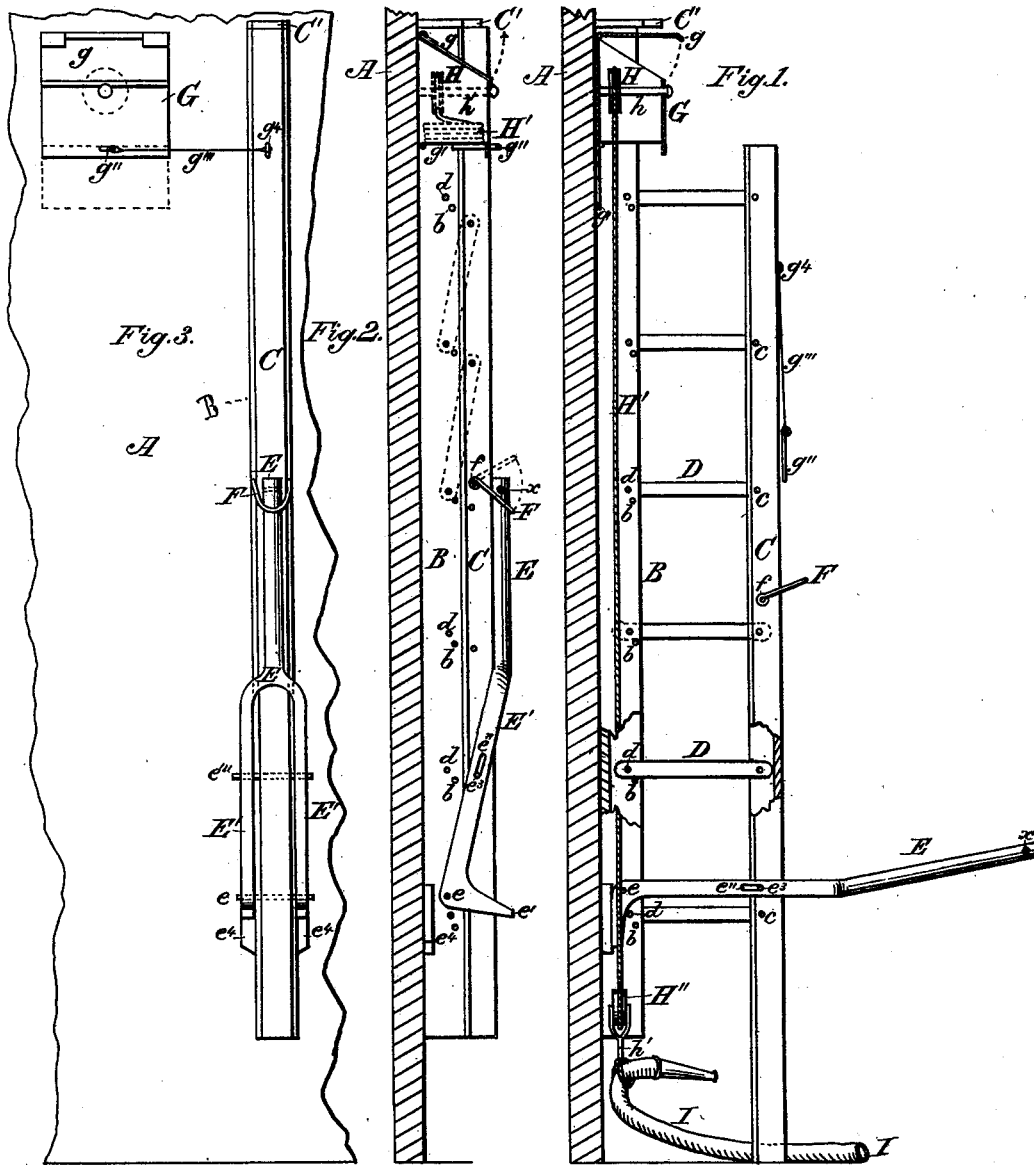


C. C. CHAMBERLAIN.  
Fire-Escape Ladder.

No. 213,544.

Patented Mar. 25, 1879.



Attest:  
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att'y.

# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN FIRE-ESCAPE LADDERS.

Specification forming part of Letters Patent No. **213,544**, dated March 25, 1879; application filed August 2, 1878.

*To all whom it may concern:*

Be it known that I, CHARLES C. CHAMBERLAIN, of Muskegon, in the county of Muskegon and State of Michigan, have made certain Improvements in Ladders, of which the following is a specification:

The object of this invention is to improve that kind of ladder that is fixed to the wall of a building, and is capable of being used as a fire-escape; and it consists in the construction which is fully set forth; also, in connecting the ladder to a device in which there is a block and tackle, or means to hoist hose-pipe or other thing, so that the tackle is automatically made to fall to the ground by the opening of the ladder, as will be fully hereinafter described.

In the drawings, Figure 1 represents the ladder in side view opened. Fig. 2 represents the ladder in side view closed. Fig. 3 is a face view of same when closed, and Fig. 4 represents the two parts forming the sides of the ladder in cross-section.

A represents the face wall of a building, to which the fixed side or upright of a ladder is securely attached or built into the same, whether of wood, brick, or other material, and there may be any number of them, and of any height desired, according to the size and height of the building.

B represents the upright fixed support of the ladder, which may be of wood or metal, and is in rectangular form, and equally grooved its entire length, so as to form in cross-section the one-half of a box, as seen in Fig. 4. This upright is secured to the face of the wall by any known mechanical means, or it may be secured by building it in the wall, if desired.

C is the opposite side or upright of the ladder, and is grooved longitudinally, the same as side piece B, and as seen in Fig. 4, represented in cross-section, and when the ladder is complete forms a vertically-moving side thereof, having a limited movement.

D D are the rounds or steps of the ladder, preferably of metal. They may be round, square, tubular, or any other form, and are pivoted to side B, within the groove thereof, by pivot-pins *d d*, while the opposite ends are similarly pivoted to side C by the pivot-pins

*c*, in such manner as that when the side piece C is raised up the rounds D will all be in nearly a perpendicular position, and entirely within the grooves of the two sides B and C, as seen in Fig. 2.

*bb* are stop-pins placed transversely through side piece B, and near the outer edge, and as much below pivot-pin *d* as there is material in the round or step below pin *d*. By this construction the stop-pin prevents the round or step D from going below a right angle with the face of side B, and thereby side B becomes the support of the whole of the weight of the ladder, and whatever there may be upon it.

E is a bifurcated and bent lever, having the two limbs *E'* far enough apart to embrace and freely work on the outside of the sides B and C, and is firmly pivoted at its heel *e* to side B. A slot, *e''*, is made in the two legs *E'*, to receive the pin *e<sup>3</sup>*, that passes through the two legs *E'*, and through movable side C; then, by taking hold of the upper end of the lever E, and turning it out and down, as seen in Fig. 1, the ladder is open and ready for use.

*e'* is the toe of the bent lever E, and serves to limit the downward movement of the lever E by the toe striking against the stop-piece *e<sup>4</sup>* on the face of the building, or it may be stopped on the building itself.

F is a link or bail securely pivoted to the movable side C, and constructed to fall over the upper end of lever E, and hold the lever in close contact with the side C, and side C firmly upon the outer edge of side B, thus securing the rounds or steps of the ladder within the sides B and C, and when so secured the ladder cannot be used until the lever E is turned out and down to open out the steps.

C' is a cap-piece over the ladder when folded, which completes the housing-in of the steps of the ladder, keeping the same from the weather.

Near the upper end of lever E, and above the bail F, when turned down over the end of the lever, is a hole, *x*, transversely through the lever, by which a padlock can be inserted to completely lock the lever in position, so that it cannot be loosened, and thereby prevent any one from opening the ladder except the one who has the key to the lock.

G is a shelter-box firmly attached to the wall

of the building, having an inclined roof or cover, *g*, hinged next the wall, so as to be opened by swinging upward. *g'* is the bottom to the box, hinged at its back edge, so that it can freely swing down and leave the box open at the bottom, as seen in Fig. 1. The front side of the box drops below the bottom far enough to have a hole through it to receive a pin, *g''*, which pin holds the bottom in its place.

*H* is a pulley freely revolving upon axle *h* within box *G*, over which passes a rope, *H'*. *H''* is a pulley at the lower end of rope *H'*, around which the rope goes, and depending from the pulley-frame is a hook, *h'*, to which a hose-pipe, *I*, or other thing can be secured, and the tackle can be used to hoist the same to where it is wanted. A single or double set of pulleys may be used, of any known construction, for this purpose, and when not in use the tackle is all drawn up, the block laid on the bottom of the box, and the rope *H'* all coiled up therein, as seen in Fig. 2.

In order to have a means of instantly hoisting the hose pipe and nozzle to the top or any place upon the ladder as quick as the ladder is opened, an eyebolt, *g'*, is secured in side piece, *C*, on a level with the hole in the front of box *G*, when the ladder is closed, and from this eyebolt a rod or arm, *g'''*, extends to pin *g''*.

Fig. 3 shows the device when the tackle is in the box, the pin in place holding the bottom of the box with the tackle upon it and the ladder closed; but when the lever *E* is turned out and down, and the side *C* moves from the wall, it causes the pin *g''* through the rod *g'''* to be withdrawn from under the bottom of the box *G*, when the bottom swings back against the wall and the tackle of its own weight falls to the ground, ready at once to be attached to the hose-pipe for hoisting where needed, and the ladder is open and ready for any one to go up or come down, as both sides of the ladder can be used at the same time, for the ladder, when opened for use, will project at right angles from the face of the wall.

Thus, by this construction of a ladder and its attachment to a building, it answers for firemen as well as an escape-ladder to persons within the building, when the building is on fire, and it, being a fixture upon the building and housed in, can be made ornamental, and

be no disparagement to the appearance of the building, while it affords a ready means to instantly relieve persons in case of fire to get out, and better facilities for the firemen to get at the fire, as any number of ladders can be attached to a building and save the hard labor of carrying up a ladder the heavy hose and pipe-nozzle, as now practiced. The ladder in all its parts is preferably made of metal, and if so made is not liable to destruction, and is always ready for use in the many ways to which it is adapted.

I do not confine myself to the exact construction of the ladder in all its parts as described, as it may be departed from without any change in principle.

I am aware of the folding ladder patented June 30, 1865, and reissued August 20, 1867, No. 2,735, which does not show or claim a construction that admits persons to use both sides of the ladder at the same time, or a ladder that in use projects at right angles from the face of the wall of a building.

I am also aware of Patent No. 194,467, and dated August 27, 1877, and I disclaim the construction therein shown.

Having thus described my invention, what I claim is—

1. A ladder composed of the grooved fixed side *B* and movable side *C*, pivoted rounds *D*, and stop-pin *b*, in combination with the lever *E*, constructed to operate substantially as and for the purposes described.

2. In combination with the ladder and its operating-lever, as above described, the eyebolt *g'*, rod *g'''*, pin *g''*, and bottom *g'* of box *G*, as and for the purposes described.

3. In combination with the ladder and its operating-lever, as above described, the pulley *H*, rope *H'*, pulley *H''*, hook *h'*, box *G*, and intermediate operating devices, as and for the purposes described.

4. The bent, bifurcated, slotted, and pivoted lever *E*, as and for the purposes described.

5. The bent, bifurcated, and pivoted lever *E*, in combination with the movable side *C* of a ladder, as and for the purposes described.

CHARLES C. CHAMBERLAIN.

Witnesses:

E. S. LATIMER,

GEORGE WHEELER.