2 Sheets—Sheet 1.

J. H. NEVINS.

FIRE-ESCAPE.

No. 178,457. Patented June 6, 1876.

FIG. 1.

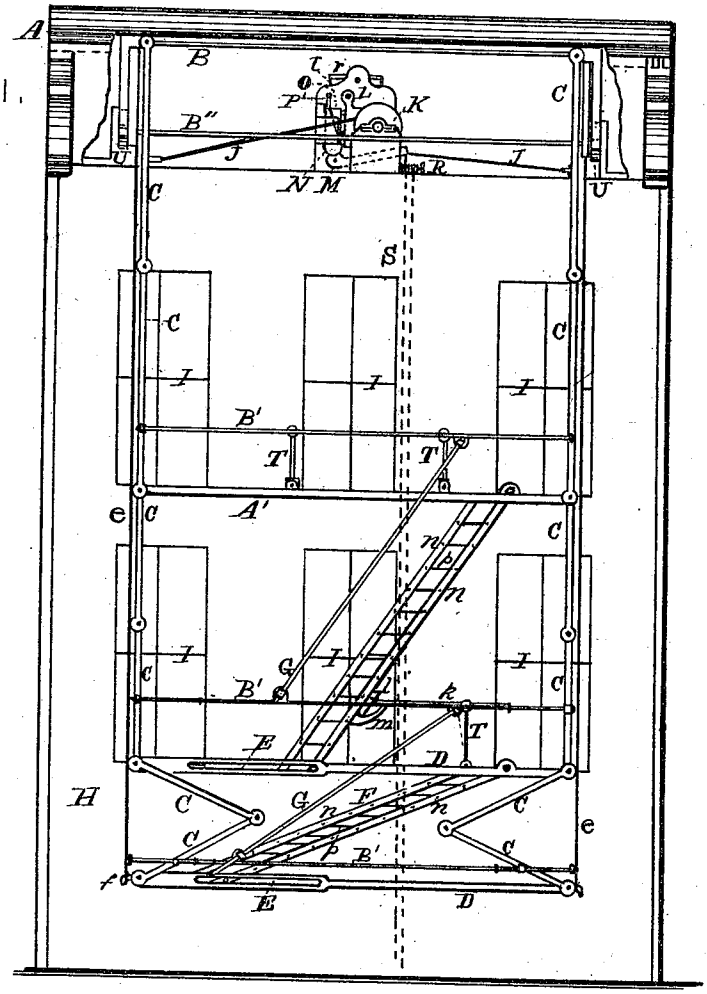
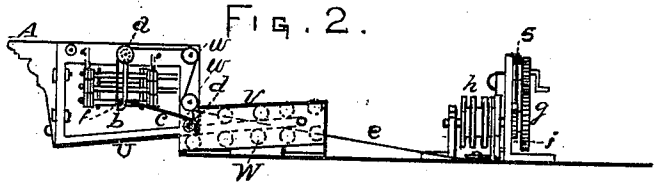


FIG. 2.



ATTEST

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2 Sheets—Sheet 2.

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FIRE-ESCAPE.

No. 178,457. Patented June 6, 1876.

FIG. 3.

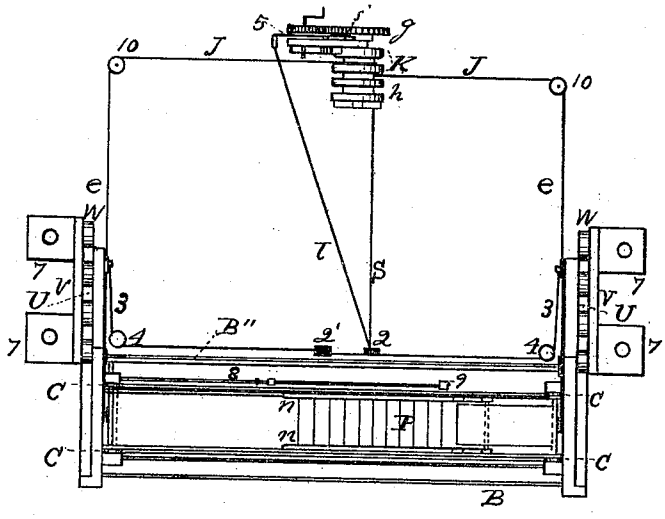
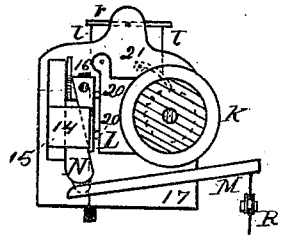


FIG. 4.

FIG. 5.



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UNITED STATES PATENT OFFICE.

JOHN H. NEVINS, OF GREEN BAY, ASSIGNOR OF THREE-EIGHTHS OF HIS RIGHT TO JAMES W. NEWKIRK, OF FORT HOWARD, AND THREE-EIGHTHS TO GEORGE B. COATES, OF OSHKOSH, WISCONSIN.

IMPROVEMENT IN FIRE-ESCAPES.

Specification forming part of Letters Patent No. **178,457**, dated June 6, 1876; application filed April 1, 1876.

To all whom it may concern:

Be it known that I, JOHN H. NEVINS, of Green Bay, Brown county, and State of Wisconsin, have invented a new and useful Improvement in Fire-Escapes, of which the following is a specification:

The nature of my invention consists, first, in the novel means for elevating and suspending the staircases; second, in the novel construction of parts for carrying the folded staircases back into the cornice or onto the top of a roof; third, in the novel construction of a brake for controlling the movement of the staircases and platforms; fourth, in the novel construction of latches for locking the staircases fast after they have been elevated.

V, Sheet 1, represents an inclined carriage, which is to be made of iron, and, on buildings having cornices, is to have a section of cornice attached to it, as shown at A, the building being shown at H. The two ends of this carriage extend back between anti-friction rollers W, Fig. 2, Sheet 1, which are pivoted to a suitable frame, V, secured to the roof or top of a building. The object of this arrangement is for the purpose of running the carriage back onto a building after the escape has been elevated and folded in the carriage. The means to attain this end consist of a drum, *h*, gear-wheels *g i*, and an ordinary crank. A rope, *e*, runs over drum *h*, pulleys *w w a*, and fastens to the lower slotted rail E D of the escape. *b* represents a catch, which is pivoted to the shaft of pulley *a*, and extends down to the lower slotted rail D E of the escape when folded, as it is in the carriage V, Fig. 2, Sheet 1, its lower end being hooked under to support the escape as folded. A bar, *c*, is pivoted to the catch *b*, and its opposite end is provided with a hook catching over the pin *d*, fastened to the carriage V. The end so catching over the hook is to be held to the pin *d* by a short spring. The object of this arrangement is to keep the folded escape up above the roof in its movement over the roof, in case the rope *e* is slackened.

C C, &c., represent depending hangers, jointed together at such distance apart as to fold inward without coming in contact with each other. The upper hanger is to hang to a pivot-rod, B, fastened to the carriage V, a rod, B″, connecting the upper hangers C, as support-rods B′ connect the middle parts of the central hangers C by universal joints, so that when the hangers are folded the rods B′ will lie flat on stairs. Diagonal rods G are connected to the rods B by collars, so as to slide when the stairs are folding, the ends of the rods having knobs on them to bind the parts when the stairs are suspended. Short bracing-struts are pivoted to the rails A′ D, and to bars B′, to better support the parts so connected, and, being pivoted, fold with the other parts. The stairs are composed of double stiles *n*, to which are pivoted, by double pivots, steps P. The top ends of the stairs are pivoted to rails A′ and D, and their lower ends slide in slots in folding so as to lie flat, the pins on which the lower ends of the stairs slide holding the latter firm.

In Figure 1, Sheet 1, is shown an elevation of the escape suspended on the face of a building, the lower section thereof being partly folded. Fig. 2 is an end elevation of the escape folded in the cornice. Fig. 3, Sheet 2, is a plan view of the escape as it appears on the roof of a building; Fig. 4, a detached elevation of one of the stops used to incline the suspending-rods inward when folding; Fig. 5, an elevation of the brake.

The inclined frames V, supporting the rollers W, are secured to the roof by means of lugs 7 7 7 7.

The means for elevating and drawing the escape back onto the roof consists of ropes *e* J running over horizontal pulley 10, Fig. 3, of a drum, *h*, gear *g i*. 5 is a pawl operating on a ratchet on the shaft of wheel *i* to lock the escape in the position required after it is folded. The drum *h*, gear *g i*, and ropes *e* J are used to lower or suspend the escape, and, to prevent accident, a brake is constructed as follows: In Figs. 5 and 1, (Fig. 5 being enlarged,) K is a friction-wheel on the same shaft of the drum *h* against which bears a shoe, L, pivoted to a substantial frame. The

means for bringing this shoe with force against the wheel K consists of a wedge, N, forced in between a wedge-shaped piece, O, and a resisting-block, 15, the parts N O being held in place against a frame-piece, 16, by a cap-plate, 14, placed over them, as shown in Fig. 5, Sheet 2. A stop, 16, is placed above the part O to keep it from rising up. Between the shoe L and the part O are placed rubber or spiral springs 20, that a yielding force may be brought against the friction-wheel K. A rope, S, is used to operate the brake-lever M, and it passes through the roof at 2, and either extends down on the inside or outside of a building, as desired. The rope *t* for operating the pawl 5 passes through the same hole 2, and comes down side of rope S. Ropes 3 3 are attached to carriage V, Fig. 3, pass over rollers 4 4, and through hole 2′, for the purpose of pulling the folded escape over the edge of the roof, if by its weight it should not so move when it is to be suspended. The means for insuring the inward movement of the suspending-rods C consist of stops 12, Fig. 4, placed on the platform to be placed on the rails (or attached) A′ D, preventing the rods from moving in any other direction in folding.

It is well here to state that, as shown at Fig. 3, there are suspending-rods and rails on both sides of the stairs, and that they are held the proper distance apart by suitable rounds.

If desirable, an ordinary ratchet and pawl, 21, Fig. 5, a lever, *r*, and cords *t t*, for operating them, to hold the brake locked to the drum K, may be employed.

I do not claim anything on the construction of the double-stiled stairs, as substantially the same construction has been used before.

I claim and desire to secure by Letters Patent—

1. The combination of the sectional suspending-rods C with rails A′ D, rods B B′ B″, braces G, and struts T, with stairs *n m k*, as and for the purpose set forth.

2. The stairs, constructed as set forth, combined with slotted rails D A′, and suspending-rods C, as set forth.

3. In a folding fire-escape, the supporting-rods G G B B′ with the rails A′ D, and suspending-rods C, as described.

4. The catch *b*, rod *c*, in combination with the rollers *d w w* and rope *e*, for drawing the folded escape onto a roof, as described and shown.

5. In a fire-escape, the brake, consisting of the drum K, shoe L, springs 20, wedges O N, and lever M, with a suitable pawl and ratchet, as and for the purpose set forth.

JOHN H. NEVINS.

Witnesses:

CHAS. W. MONROE,

E. CROCKER.