(No Model.) 4 Sheets—Sheet 1.

W. A. EVERS.

FIRE ESCAPE.

No. 323,924. Patented Aug. 11, 1885.

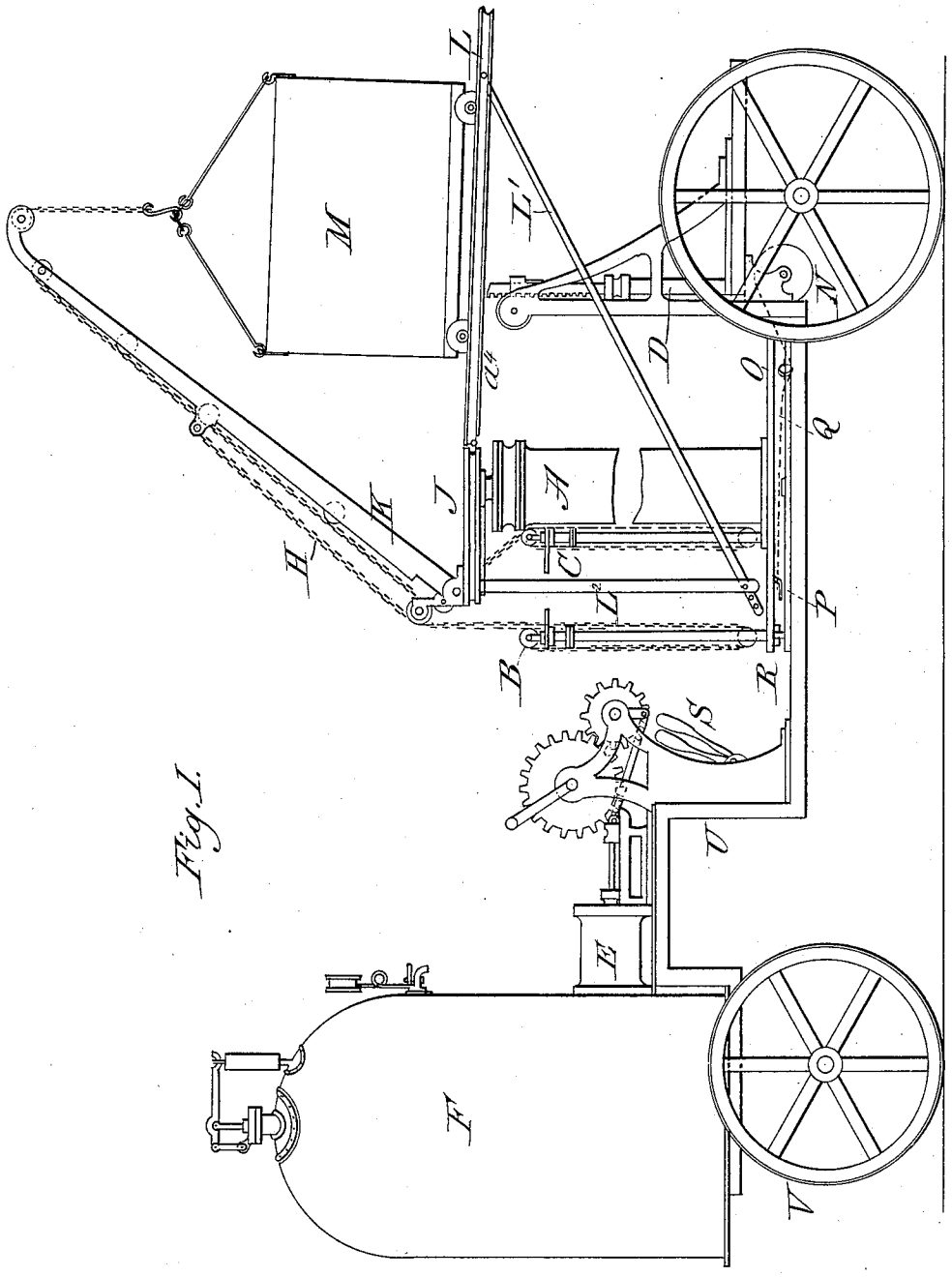


Fig. 1.

Attest.
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Fred E. Tasker

Inventor:
Wilhelm A. Evers,
by J. E. Tasker Atty

N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.)

4 Sheets—Sheet 2.

W. A. EVERS.

FIRE ESCAPE.

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Fig. 6

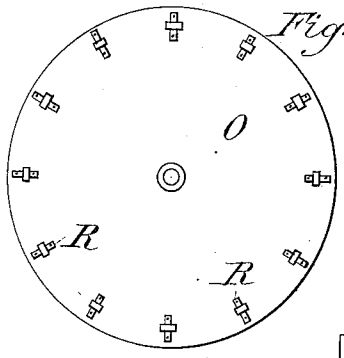


Fig. 7.



Fig. 8.

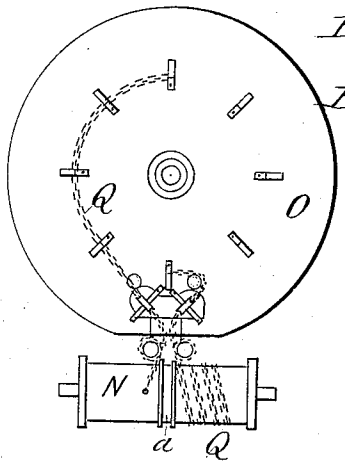


Fig. 9.

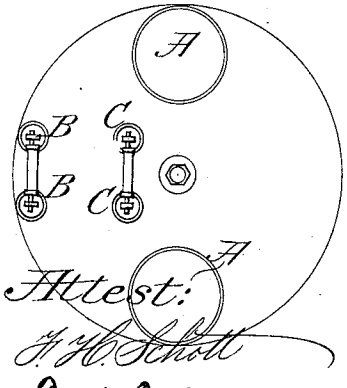


Fig. 2.

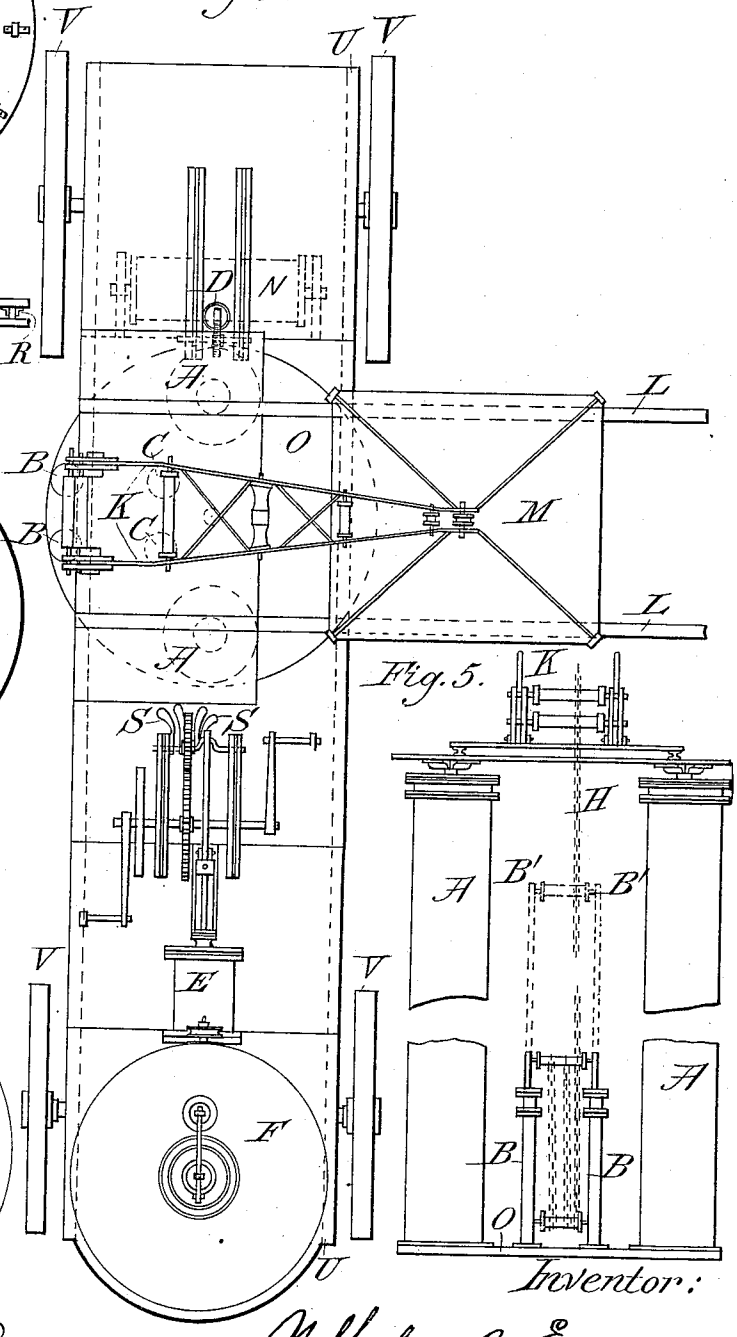


Fig. 5.

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(No Model.)

4 Sheets—Sheet 3.

W. A. EVERS.

FIRE ESCAPE.

No. 323,924. Patented Aug. 11, 1885.

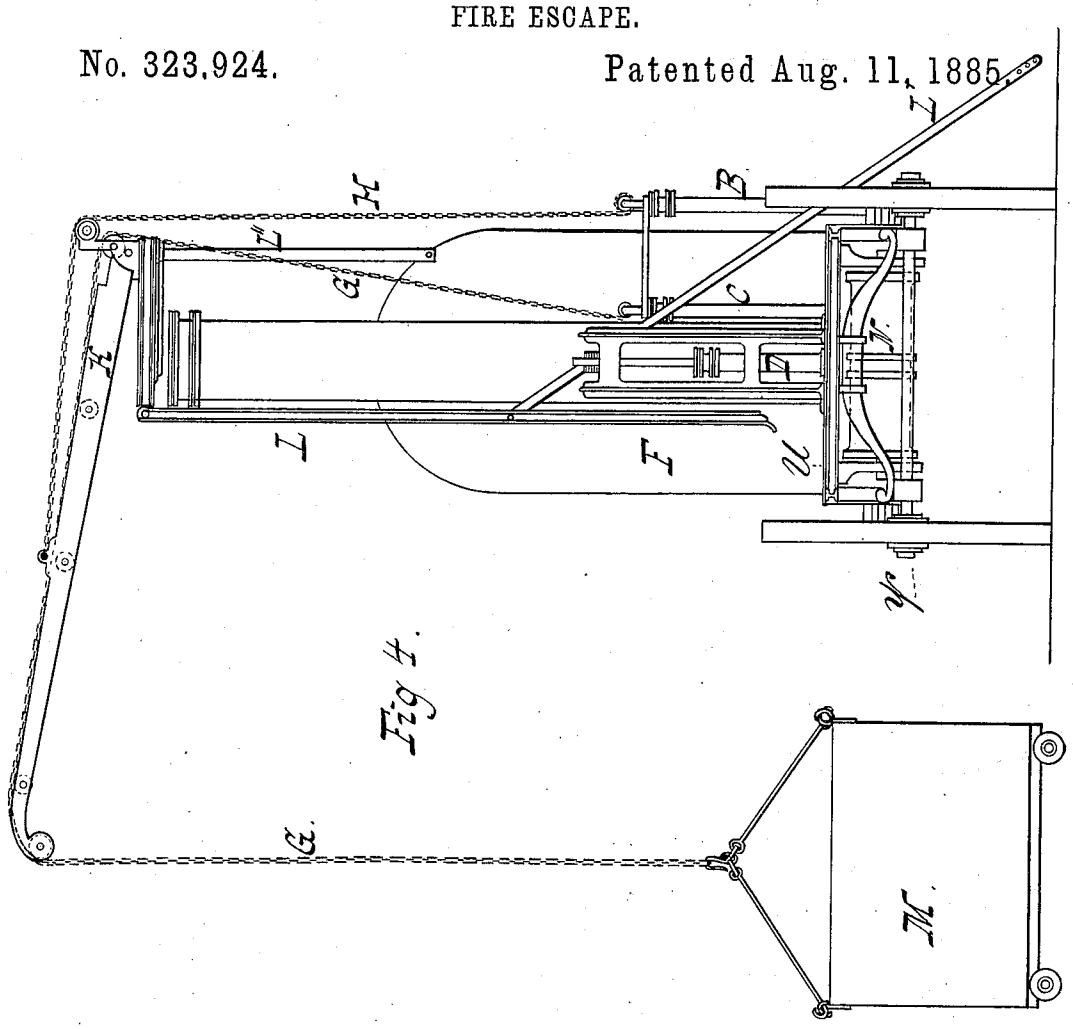


Fig 4.

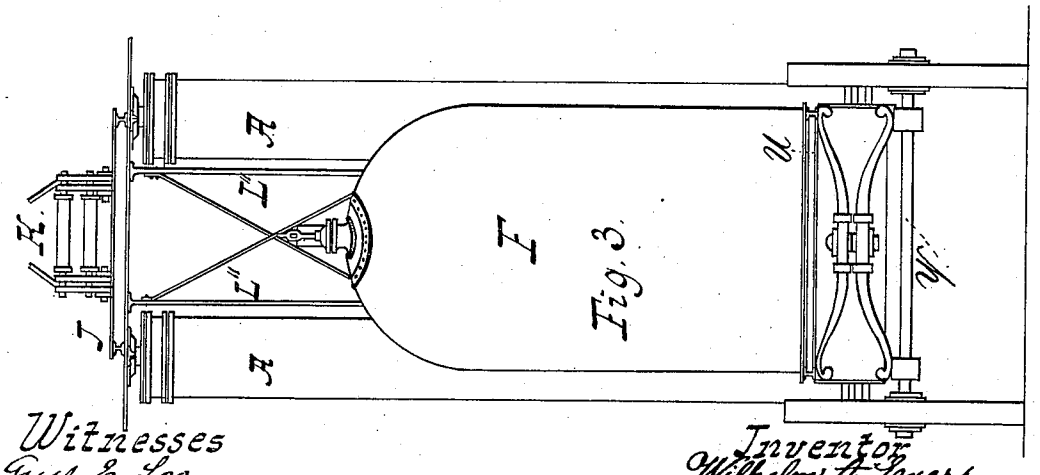


Fig. 3.

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(No Model.) 4 Sheets—Sheet 4.

W. A. EVERS.

FIRE ESCAPE.

No. 323,924. Patented Aug. 11, 1885.

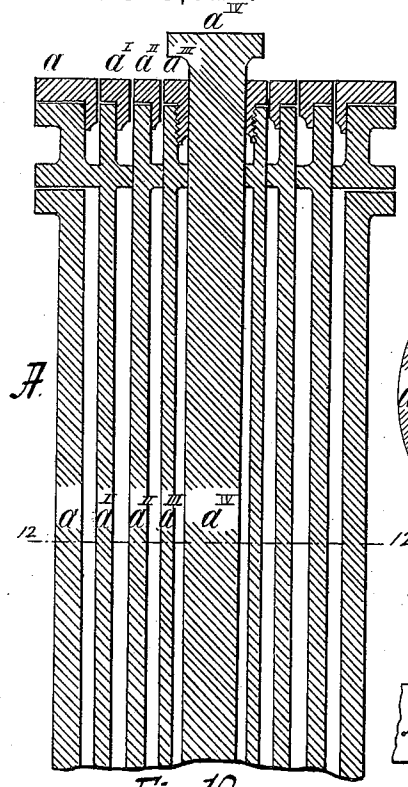


Fig 10.

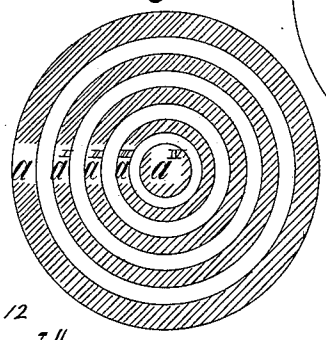


Fig 12.

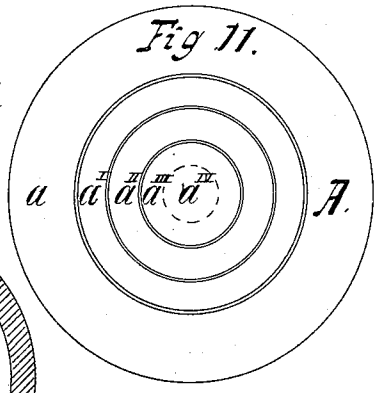


Fig 11.

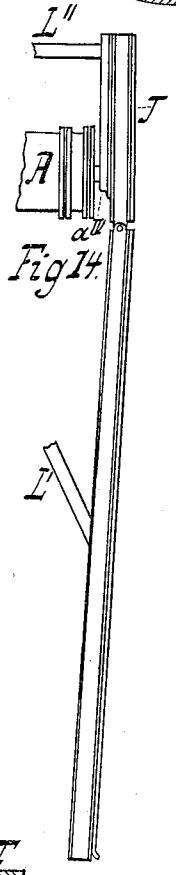


Fig 14.

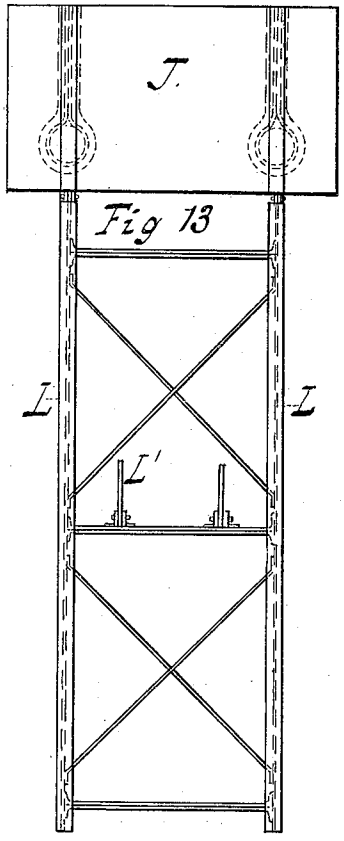


Fig 13

Witnesses:
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Klaus Adler

Inventor.
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UNITED STATES PATENT OFFICE.

WILHELM A. EVERS, OF EDGEWOOD, GEORGIA.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 323,924, dated August 11, 1885.

Application filed May 13, 1885. (No model.)

To all whom it may concern:

Be it known that I, WILHELM A. EVERS, a citizen of the United States, residing at Edgewood, in the county of De Kalb and State of Georgia, have invented certain new and useful Improvements in Fire-Escapes; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to an improvement in fire-escapes; and it consists of the mechanism of an escape, the construction and arrangement of whose parts will be hereinafter fully and specifically described; and the object of my invention is to facilitate the safe removal of persons and valuables from any height, to enable firemen to reach the top of burning buildings in safety, and to carry thither with them the necessary hose, and to attain the many kindred objects for which fire-escapes are usually constructed; and by the provision of a transportation-car for carrying my machine I am enabled to place it in working position near a burning house as readily and quickly as the various other machines of the fire-department service.

In the annexed drawings, illustrating my invention, Figure 1 is a side elevation of the machine mounted on its carriage. Fig. 2 is a plan view of the same. Fig. 3 is a front elevation. Fig. 4 is a rear view of the machine, showing the car lowered. Figs. 5, 6, 7, 8, and 9 are details of the construction. Fig. 10 is a vertical section of the cylinders A A. Fig. 11 is a top view of the same cylinders, and Fig. 12 a horizontal section on the line 12 12 of Fig. 10. Figs. 13 and 14 are plan and side elevations, respectively, of the track.

Like letters of reference designate like parts throughout the several views.

U represents the frame of a wagon or carriage, V, upon which are placed the various parts of my fire-escape. This frame U is covered with a sheet-iron floor, upon which is secured by suitable means—as screws and rivets—a heavy circular iron plate, P, which serves as a foundation for a similar plate, the turn-table O. (See Figs. 1 and 6.) Through the centers of plate P and turn-table O passes a spindle or bolt, which connects the two plates, and upon which the turn-table revolves. The under side of the plate O is provided near its outer periphery with a circular series of rollers, which bear upon the lower plate, P, and facilitate the revolution of the turn-table.

The turn-table O carries two or more vertical air-cylinders, A A, constructed with an interior telescopic arrangement of concentric cylinders, to be presently described. These cylinders A A are secured to the turn-table O by bolts passing through a flange at their lower extremity. Figs. 10, 11, and 12 represent the construction of these cylinders A A. The outer wall of A—*i. e.*, the cylinder A^a—stands firm and unchanged in its situation at all times. The height of this cylinder may now be multiplied as many times as it is desired by means of the interior concentric and telescopic cylinders, whose lower and upper extremities are provided with flanges so arranged that the lower flange of one will engage with the upper flange of the cylinder within which it is contained whenever the steam or air within the former shall have driven it upward its entire length. All these cylinders are packed perfectly air-tight at their upper extremities by packing-boxes, and at their lower extremities by expansive steel rings. The lower part of the cylinder A has a channel, T, which admits the air or steam to the cylinders, this channel being connected by suitable means with a tank or reservoir, F. Thus, when steam or compressed air is admitted, A^a will stand firm. The whole interior of A will rise until the flanges of $A^{a'}$ strike the upper part of A^a and arrest the upward movement of $A^{a'}$. Then cylinder A^{aII} will continue upward until it in turn is stopped by its flange striking the upper flange of A^{aI}, and so on with the entire series of cylinders. It is thus obvious that the ultimate height which may be attained will be in just proportion to the number of cylinders.

The middle cylinder or piston, A^{aIV}, carries an iron platform, J, as shown in Fig. 13. To the edge of this platform are pivoted the rails L L for the car M. This trackway is upheld in a horizontal position by the braces L′ L″, and the rails L are slightly inclined toward

their outer extremities, so that the car may roll outward easily under the action of gravity. The perpendicular brace L″ is stationary, while the brace L′ may be removed and allow the track to drop from a horizontal to a vertical position and hang upon its pivots whenever it is desired to remove support from the car M and allow the same to descend to the ground from its elevated position. Upon the platform J is also fastened the foot of the crane K and the rollers for the chains G and H.

Upon the turn-table O are also placed air-cylinders B B and C C, as will be seen in the plan of Fig. 9. These cylinders are rendered extensible by interior pistons in a manner similar to that above described in speaking of cylinders A A. Between cylinders B B, as also between cylinders C C, are placed rollers, around which are wound the chains G and H of the crane and draw-beam, with which I manipulate the movements of the car M. Thus by reference to Fig. 5 it will be seen how the extension of the cylinders B B will raise a roller into the position B′ B′ and regulate the movements of the chain accordingly.

On the rear end of the wagon, behind the turn-table and between the rear wheels, another air-cylinder, D, is fastened to the floor of the wagon-frame. The extensible portion of this cylinder is formed as a rack, and fitted to engage a gear-wheel, around whose axle is wound a chain, which passes thence to the roller N, Figs. 1 and 8. This roller is connected with the turn-table O by means of the chains Q Q′, and by the action of said chains the turn-table will revolve when the proper motion is imparted through the series of chains and rollers just described. This is shown in Fig. 8.

Compressed air or steam is admitted to all these cylinders in order to regulate the upward or downward movements of the pistons within, and the whole function and use of the cylinders B B, C C, and D is to control the movements of the chains G and H, by which the car M is moved about, and also the movements of Q and Q′, which serve to revolve the turn-table.

Situated on the wagon-floor, preferably near the front wheels, is an air-pump, E, or steam-engine. Near the engine or pump, and connected thereto, is a reservoir, F, which is provided with gage and safety-valve, in usual manner. A number of valve-handles are situated at S, and are used to control the exit of the compressed air or steam into those conduits or tubes by which it is conveyed to the extensible cylinders A A, B B, C C, and D.

The manner in which my machine is put into effective operation is as follows: The machine being in the position shown in Fig. 1, with all its parts relatively arranged as is there shown, the first thing to be done is to operate the air-compressor until a sufficient amount of air has been stored up within the tank F to a sufficiently high tension to accomplish the result in view. This can easily be done while the machine is on its way from the station to the place where it is to be used. After it is placed in proper position lengthwise of the building, the operator lays hold of the valve-handles S, and air or steam is introduced through the channel T to the cylinders A A, and through various conduits to the different air-cylinders B B and C C, above described. The admission of air to cylinders A A will drive the telescopic interior upward, carrying with it the derrick and other mechanism mounted on platform J upon the central piston, A^{xIV}. When the operation begins, B B and C C will stand in position shown by dotted lines in Fig. 5, or B′ B′. Now, by the action of one of the valve-handles at S, air will be admitted to the top part of the cylinder, so as to drive the pistons of B B and C C downward and cause a lengthening of the chain which is coiled around the rollers between the cylinders. Of course this lengthening can be proportioned as desired by admitting more or less compressed air, and thus driving the piston down a greater or less distance. After the required elevation of the platform J and all that it carries has been reached the turn-table O is revolved about ninety degrees, more or less, to the right or left, so as to bring the track L L, which has hitherto been lengthwise of the wagon, to a position at right angles thereto, as is evident in Fig. 2. The revolution of the turn-table O is effected in the following manner: By pressing one of the valve-handles at S air is admitted to the cylinder D through a passage-way. (Not shown.) The piston is driven upward, and the rack thereon revolves its gear, whose axle serves in turn, by means of a tight connecting-chain passing around a groove, *a*, in the middle of the roller N, to revolve the roller N. This roller N is connected with the turn-table O in the manner shown in Fig. 8. Then as roller N is set in motion the chain Q will wind around N and revolve the turn-table about its pivot. The chain Q′ will at the same time unwind from N; hence by alternately introducing air above or below the piston of D the turn-table is moved to the right or left, as desired.

As soon as the trackway has been directed toward the point whither it is wished to send the car, air may be admitted to force the pistons of C C downward still farther. This will relax the tension of chain G and allow the car to roll under the action of gravity to the extreme end of the track. It can then be loaded with anything desired. The car is now drawn back to nearly over A, and by the admission of air or steam to D the turn-table O will be revolved one hundred and eighty degrees. This will bring the car and its occupants entirely out of reach of smoke and flames which might be escaping from the burning building. Then, by the provision of suitable valves, (not shown,) the compressed air within the cylinders A A may be allowed to gradually escape and to permit the interior arrangements to gradually descend. Next

disengage the brace L′ from the perpendicular, L″, and allow the railway to fall into a vertical position, and leave the car M freely suspended in the air by the chain G. The chain G will be lengthened by the movement of the pistons of C C, and the crane K may be let down by the chain H by lowering the pistons of B B, as shown in Fig. 4, until the car M has reached the ground. The crane K may then be lifted again to the position shown in Fig. 1, the car also hoisted up, and the track replaced beneath it and braced into position by the brace L′ and L″, all of which movements are to be carried out by the various movements of the different cylinders whose actions control the chains.

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

1. A fire-escape consisting of a turn-table, O, which carries large extensible cylinders A A, and the smaller extensible cylinders B B and C C, the platform J, crane K, and car M, substantially as shown and described.

2. In a fire-escape, the extensible air-cylinder D, provided with rack and gear, the axle of the gear being connected by chain or band with a roller, N, which connects with turn-table O by the chains Q Q′, all arranged and operating to revolve said turn-table, substantially as described.

3. In a locomotive fire-escape, the combination of the carriage-frame U, air or steam pump E, reservoir F, and air-cylinders A A, B B, C C, and D, arranged to be operative by the air or steam generated in the engine E, substantially as shown, and for the purpose described.

4. In a fire-escape mechanism, a cylinder, A, whose interior is a telescopic arrangement of concentric cylinders or pistons, flanged at either end, and extensible under the force exerted by the admission of compressed air or steam, substantially as shown and described.

5. In a fire-escape, the combination of a car, M, and its pivotal railway L L, said car being operated by means of chains G and H, whose lengthening or contraction is governed by the lowering or raising of roller-carrying cylinders actuated by compressed air or steam, substantially as shown and described.

6. In a fire-escape, the combination of a turn-table, extensible cylinders, as A A, mounted thereon and carrying a platform, a railway-track pivoted to said platform, a car adapted to run on said track, and connected by chains to rollers carried by extensible cylinders, as B B and C C, and means for supplying steam or compressed air to actuate the cylinders A, B, and C, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WILHELM A. EVERS.

Witnesses:
GUST. E. LEO,
KLAUS VEDELER.