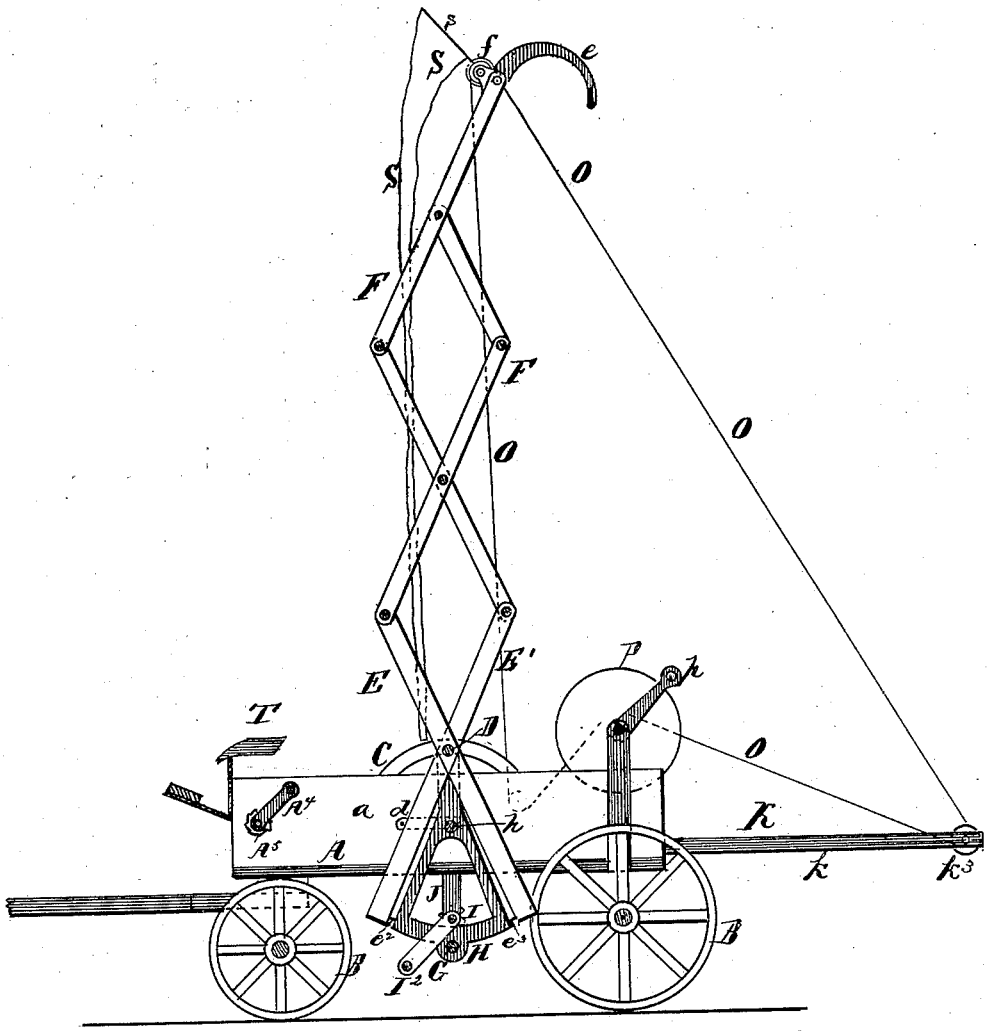
3 Sheets—Sheet 1

D. L. DIECKMANN.

Fire-Escape.

No. 205,949. Patented July 16, 1878.

Fig. 1.



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Fire-Escape.

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Fig. II.

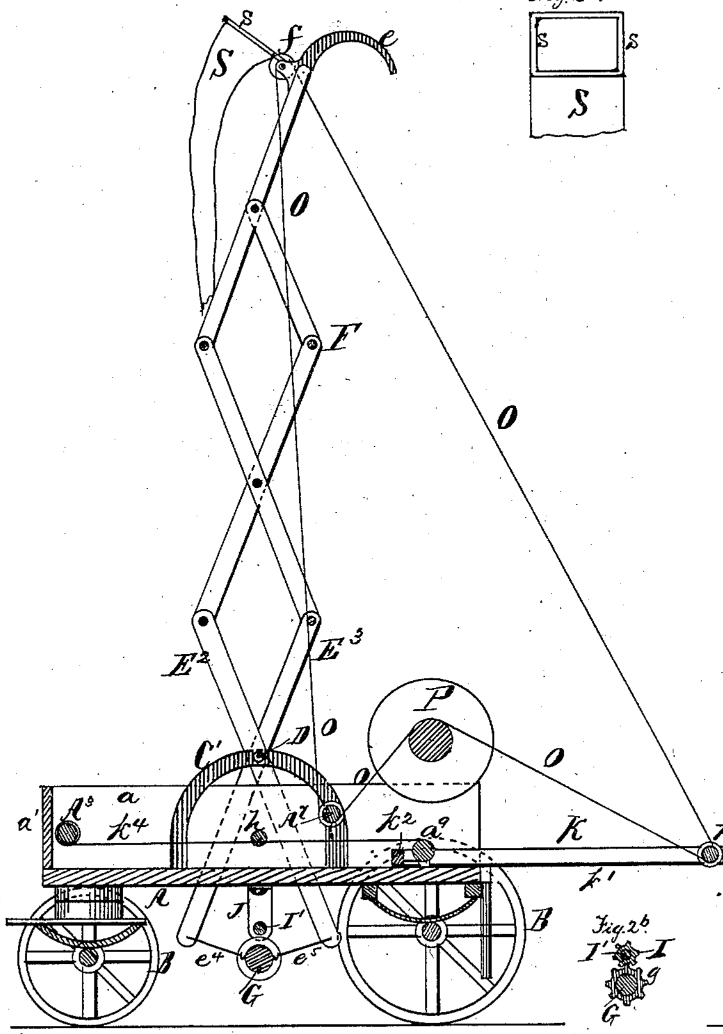
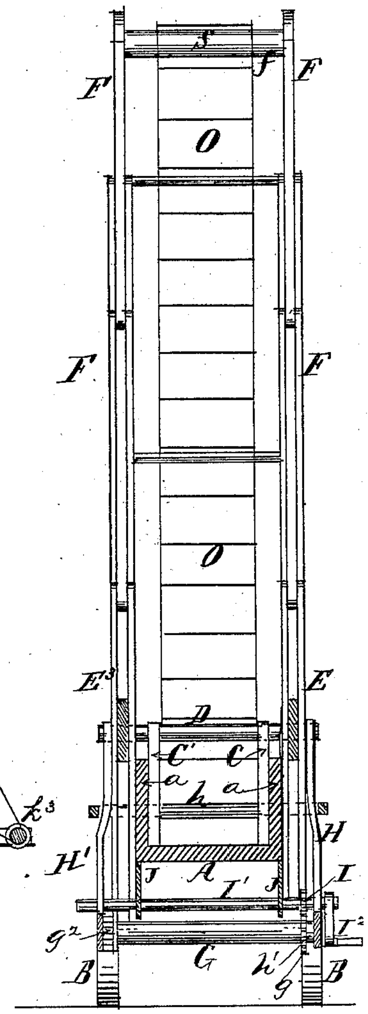


Fig. 2a.

Fig. 2b.

Fig. III.



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3 Sheets—Sheet 3

D. L. DIECKMANN.

Fire-Escape.

No. 205,949. Patented July 16, 1878.

Fig. IV.

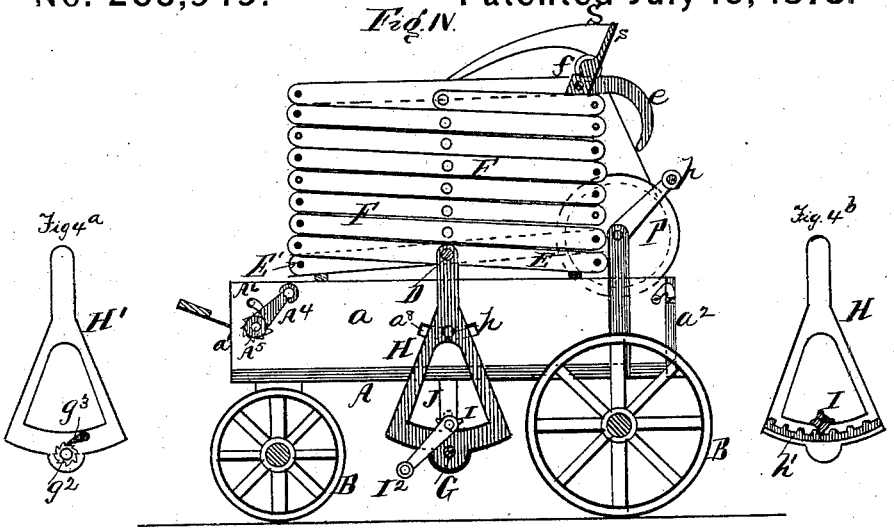


Fig. V

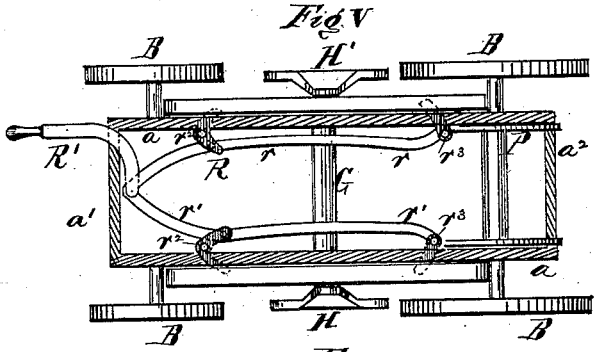
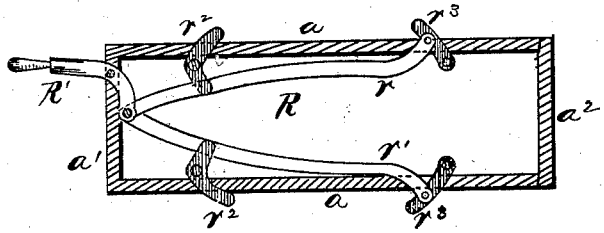


Fig. VI.



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UNITED STATES PATENT OFFICE.

DIEDRICH L. DIECKMANN, OF NEW YORK, N. Y.

IMPROVEMENT IN FIRE-ESCAPES.

Specification forming part of Letters Patent No. **205,949**, dated July 16, 1878; application filed December 11, 1877.

To all whom it may concern:

Be it known that I, DIEDRICH L. DIECKMANN, of New York city, county, and State of New York, have invented a new and useful Improvement in Fire-Ladders; and I do hereby declare that the following is a clear and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification.

The object of my invention is to produce a fire-ladder that can be easily extended to any story of a building in case of a fire; also, in attaching to said ladder a simple and easily-operated contrivance by aid of which persons can descend with safety; also, in another contrivance by aid of which packages and bundles can be lowered.

The ladder, with all its attachments, is placed on a truck, by aid of which it can be moved from place to place.

Referring to the drawings, Figure 1 is a side elevation of a truck and ladder, showing the frame extended. Fig. 2 is a sectional elevation of the same. Fig. 3 is a transverse sectional view. Fig. 4 is a side view, showing the frame when closed. Fig. 5 is a plan view of the same. Fig. 6 is a sectional view.

A is a truck, supported on four wheels, B B, and provided with side boards *a* and a fixed front board, a^1, and a hinged back board, a^2. C C^1 are two segmental supports, fastened to the inside of the side boards *a*. D is an axle, having its bearings in the upper part of the supports C C^1. To the outer ends of the axle D is pivoted or hinged at their centers the arms E E^1 E^2 E^3 of the extensible frame F, which consists of a number of similar arms, pivoted together and braced as shown, the number of which being governed to reach the height of any building against which the ladder is likely to be used. To the upper arm of frame F is fastened the bent arms or hooks *e*, which serve to fasten and hold the frame at any point against the building. To the under side of the truck is placed a shaft, G, supported and journaled to the two brackets H H′, which are fastened at their upper ends to the axle D, and also held together at or near their centers by the rod *h*, which passes through the side boards *a* in a slot, a^8. This axle D is held in a fixed position, as shown in Fig. 1, by aid of the staple *d*. To the inside of the bracket H is placed or fastened a toothed bar, h^1, (see Fig. 4^b,) which is engaged by the cog-pinion I on axle I^1, revolving in suitable bearings in the brackets J J placed underneath the truck, just over the shaft G. The axle I^1 is placed in such a manner upon the brackets J J as to be permitted to slide upon the same in a crosswise movement. This is done in order that the cog-wheel I can be shifted from the toothed bar to a cog-wheel, *g*, on the shaft G. (See Fig. 2^b.) To the other end of the shaft G is placed a ratchet-wheel, g^2, which is engaged by the pawl g^3. (See Fig. 4^a.) To the end of axle I^1 is keyed a crank, I^2. To the lower ends of arms E E^1 E^2 E^3 are fastened the ropes or chains e^2 e^3 e^4 e^5, which are, respectively, fastened to the shaft G.

It is evident that, as the ropes are wound around the shaft G and the said arms are being drawn together, the same will cause the frame F to be elevated, as shown in Fig. 1.

When it is required to incline the elevated frame either forward or backward, the axle I^1 is drawn or moved to one side, so that the cog-pinion I will disengage itself from the cog-wheel *g* and engage the toothed bar h^1. The crank I^2 being turned through the action of said pinion and bar, the brackets H H′ will be given a forward or backward movement upon the pivot-axle D, and, as the arms E E^1 E^2 E^3 are fastened to the shaft G by the ropes, the frame F will also be given the same movement.

K is a sliding frame, consisting of two side pieces, *k* k^1, and end pieces k^2 k^3. This frame is placed inside the truck-body, and is drawn out by aid of the rope k^4, one end of which is fastened to the end piece k^2, from whence it passes over the small pulley a^9 along the truck-body to the front of the same, where it is fastened to a winding-roller, A^3, which is provided with a crank, A^4, and ratchet-wheel A^5, which is engaged by the pawl a^6. The object of this frame K is to give the endless rope ladder O a proper inclination, as shown in Fig. 1, so as to enable persons to descend easily. This rope ladder passes over a roller, *f*, on the top of the extensible frame F, thence downward under another roller, a^7, in the truck-body. It passes over a winding-reel, P, fastened to the back

part of the truck in a suitable manner, said reel being provided and operated by a crank, *p*. The ladder then passes under another roller, which forms the end piece of the frame K.

When the frame F is extended upward and the frame K outward, the rope ladder will be drawn tightly between the rollers *f*, k^3, and a^7, which will give the ladder a sufficient tension to prevent it from moving when persons are ascending and descending.

I do not wish to be understood as confining myself to the above mode of holding the rope ladder from moving, as others can be used to the same advantage.

When the frame F is folded, as shown in Fig. 4, the rope ladder is wound around the reel P, and the said frame is held onto the truck by aid of the resting device R, which consists of the arms r r^1, levers r^2 r^3, and operating-lever R′. As the levers r^2 r^3 are thrown outward they will extend under the arms E E^1 E^2 E^3 of the extensible frame F, and thus serve as a firm and steady rest for said frame upon the truck.

To the top of the extensible frame F is fastened the flexible chute S, for removing packages, &c., from buildings. The front of this chute is held open by aid of a frame, *s*, which is fastened to the frame F. (See Fig. 2ª.) T is the driver's seat.

Having thus described my invention, I desire to claim—

1. The brackets H H′, with cog-bar h^1, as shown, in combination with the cog-wheel I on axle I^1 and the extensible frame F, substantially as and for the purpose set forth.

2. The endless rope ladder O, in combination with the extensible frame F and frame K, rollers *f* a^7 k^3, and reel P, substantially as and for the purpose set forth.

3. The resting device R, consisting of the arms r r^1, levers r^2 r^3 and R′, in combination with the arms E E^1 E^2 E^3 of the frame F and the truck A, substantially as and for the purpose set forth.

4. In a fire-escape, the combination and arrangement of the frames F K, brackets H H′, shafts G, axle I^1, cog-wheels I *g*, rope ladders O, chute S, and truck A, substantially as set forth.

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