(No Model.)

2 Sheets—Sheet 1.

F. SHICKLE.

FIRE ESCAPE.

No. 312,908. Patented Feb. 24, 1885.

Fig. 1.

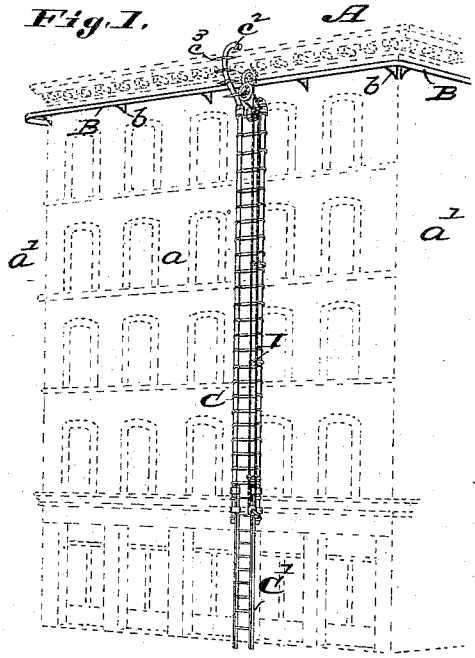


Fig. 2.

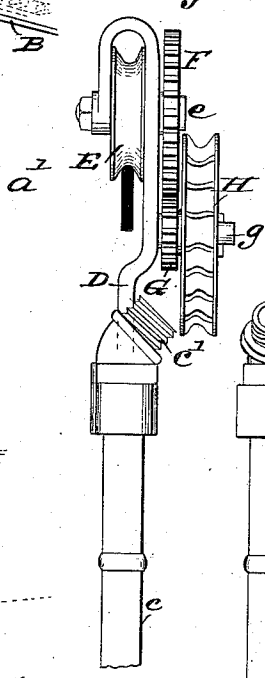


Fig. 3.

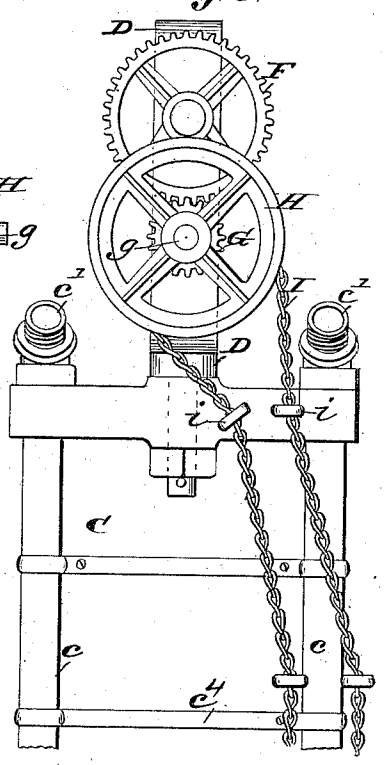


Fig. 4.

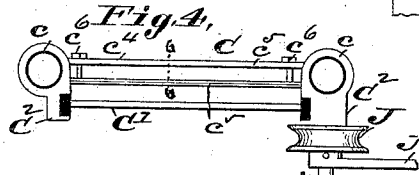


Fig. 6.

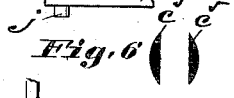
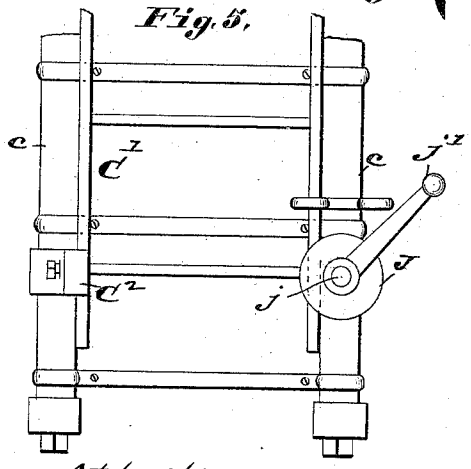
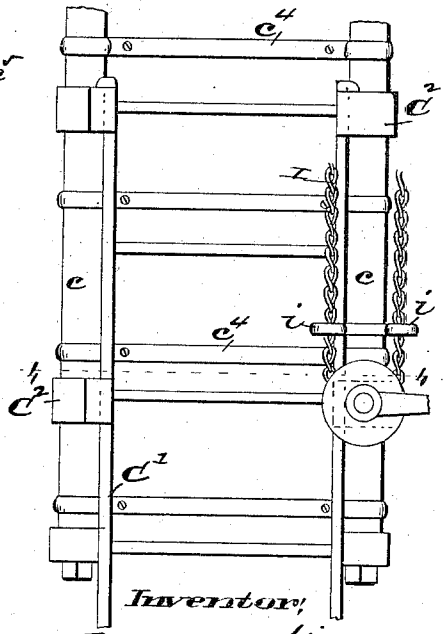


Fig. 5.





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(No Model.)

2 Sheets—Sheet 2.

F. SHICKLE.

FIRE ESCAPE.

No. 312,908.

Patented Feb. 24, 1885.

Fig. 8.

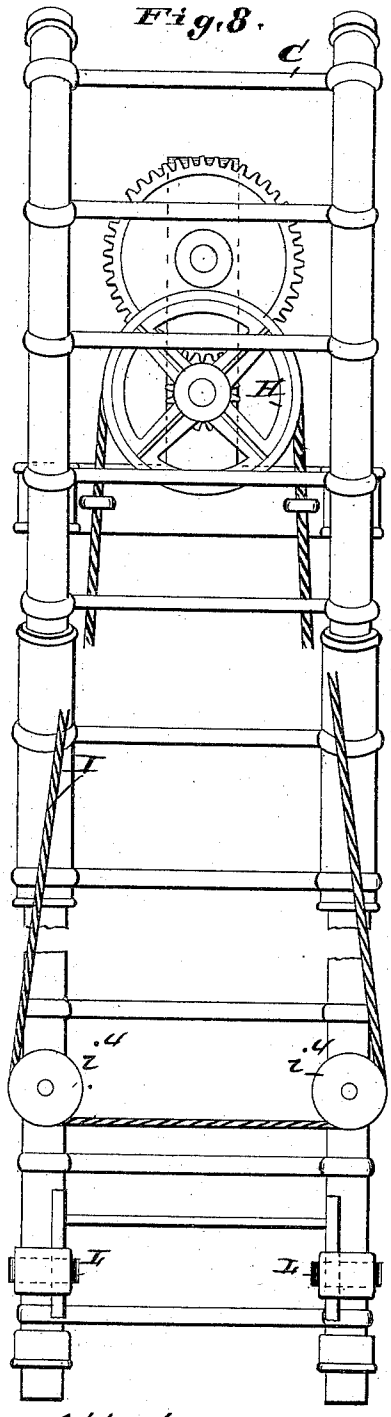


Fig. 7.

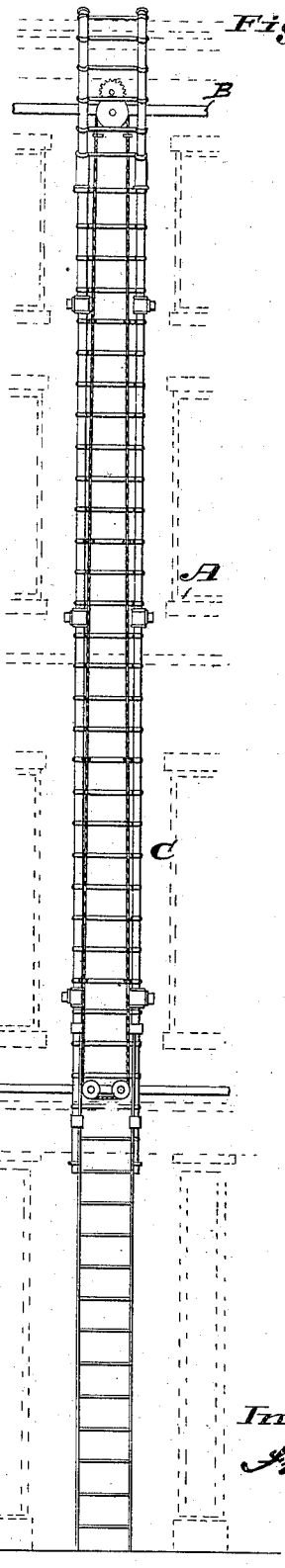
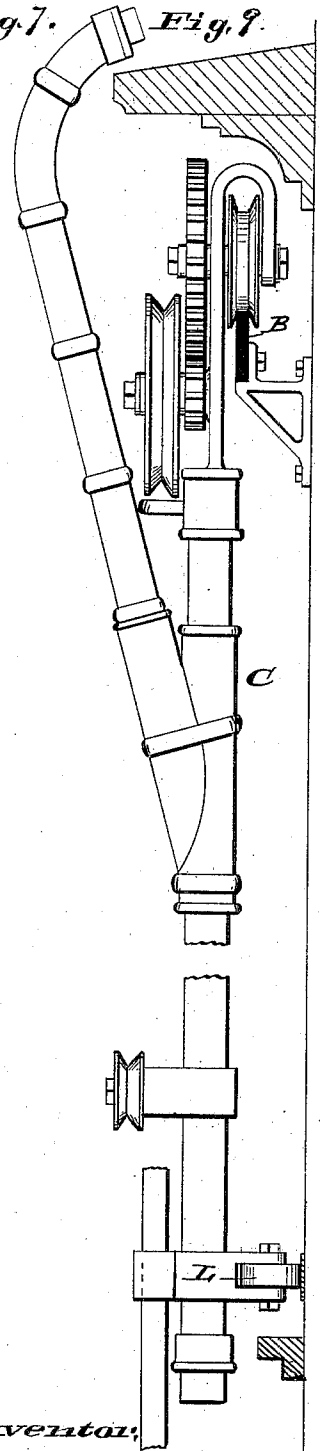


Fig. 9.



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UNITED STATES PATENT OFFICE.

FREDERICK SHICKLE, OF ST. LOUIS, MISSOURI.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 312,908, dated February 24, 1885.

Application filed June 6, 1884 (No model.)

To all whom it may concern:

Be it known that I, FREDERICK SHICKLE, of St. Louis, Missouri, have made a new and useful Improvement in Fire-Escapes, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a view in perspective, showing the improvement in position upon a building, the building being shown in broken lines; Fig. 2, a side elevation, upon an enlarged scale, of the upper end of the escape; Fig. 3, a front elevation of the escape; Fig. 4, a horizontal section on the line 4 4 of Fig. 3; Fig. 5, a front elevation of the lower end of the escape, the extension being drawn up; Fig. 6, a section on the line 6 6 of Fig. 4; and Figs. 7, 8, 9, views illustrating a modification in the arrangement of the rope, and showing also the rollers at the lower end of the ladder.

The same letters of reference denote the same parts.

The present invention is an improvement in that class of fire-escapes having a movable ladder upon the outer side of the building.

The improvement relates to the construction of the ladder and to the mode of attaching it to and adjusting it upon the building.

The building A, to which the escape is to be applied, is provided with a rail, B, Figs. 1, 2, which, by means of suitable brackets, *b b*, is supported upon the front *a* of the building, and, if desired, extended around the sides *a' a'* of the building; but a single rail is used, for reasons hereinafter explained.

C represents a ladder adapted to be suspended from and to be shifted laterally upon the rail B. It is also hung so that its lower end can be drawn outward from the building, and so that the ladder can be inclined as well as turned at various angles to the face of the building. To this end but a single rail B is used, and the ladder has but a single point of connection with the rail. The ladder is swiveled to a hanger, D, and the hanger is provided with a grooved wheel, E, which rides upon the rail B. This enables the ladder to hang perpendicularly beneath the rail, as shown in Fig. 2. The ladder can also be shifted laterally by causing the wheel E to be rotated. The ladder, hanger, and wheel can also be turned upon the rail, so that the ladder at its lower end can be drawn outward from the face of the building or be inclined from a perpendicular, and, further, by means of the swiveled connection of the ladder with the hanger the ladder can be turned around. This enables the ladder to be held with relation to the building in many positions to suit the varying circumstances attending the use of the escape.

To move the ladder laterally the following mechanism is employed. The shaft *e* of the wheel E is extended outward, and is provided with the gear F, Figs. 2, 3. This gear engages with a pinion, G, upon the shaft *g*. This last-named shaft is held in the hanger and is extended outward, so as to receive the sprocket-wheel H, which is fastened to the shaft *g*. An endless chain, I, leads around the sprocket-wheel and downward to or toward the lower end of the ladder, and to guide the chain in its movement it is preferably passed through the eyes *i i*, which are attached to the ladder. The lower end of the chain is also preferably passed around a wheel, J, Figs. 3, 4, 5, whose shaft *j* is provided with a crank, *j'*. By rotating the crank the chain is caused to draw around the sprocket-wheel H, and thereby communicate the motion of the sprocket-wheel to the wheel E, which rides upon the rail B. This causes the ladder to be moved along the rail B, and to the right or left, according as the crank *j'* and chain I are moved. In this manner the ladder can be moved along the front and sides of the building, as desired. The chain can be operated without using the wheel J; but with a heavy ladder it is desirable to employ the wheel J.

The ladder, so far as moving and adjusting it is concerned, may be constructed in any of the ordinary forms. I prefer, however, to make its sides *c c* tubular, in order thereby that the ladder may be used as a means for conducting a stream or streams of water upward, so as to be delivered from the ladder onto the upper portion of the building. To this end the tubes *c c*, at the lower and upper ends of the ladder, as well as at any intermediate point, are formed, as shown at *c'*, so as to enable the hose to be attached thereto. If desired, one or both of the tubes *c c* may be extended upward above the point where the ladder is suspended, so as to enable the stream to be delivered onto the

roof of the building. This extension may be in the form shown at c^2, Fig. 1, and the extension may be provided with cross-bars c^3, by means of which a person can mount from the ladder upon the building.

The rounds c^4 of the ladder are preferably made as shown in Figs. 3, 4, 5, 6. An endless strap is wrapped around the sides $c\,c$, and between the sides $c\,c$ the two parts $c^5\,c^5$ of the strap are drawn together by means of screw-bolts c^6. In this manner the strap is tightened around the sides $c\,c$ sufficiently to hold the round in place vertically upon the ladder.

The parts $c^5\,c^5$, as shown in Fig. 6, are preferably sharpened or drawn to an edge at the top of the round. This is partly to prevent the formation of ice in cold weather upon the round, and, secondly, if ice is formed upon the round, to enable it to be readily detached therefrom, and in this manner to prevent the ladder from being clogged with ice, as is apt to be the case in using a fireman's ladder in cold weather.

An additional feature is extending the main ladder C from its lower end downward to the ground—that is, as the ladder C is designed to remain as a fixture upon the building to which it is applied, it may be desirable often to terminate its main portion at or about the level of the second floor of the building. When such is the case, the extension C′, Figs. 1, 3, 4, 5, may be used. This extension C′ is in the form of an ordinary ladder, and is adapted to be telescoped upon the main portion C of the ladder, and for this purpose the main ladder C may have guides $C^2\,C^2$, through which the extension C′ may be slipped upward and downward, as desired.

In Figs. 7, 8, 9 is shown a modification of the rope arrangement, the rope being carried around the sheaves $i^4\,i^4$ instead of the pulley J. Rollers L are also shown, to keep the ladder from dragging against the building.

With a light ladder the rope I and mechanism for communicating its movement to the pulley E may be dispensed with.

I claim—

1. The combination, with a ladder which is swung from a wheel, E, of an endless rope or chain applied directly to the ladder, and the means in connection therewith, substantially as described, for moving the ladder.

2. The combination, with a fire-escape ladder which depends from a rail and is sustained by a pulley, of gearing connected to the shaft of said pulley, and an endless rope or chain connected directly to and susceptible of being operated by a person on the ladder, substantially as described.

3. The combination of a rail which is mounted on a building, a ladder sustained thereby by a single wheel, and means, substantially as described, for moving the ladder applied directly to the same, as specified.

4. The combination of a ladder, as described, with a swivel-connection, the eyes $i\,i$, arranged as described, and an endless rope or chain applied directly to the ladder, for the purpose specified.

5. The combination of a suspended traveling and swinging ladder with an anti-friction roller applied at or near its lower end and arranged to bear against a building, substantially as described.

6. The combination of a horizontally-movable and swinging or pendulum ladder suspended from a single wheel, and a roller-bearing near the lower end of the ladder, substantially as described.

7. A ladder having one or more tubular uprights, a suspension traveler therefor, an intermediate swivel between the top of the ladder and said traveler, and the means for moving the ladder, substantially as described.

Witness my hand.

FREDERICK SHICKLE.

Witnesses:
C. D. MOODY,
CORA E. HUNT.