

(No Model.)

2 Sheets—Sheet 1.

H. J. SCHULDT.
FIRE ESCAPE.

No. 511,218.

Patented Dec. 19, 1893.

Fig. 1.

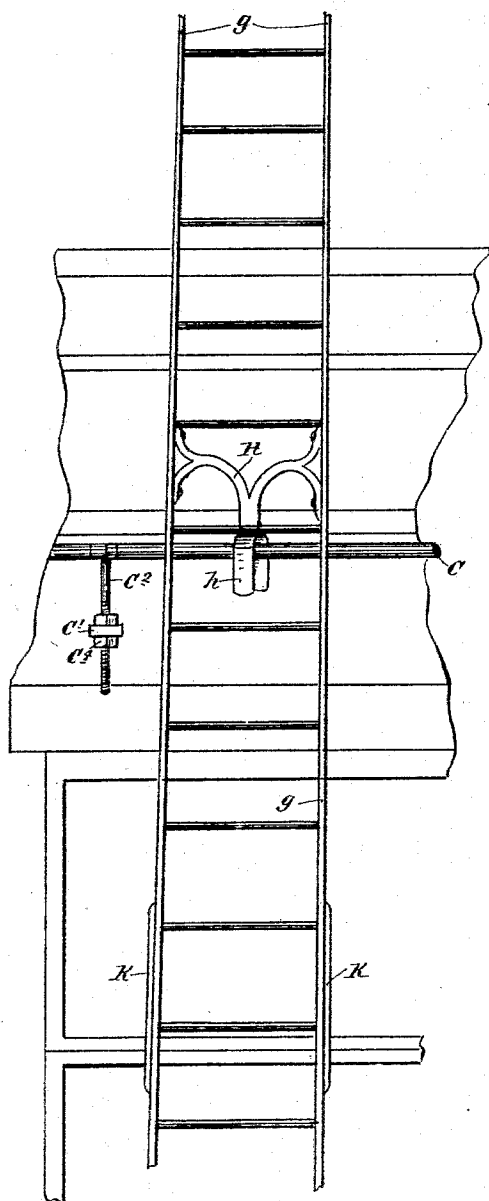
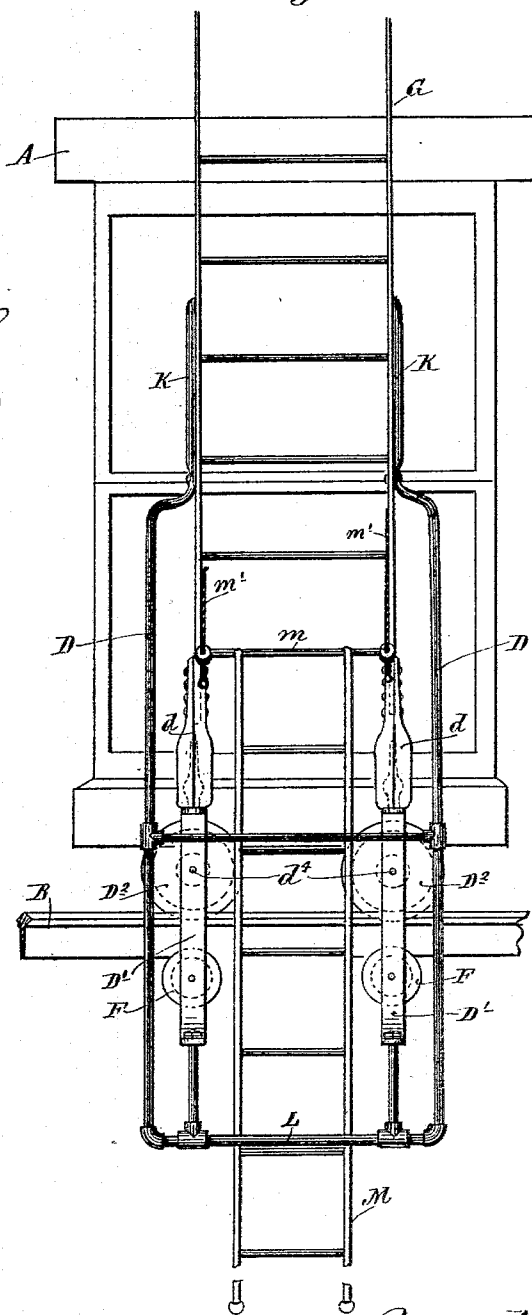


Fig. 2.



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Fig. 3.

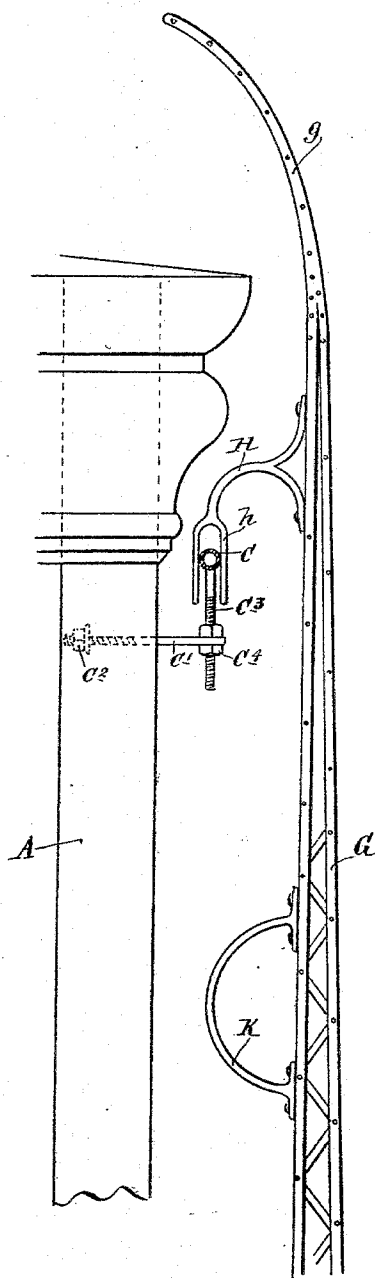
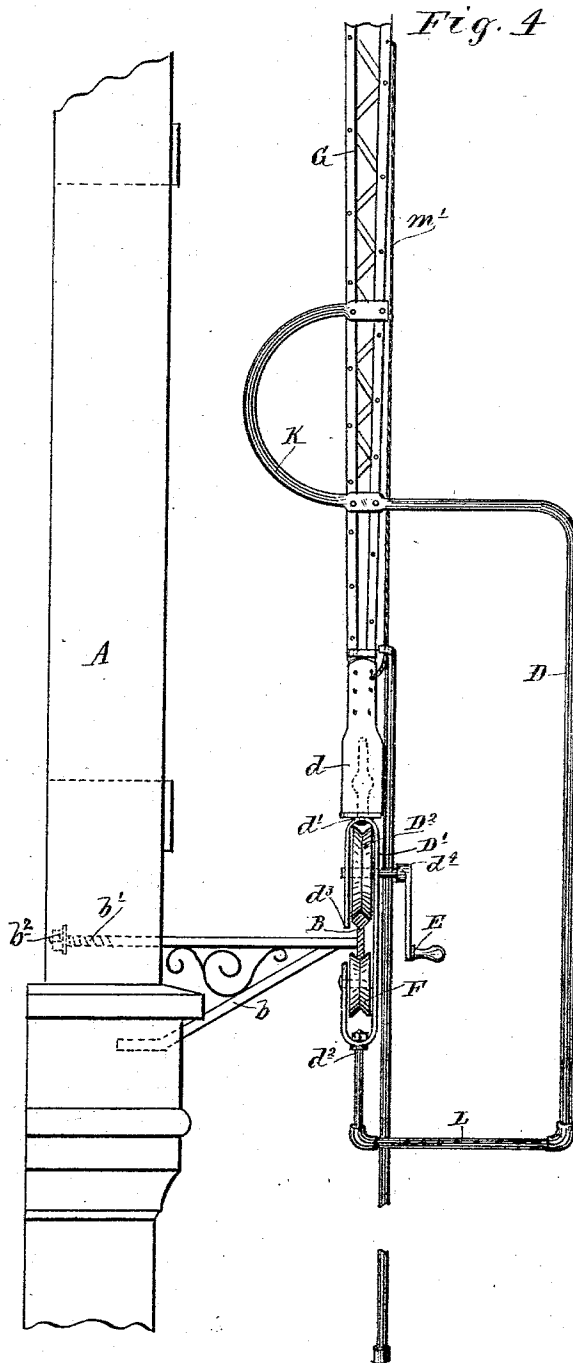


Fig. 4



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UNITED STATES PATENT OFFICE.

HENRY J. SCHULDT, OF ST. PAUL, MINNESOTA.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 511,218, dated December 19, 1893.

Application filed March 18, 1893. Serial No. 466,629. (No model.)

To all whom it may concern:

Be it known that I, HENRY J. SCHULDT, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Fire-Escapes; and I do hereby 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.

My invention relates to fire-escapes.

As is well-known, fire-escapes in the form of permanent ladders, while having many advantages, are open to serious objections, on account of their limited use, in virtue of being confined to fixed positions, and on account of unsightly appearance and obstruction to the view.

Various forms of movable fire-escapes have been constructed, but none, so far as I am aware, of sufficient practicability to supplant the ordinary permanent ladder.

My invention has for its object, to provide a fire-escape which when positioned for use will have all the advantages peculiar to the permanent ladder; to wit: safety, ease of access, strength and stability of structure; and which shall, at the same time, be movable lengthwise of the building, rendering the same capable of a larger range of use, and enabling the same to be left standing normally at one side of the tier of windows and doors, where it will not obstruct the view from the interior of the building. Owing to the range of its use, comparatively few need be used on a building; and hence the objection as to unsightliness is greatly reduced. To give the ladder its portability, it is mounted on and carried by a truck, which truck is movable on a supporting and guiding rail or rails, supported from and extending horizontally alongside of the walls of the building to which the fire-escape is applied. In virtue of this construction, the ladder may be moved laterally along the side wall of the building, and hence when not in use may be moved to any desired point in its line of movement, and out of the way; while, in case of fire, or other cause for use, the ladder may be moved to and from the windows and doors as may be necessary for purposes in hand.

The preferred form of my invention is illustrated in the accompanying drawings, wherein like letters refer to like parts throughout the several views.

Figures 1 and 2 are views in front elevation, showing respectively, the upper and the lower portions of a fire-escape, constructed in accordance with my invention, as applied to a building, some parts being broken away. Figs. 3 and 4 are views in left side elevation, showing respectively, the parts shown in Figs. 1 and 2.

A represents a portion of a building.

B is the truck rail supported and held in a horizontal position, extending parallel with the side wall of the building, at a height about the top of the first story, by means of a series of angular endwise adjustable brackets $b\ b'$ secured to and projecting outward from the said wall. The bracket prong b' is in the form of a screw threaded bolt and the inner end of which is engaged by a nut b^2 to secure the same in position in any desired adjustment. As shown, this rail B is, in cross section, diamond shaped, at its upper edge, and is reduced to a comparatively thin blade at its lower edge.

C is a keeper or stay-rod extending parallel to the rail B and supported at a point near the top of the building by a series of vertically and endwise adjustable brackets $c' c^2$. As shown, the horizontal members c' of the brackets are adjustable endwise, by means of a nut c^3 engaging screw-threaded ends of the same, on the inner side of the wall; and the vertical members c^2 have their lower ends screw threaded, working through perforations in the outer ends of the members c' and adjustably secured by a pair of double nuts c^4 .

D D' D² is the ladder-truck, of which D is the rigid skeleton like frame-work. D' is a pair of swiveled yoke-like brackets mounted on the frame-work D, and D² is a pair of grooved traction wheels mounted one in each of said swiveled brackets and working on the upper angular edge of the truck-rail B.

The brackets D' are swiveled in the frame-work D, by means of the pintle and socket engagement $d\ d'$ at their upper extremities, and the pivot pin and pin-seat engagement d^2 at their lower extremities. As shown, (see

Fig. 2,) the swivel-sockets d are made in two parts; which are secured together and to the rigid part of the truck, by means of rivets or bolts; but the manner of swiveling the brackets D' to the frame D , may be readily varied, as is obvious. The purpose of swiveling these brackets D' will appear later on.

It should be here noted, that the inner portions of the yoke-like brackets D' are cut away, as shown at d^3 , so as to clear the wall brackets $b b'$, in the movement of the truck.

Preferably, one or both of the hubs or shafts d^4 of the traction-wheels D^2 project outward and are provided with angular or squared shanks, to either of which a hand-crank E may be applied to drive the truck.

F is a pair of retaining wheels mounted in the swiveled truck brackets D' , one in vertical line with each of the traction wheels D^2 , having grooved peripheries embracing the lower edge of the truck-rail B , and adapted to prevent an endwise rocking motion of the truck and the displacement of the traction wheels.

As is evident, simple retaining stops in the form of pins or lugs might be substituted for the retaining wheels F , but I prefer to use the wheels F as any possibility of binding is thereby removed.

G is the ladder, carried by and rising from the truck-frame D , shown as extending above the roof of the building and terminating in an inwardly curved extremity g , in position for easy access from the roof.

H is a keeper bracket rigidly secured to the ladder G below its curved upper extremity g , projecting inward and downward, and terminating in a downturned fork h , embracing the stay-rod C , in such a manner as to clear the vertical members c^2 of the wall supports $c' c^2$, in the lateral movement of the ladder. The ladder G is thus supported in substantially a vertical position, nearly poised, from tilting movement, and is retained and prevented from tilting motion to and from the building, or transversely of the supporting and guiding rails, by means of the above described engagement of the forked keeper H h , with the keeper-rod C , while a tilting motion parallel to the wall, or longitudinally of the said rails, is prevented by the retaining wheels F , engaging the under side of the truck-rail B , as already fully described.

The ladder G is provided with inwardly projecting hand-pieces K , located in pairs, one at each side of the ladder frame, positioned at such vertical points as to be within easy reach from the windows or doors of the different stories of the building passed by the ladder.

The bottom of the truck-frame D is in the form of a platform L , upon which a person may stand within easy reach of the hand crank E for manipulating the ladder. As already indicated, this platform L is at an elevation about even with the top of the first story.

M is a drop or extension ladder, as shown, somewhat narrower than the main-ladder G . This drop ladder M has a cross-bar m at its upper extremity provided with eyelets at its opposite extended ends, through which eyelets passes a pair of vertically disposed guide-wires m' , secured at their upper and lower ends to the ladder. These guide wires m' , while shown and described as of wire, might readily be made in the form of iron rods, but should in either case be of sufficient length to guide the upper end of the ladder M , while permitting the lower end of the same to be dropped to the ground, for use, and while permitting the same to be raised sufficiently to rest the bottom of the said ladder M upon the platform L , when out of use.

In the drawings, in Figs. 2 and 4, the drop-ladder M is shown in its dropped or lowermost position.

As is obvious, with the construction above set forth, the truck rail B and the keeper-rail C may be extended on two or more sides of the building, or if so desired, they may be run completely around the building. In this case, the rails at the corners of the building would be turned on an arc of a circle. As is obvious, in virtue of the construction of the ladder truck, whereby the traction wheels and the retaining wheels are carried in the swiveled brackets, the said wheels would readily adapt themselves to, and run over, the curved corner sections of the track.

The hand crank E , is in the operation of the device, preferably applied to the hub d^4 of the particular traction wheel D^2 which is in advance, with reference to the direction in which the ladder is to be moved; so that the particular traction wheel which is made to drive the truck, will act with a drawing, rather than a pushing action.

The ladder as illustrated, is adapted to be traversed on the side next to the wall. This is thought to be an advantage, as the wall extending close to the back of the person passing up or down the ladder, will serve to give assurance of safety to the person so passing.

As is evident, one fire-escape constructed and applied to a building, as above set forth, will serve the purpose of several stationary fire-escapes, in virtue of the fact, that it may be readily moved to the proper position for use. As above stated, this movement of the ladder and truck may be effected by the person standing on the platform L , and riding with the truck.

It will be readily understood that the above described adjustments of the rails B and C , are for the purpose of properly aligning or setting the same in putting up the fire-escape in its working position.

As is obvious, various alterations in the detail construction of my fire-escape might be made, without departing from the spirit of my invention. It should be also noted, that the uppermost of the separated ends of the swiveled brackets D' , formed by cuttingsaid

bracket away at d^3 , overlap or project below the top edge of the rail B in such a manner as to prevent the displacement of the truck or the ladder, in case of the breakage of one of the truck-wheels.

All parts of the ladder are made of metal.

To further illustrate the usages of fire escapes, constructed as above set forth, suppose that a person must be rescued from the fifth story window of a building, and that the fire is emerging from the third story window immediately below the person to be rescued. As is evident, the ladder may be readily moved into position to receive the person from the fifth story window, and then moved laterally, with the person on the same, out of the flame from the lower window to a position of safety, thus allowing the person to descend.

It should be further noted, that in virtue of the fact that the entire weight of the ladder and truck is sustained by the lower or supporting rail, the upper rail or stay-rod need not be adjusted with any great accuracy, with reference to said supporting rail.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. A portable fire-escape, comprising the lower supporting track or rail, and the upper keeper or stay-rod, supported from and extending horizontally and parallel with the side-wall, a traction ladder-truck supported by and movable on said lower rail, a ladder rising from said truck, and guided by said keeper or stay-rod, whereby the entire weight of the ladder and truck is sustained by the lower or supporting rail, substantially as described.

2. A portable fire-escape, comprising the lower supporting track or rail, and the upper keeper or stay-rod, supported from and extending horizontally and parallel with the side-wall, a traction ladder-truck supported by and movable on said lower rail, a ladder rising from said truck having a keeper bracket,

at its upper part, straddling the upper or keeper-rail, a platform or standing rest at the base of said ladder and a propelling device applied to one or more of the traction wheels of said ladder-truck, and operative from said platform, substantially as and for the purpose set forth.

3. In a portable fire-escape, the combination with the lower or truck-supporting rail and the upper keeper or stay-rail, both supported from the side wall, of the ladder-truck having the pair of swiveled wheel-carrying brackets or yokes and the flanged traction wheels and the retaining wheels, mounted in said swiveled yokes and engaging, respectively, the upper and under edges of said truck-rail, the ladder rising from said truck, having a forked keeper bracket at its upper portion straddling the upper or stay rod, and means for propelling the truck, substantially as described.

4. In a portable fire-escape, the combination with the lower-truck supporting rail, and the upper keeper rail both supported from the side wall, of the ladder truck having the pair of swiveled wheel carrying brackets or yokes, and the flanged traction wheels and retaining wheels mounted in said swiveled yokes, the ladder rising from said truck having the pronged keeper bracket straddling the stay or keeper-rail, the platform carried by the truck, and the hand-crank, applicable to the shafts of said traction wheel or wheels, and operative from the said platform, substantially as and for the purpose set forth.

5. The ladder G provided with the inwardly projecting handles K, substantially as described.

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

HENRY J. SCHULDT.

Witnesses:

FRANK D. MERCHANT,
CHAS. BOCK, Jr.