

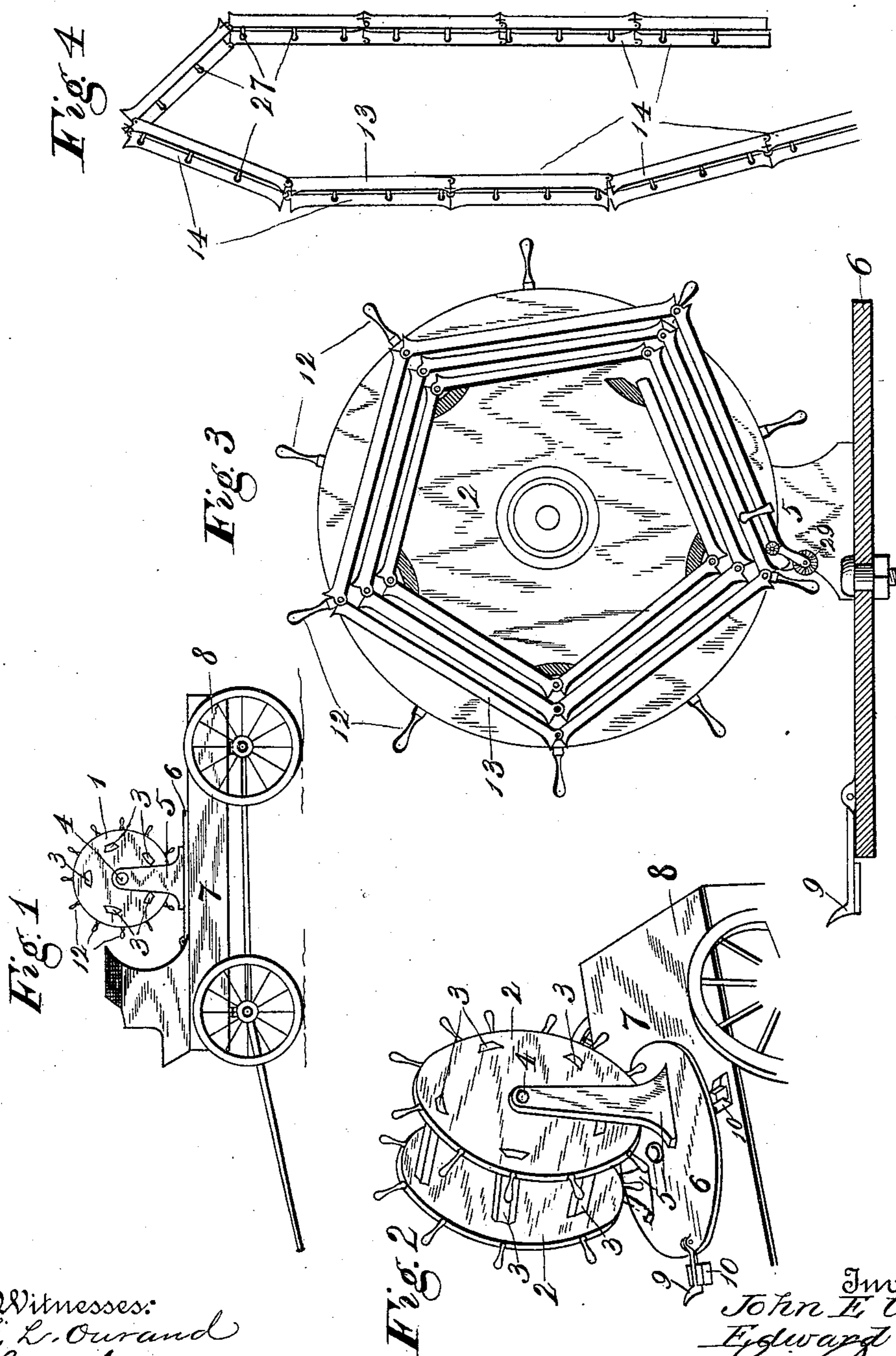
(No Model.)

2 Sheets—Sheet 1.

J. E. & E. UREN.
FIRE LADDER.

No. 585,064.

Patented June 22, 1897.



Witnesses:
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J. L. Corvins

Inventors:
John E. Uren and
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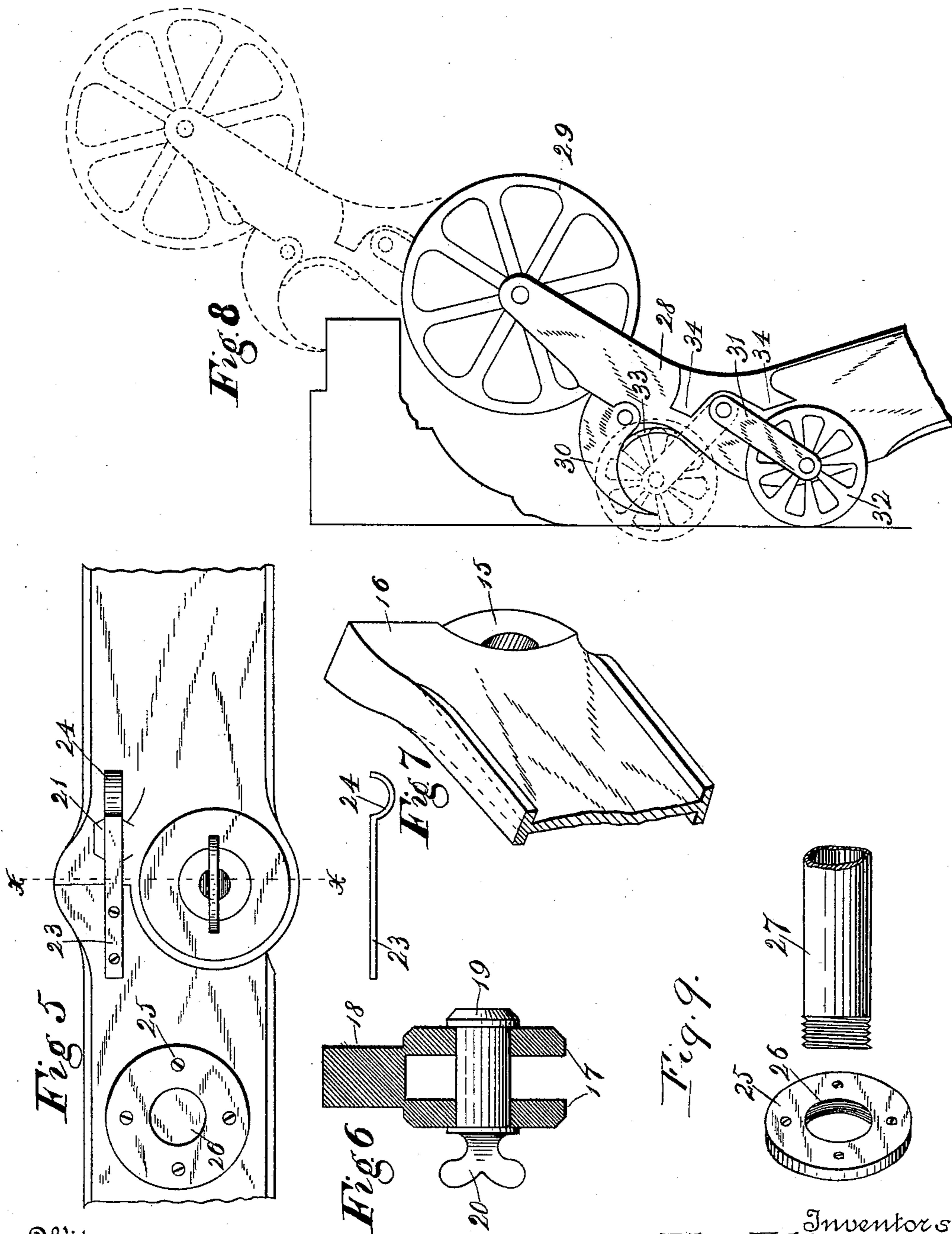
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H. L. Ouraud
J. L. Coombs

Inventors:
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UNITED STATES PATENT OFFICE.

JOHN EVERETT UREN AND EDWARD UREN, OF AUBURN, CALIFORNIA.

FIRE-LADDER.

SPECIFICATION forming part of Letters Patent No. 585,064, dated June 22, 1897.

Application filed October 12, 1896. Serial No. 608,621. (No model.)

To all whom it may concern:

Be it known that we, JOHN EVERETT UREN and EDWARD UREN, citizens of the United States, and residents of Auburn, in the county of Placer and State of California, have invented certain new and useful Improvements in Fire-Ladders; and we do hereby declare that the following is a full, clear, and exact description of the invention, 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, which form a part of this specification.

Our invention relates to extensible, sectional, and jointed fire-ladders adapted to be wound upon a reel when not in use, and which can be readily extended up against a building by rotating the reel and unreeling the same therefrom.

The object of the invention is to provide an improved construction of the same which shall possess superior advantages with respect to efficiency in operation.

The invention consists in the novel construction and combination of parts herein-after fully described and claimed.

In the accompanying drawings, Figure 1 is a side elevation showing a truck with our improvements applied thereto. Fig. 2 is a perspective view showing a portion of the truck and the reel thereon, the ladder being removed. Fig. 3 is a cross-sectional view of the reel, showing the ladder wound thereon. Fig. 4 is a view showing several sections of the ladder. Fig. 5 is a detail side elevation, on a greatly-enlarged scale, showing the knuckle-joint connection between the sections of the ladder. Fig. 6 is a cross-section on the line $x x$, Fig. 5. Fig. 7 is a detail perspective view of the end of one of the sections, showing the increase of thickness at the joint to strengthen the same. Fig. 8 is an elevation showing the devices at the upper end of the ladder to allow the same to pass a window-sill or other projection. Fig. 9 is a detail perspective view of one of the rungs of the ladder and its socket.

In the said drawings, the reference-numeral 1 designates a reel comprising the circular heads 2, connected together by five transverse bars 3. Said heads are provided with journals 4, which have their bearings in stand-

ards 5, secured to a rotatable base 6, journaled to the bed 7 of a truck 8. This base is provided with a pivoted dog 9, adapted to engage with a slotted lug 10, secured to the truck-bed, so as to hold the base in position. The peripheries of the heads of the reel are provided with handles 12 for rotating the same.

The numeral 13 designates an extensible ladder consisting of a number of sections 14, the inner one of which is secured to one of the cross-bars of the reel. These sections consist of angle-bars of aluminium, steel, or other metal and are convexed or thickened at each end to strengthen the same. One of these ends is formed with an apertured lug 15 and a shoulder 16, while the other end is formed with two curved and apertured lugs 17 and a similar shoulder 18. The lug 15 fits between the lugs 18 of an adjoining section, and they are connected together by a headed bolt 19, passing through the apertures, and a thumb-screw 20, engaging a threaded aperture or hole in the bolt. The said sections, near one end, are formed with a slotted lug 21 and at the other end with a spring-catch 23, so constructed that when the sections are extended to form a ladder the catch of one section will engage with the slot in the lug of an adjoining section and thus hold the sections in their extended position. The catches are formed at their free ends with loops or hooks 24, with which a suitable tool may engage for withdrawing them from the slots. When the sections are extended, the knuckles or lugs will abut against each other, as seen in Fig. 5. Secured to said sections at suitable points are sockets 25, provided with screw-threaded recesses 26, with which engage correspondingly-threaded rungs 27, which may consist either of metal tubes or solid hardwood rods or bars.

The two upper sections of the ladder are formed with extensions 28, turned outwardly at an angle of about forty-six degrees, and to the upper ends are journaled wheels 29, adapted to ride over a sill or other projection on a building. Below this wheel and on the upper sides of each extension is pivoted a hook 30, provided with a spring 33, adapted to engage with a sill or other projection and brace and hold the ladder in place. Pivoted to said

extensions, below the hooks, are swinging links 31, having journaled to their free ends small wheels 32, for the purpose of disengaging the hooks from the sill, as hereinafter described. Lugs 34 on said extensions limit the movement of said links.

The operation is as follows: The ladder is wound upon the reel mounted on the truck, the sections overlapping each other, as seen in Fig. 3. The reel in the present instance is shown as having five cross-bars, making it, as it were, five-sided, and therefore after five sections of the ladder are wound thereon the next succeeding five sections will have to be somewhat longer, as seen in said Fig. 3. When thus wound, the ladder is ready for use. To use the ladder, the outer section is placed against the wall of a building with the small wheels 32 resting against the same. By now turning the wheel the ladder will be pushed up the wall, the catches and lugs of the sections engaging with each other when two adjoining sections come in line, so as to hold them in alinement. As the ladder is being pushed up the wall any sills or projections in the way thereof will be struck by the larger wheels 29, which will ride over the same, throwing the ladder outward, so as to allow it to pass. The hooks 30 will engage with the sill or other projection and securely hold and brace the ladder in place, as seen in dotted lines at the top of Fig. 8.

To lower the ladder, it is raised a short distance, so that the small wheels 32 will clear the sill and the hook be disengaged therefrom. The said wheels will now pass over onto the sill. The ladder can now be lowered, the links 31 swinging upward under the hooks so that said wheels will bear against the wall of the building and throw the dog away therefrom.

It is obvious that the invention may be employed with advantage by builders, painters, and others, as well as for a fire-ladder.

Having thus fully described our invention, what we claim is—

1. The combination with a fire-escape ladder having angular extensions at the upper end thereof, of the wheels journaled to said extensions, the pivoted spring-actuated hooks, the swinging links, the small wheels journaled to said links, and the stop-shoulders, substantially as described.

2. In an extensible and folding ladder, the combination with the sections pivotally connected together by knuckle-joints, of the angular extension at the upper end of the upper section, the wheels journaled thereto, the pivoted spring-actuated hooks, the swinging links and the small wheels journaled to said links, and the stop-shoulders; substantially as described.

3. The combination with the folding and extensible ladder comprising the sections pivotally connected together by knuckle-joints, of the angular extension at the upper end of the upper section, the wheels journaled thereto, the pivoted spring-actuated hooks, the swinging links, the small wheels journaled to said links and the stop-shoulders, of the reel to which the lower ends of said ladder are connected, the rotatable base and the truck, substantially as described.

In testimony that we claim the foregoing as our own we have hereunto affixed our signatures in presence of two witnesses.

JOHN EVERETT UREN.
EDWARD UREN.

Witnesses:

JEHU DAVIS PARK,
HENRY LOBNER.