2 Sheets—Sheet 1.

A. KINDERMANN.

FIRE-ESCAPE.

No. 183,502. Patented Oct. 24, 1876.

Fig. 1.

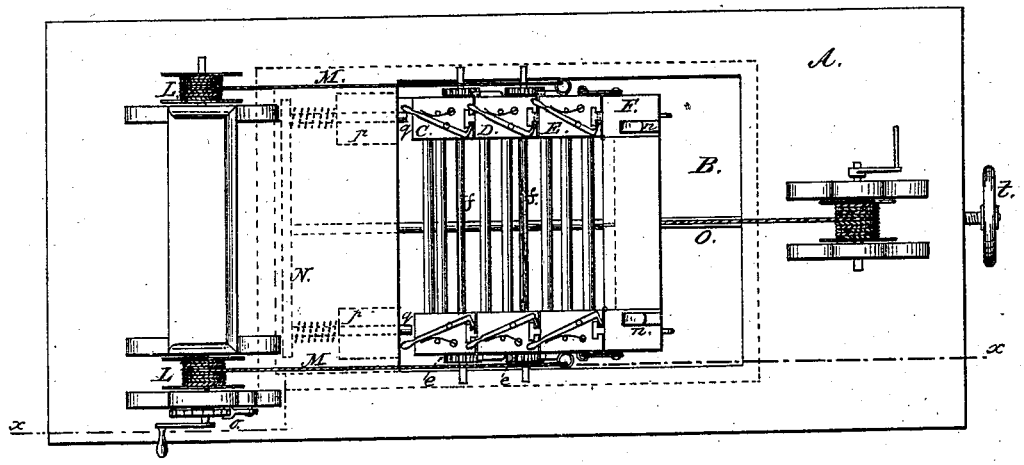


Fig. 2.

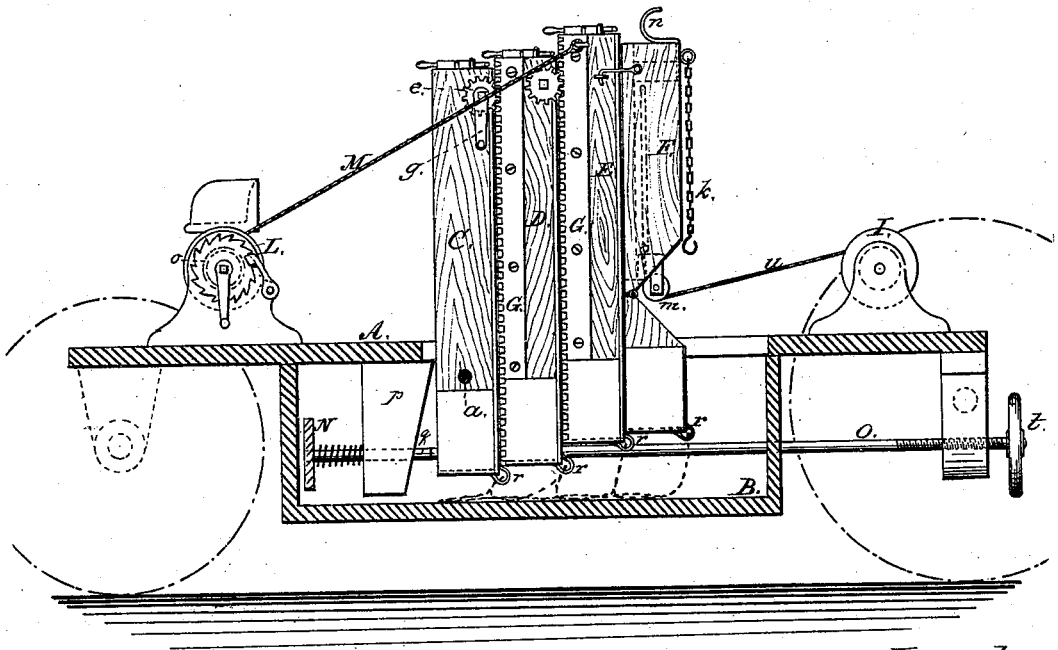
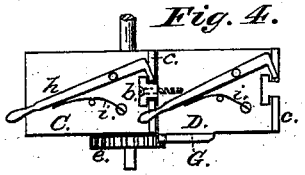


Fig. 4.



Witnesses:

Chas. S. Taylor

Inventor:

August Kindermann

2 Sheets—Sheet 2.

A. KINDERMANN.

FIRE-ESCAPE.

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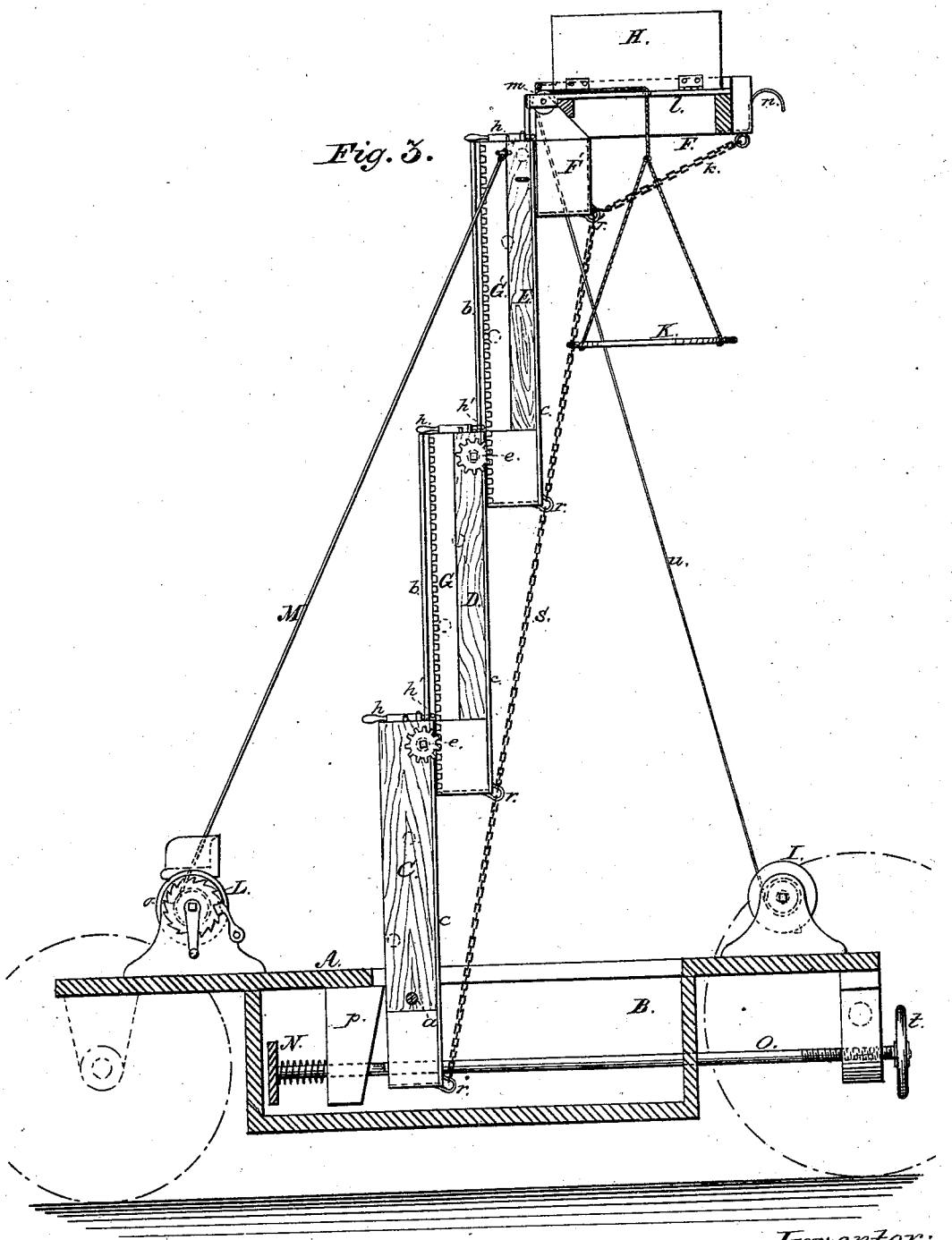
Fig. 3.



Witnesses:

G. S. Taylor

Inventor:

August Kindermann.

UNITED STATES PATENT OFFICE.

AUGUST KINDERMANN, OF CLEVELAND, OHIO.

IMPROVEMENT IN FIRE-ESCAPES.

Specification forming part of Letters Patent No. **183,502**, dated October 24, 1876; application filed September 16, 1876.

To all whom it may concern:

Be it known that I, AUGUST KINDERMANN, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Fire-Escapes; and I do hereby declare that the following is a full, clear, and exact description thereof, which 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 letters of reference marked thereon, which form a part of this specification.

The object of my invention is to provide a fire-escape that is reliable and safe, simple in its construction, not liable to get out of order, that can be easily manipulated and transported from place to place, and can be arranged and carried to its intended destination in a compact manner.

The invention consists of an extension-ladder of uniform width its entire length, that is operated by racks and pinions, windlasses, &c., and it is arranged in a box or receptacle, so as to make it steadier by bringing it closer to the ground. It also consists of a series of spring-pawls or pivoted spring-levers, with hooked ends, which engage with holes in T-shaped guide bars or rails, and are arranged on the upper ends of the sections to hold them securely in position. It also consists in securing to the lower ends of the extension-pieces suitable metal caps or sheathing provided with hooks or eyes, to which chains are attached from one length to the other, and which form braces to assist in the support of the extension pieces or sections. The platform is furthermore provided with suitable hooks, to secure it to the windows or roofs of the buildings. The extension-pieces are also provided with T-shaped rails or bars, which fit and slide in the adjoining extension piece or section. It also consists in an adjustable sliding bar with springs, by which the inclination of the extension pieces or sections can be regulated to suit different localities, all of which will be more fully described in the specification.

In the accompanying, drawing, Figure 1 is a plan view of my fire-escape. Fig. 2 is a vertical cross-section on line *x x* of Fig. 1, ready for transportation. Fig. 3 is a vertical cross-section, showing the extension-ladders extended or raised, ready for use. Fig. 4 is an enlarged detail view of the end of the extension-ladders, showing the spring-pawls, &c.

In the drawing, A is a platform, having a receptacle or box, B, arranged as low as possible, and mounted on the usual running-gear used for such apparatus, the front wheels arranged to block the apparatus when in use. To this box the first or lower section or ladder C is secured by a shaft or bar, *a*, and has its rear side faced with a metal piece, *c*, and is provided with a groove for the reception of a T-rail, *b*, which is secured to the next or second section D, and slides freely in said groove. This section D, as also the third one, which also has a T-rail, *b*, fitting into a corresponding groove, are provided on their outer sides with a rack or toothed plate, G G′, into which the pinions *e e* on the cross-shafts *f f* mesh. These shafts are squared on their outer projecting ends to receive a crank-handle, *g*, by which they are operated. On the upper ends of each of the sections are arranged the pivoted levers or pawl *h*, having hooked ends, which fit into holes or apertures *h′* in the T-rails *b*, and are forced into them by springs *i* bearing against the levers, so that the sections are firmly locked in position when the holes h^1 come opposite the hooked ends of the spring-levers. The lower ends of the sections are incased in metal caps or sheathings, secured firmly to them, and each is provided with stout hooks or eyes *r* for the reception of the ends of a chain or chains, S, (best seen in Fig. 3,) which form braces for the sections, especially if in an elevated position, and the lengths are exactly the same lengths as the sections when the spring-levers are in position. The uppermost section, after having been placed in the horizontal position, is also secured at its outer end by a chain, *k*. This upper section F is divided, and about one-fourth of it provided with a T-rail to hold it to section E, in which it slides. The outer end of section F is hinged to the short section F′, and the adjoining ends are mitered, so that when the outer section is in a horizontal position it rests on the mitered or beveled end of F′. The section F is also provided with a trap-door, H, (shown open in Fig. 3,) which is

supported by recesses in the frame of the section, and by a central metal bar, *l*, which terminates in an eye or bend for the reception of a small sheave or pulley, *m*, over which a rope, *u*, passes, extending at one end to the windlass I, and, passing through the center of the bar *l*, is attached to a life car or basket, K, of any suitable construction, which may be carried in the recess formed by the frame-work of the section F. This section is also provided with hooks *n* to attach it to the windows or roof of a building. At the forward end of the platform A is arranged a windlass, L, on each side of the driver's seat, upon which guy-ropes M, which are secured to the upper section E, may be wound, and they are held in place by a ratchet and pawl, *o*. Under the platform, and close to the lower part of the section C, are secured two pieces, *p p*, for the reception of the bars *q q*, connected to a cross-plate, N, to which is secured a central screw bar or shaft, O, extending through the box B to the rear end of the platform, and it is operated by a hand-wheel, *t*. As the shaft is operated, it adjusts, by the bars *q q*, which protrude more or less through the pieces *p*, the lower ends of the sections C, and thus incline them to a greater or less degree. The prongs or rounds of the sections are arranged in inclined manner, for easily ascending the sections, even when they are in a vertical position.

The operation is as follows: The apparatus having been placed in position, the crank-handle is then applied to the pinion *e* on the lower section C, and when the second section D has arrived at its proper height, the spring lever or pawl *h* catches into the hole in the T-rail *b*, the upper section F having been previously raised by hand and placed in its horizontal position, resting on the lower part F′ thereof with its beveled end. The crank-handle is then applied to the second pinion *e*, and when section E has arrived at its destination the next spring-lever engages with it and locks it. The guy-ropes are then adjusted and secured to their proper tautness, and the whole apparatus is adjusted to its proper inclination by the shaft O, and if desired, the trap-door opened and the life-basket brought into its position.

Having thus described my invention, I claim—

1. A fire-escape, having sections C D E, provided with hooked spring-levers on their upper ends to engage and lock with apertures *h′* in the T-rails of the sections in succession, as shown and described.

2. The sections C D E, having rack-plates G, into which the pinions *e e* mesh, and spring-hooked levers *h*, the T-rails, and eyes or hooks *r r*, for the attachment of chains *s*, all substantially as shown and specified.

3. The combination of the sections C D E, and the upper hinged section F, provided with a trap-door, H, bar *l*, hooks *n*, with the life car or basket K, and windlass I, substantially as shown and specified.

4. The combination of the sections C, D, E, and F of a fire-escape, with chains S and *k*, as shown and described.

5. The combination of the sections C D E, with the adjusting device herein described, consisting of a shaft, O, hand-wheel *t*, cross-plate N, spring-bars *q q*, and pieces *p p*, substantially as shown and specified.

In testimony that I claim the foregoing as my own I hereby affix my signature in presence of two witnesses.

AUGUST KINDERMANN.

Witnesses:

W. R. BROWN,

A. S. TAYLOR.