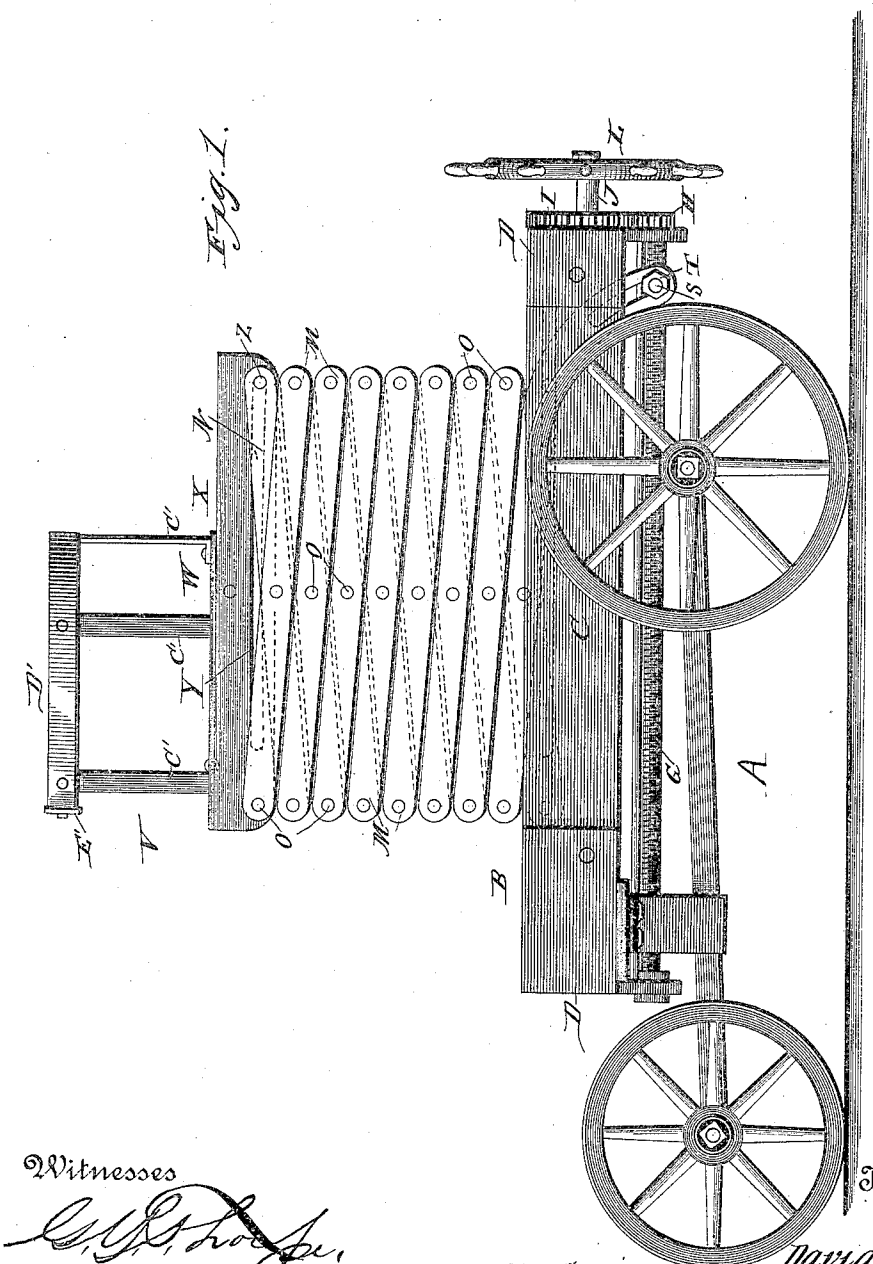
(No Model.) 3 Sheets—Sheet 1.

D. L. OSBORN.

AERIAL LADDER FOR FIREMEN AND OTHERS.

No. 446,560. Patented Feb. 17, 1891.



Witnesses

C. L. Thorpe Jr.

H. E. Price

Inventor

David L. Osborn.

By his Attorneys

Higdon & Higdon.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 3 Sheets—Sheet 2.

D. L. OSBORN.

AERIAL LADDER FOR FIREMEN AND OTHERS.

No. 446,560. Patented Feb. 17, 1891.

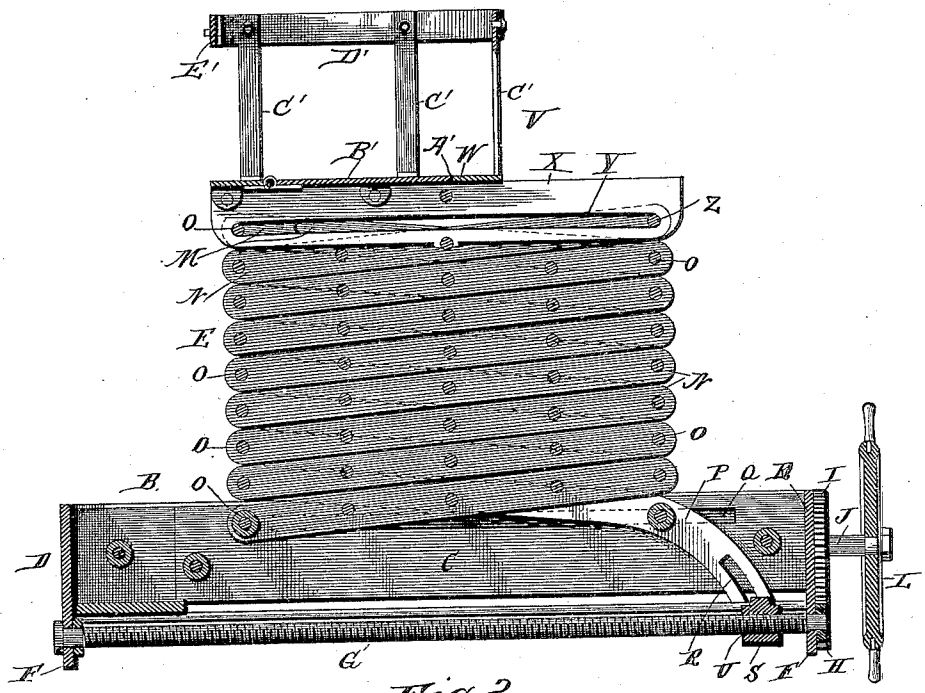


Fig. 2.

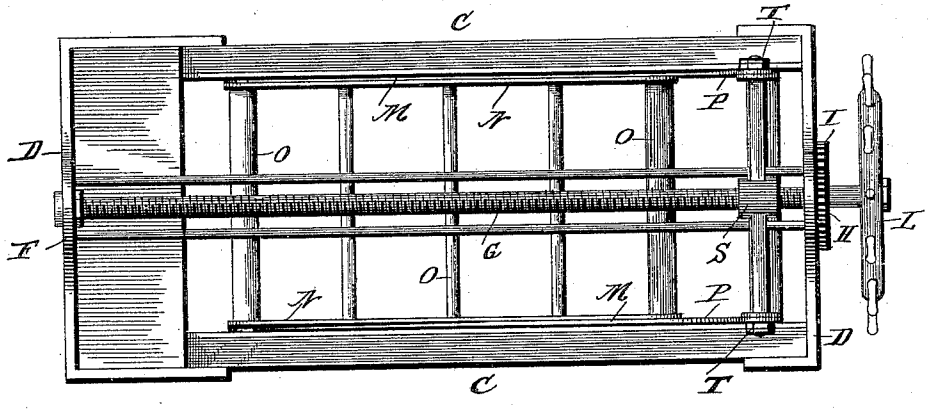


Fig. 3.

Witnesses
G. W. Thorpe.
H. E. Price.

Inventor
David L. Osborn.
By his Attorneys
Higdon & Higdon.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 3 Sheets—Sheet 3.

D. L. OSBORN.

AERIAL LADDER FOR FIREMEN AND OTHERS.

No. 446,560. Patented Feb. 17, 1891.

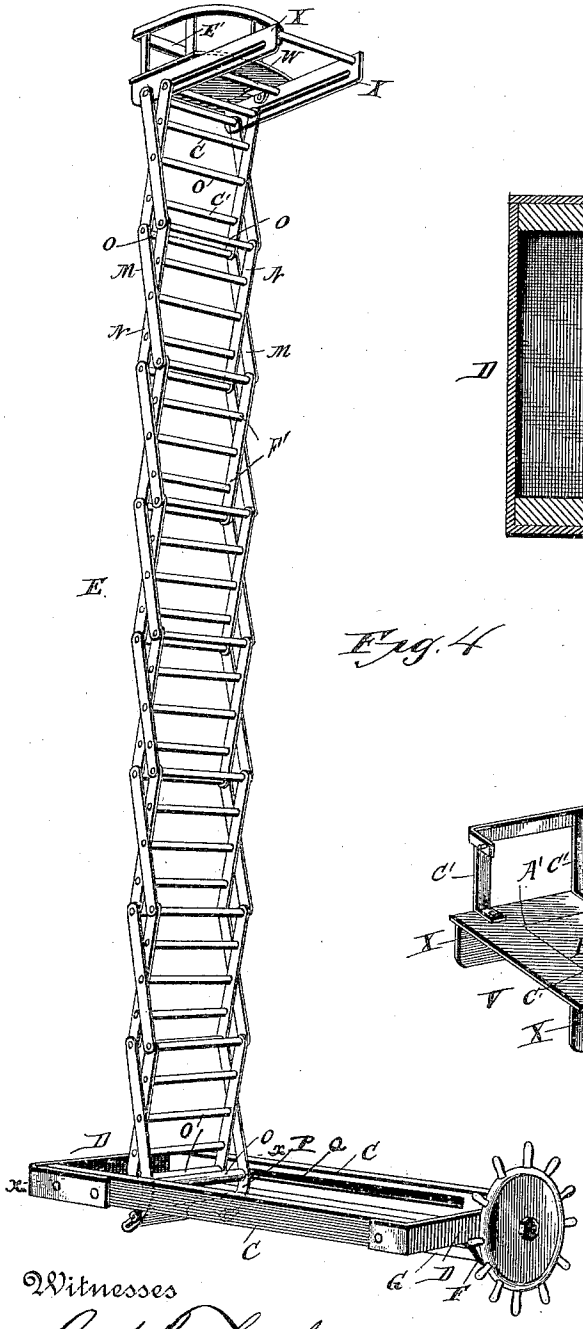


Fig. 4.

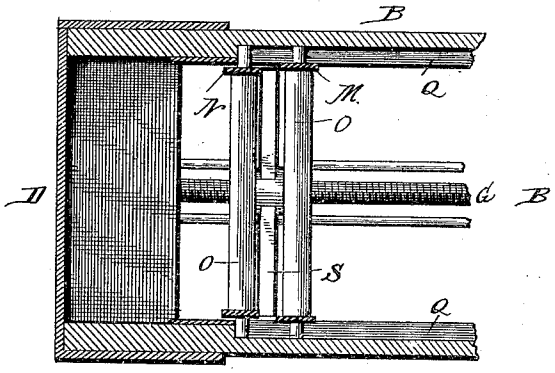


Fig. 5.

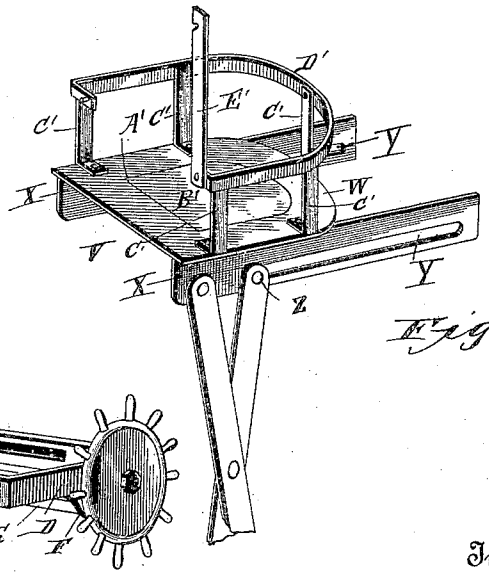


Fig. 6.

Witnesses

G. G. Thorpe.

H. E. Price.

Inventor

David L. Osborn.

By his Attorneys

Higdon & Higdon.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

DAVID L. OSBORN, OF KANSAS CITY, MISSOURI, ASSIGNOR OF TWO-THIRDS TO DAVID G. BLAIR AND EMERSON S. NORTHUP, BOTH OF SAME PLACE.

AERIAL LADDER FOR FIREMEN AND OTHERS.

SPECIFICATION forming part of Letters Patent No. 446,560, dated February 17, 1891.

Application filed September 19, 1890. Serial No. 365,479. (No model.)

To all whom it may concern:

Be it known that I, DAVID L. OSBORN, of Kansas City, Jackson county, Missouri, have invented certain new and useful Improvements in Aerial Ladders for Firemen and other Purposes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in aerial ladders, and may be used for derrick, water-tower, and other purposes; and it consists in the peculiar combination and arrangement of devices hereinafter specified and claimed.

My object is to provide an aerial ladder supported upon a suitable truck of ordinary size, which may be run into an alley or other narrow space, and thus in case of fire or panic, when the occupants of a building are unable to reach the front windows or doors, may be utilized in places inaccessible to the aerial ladder of ordinary construction, and may be used for derrick and other purposes.

Referring to the drawings accompanying the description, Figure 1 is a side elevation of the ladder mounted upon a truck in its normal or folded position. Fig. 2 is a central vertical longitudinal section of the same with truck removed. Fig. 3 is a plan view of the invention. Fig. 4 is a perspective view of the ladder in its elevated position. Fig. 5 is a sectional view on a line *x x* of Fig. 4 broken away. Fig. 6 is a detail perspective view of a chair supported at the upper end of the ladder.

Similar letters refer to similar parts in all the figures, in which—

A represents a truck of ordinary construction, on which is supported the body or supporting-frame B, consisting of the side bars C C and end bars D D of aerial ladder E.

The end bars D D are provided with the downwardly-extending ears F F, in which is journaled the worm-bar G, having a small gear-wheel H keyed on the rear end thereof, which is engaged by the cog-wheel I, keyed on the short shaft J, having one end journaled in the rear cross-bar D of the frame B, and secured on the opposite rear end is the hand-wheel L.

The ladder E, comprising the outer and inner sides or frames M and N, constructed on the lazy-tongs principle and connected by the holders or steps O, is supported between the frame-work B, the lower forward end of the first pair of levers having its holder or cross-bar O permanently secured between the side bars C, and the rear pair of the levers having the extended curved ends P. The holder or cross-bar of this pair of levers projects through the said levers and enters and is adapted to travel or slide in horizontal grooves Q in the inner side of the side bars C C, in alignment with the pins of the permanent holder or cross-bar O.

The curved arms P are provided with the slots R, which engage and travel on the cylindrical ends of cross-bar S, said cylindrical ends being screw-threaded and engaged by securing-nuts T.

The cross-bar S is enlarged at its middle and provided with the screw-threaded perforation U, surrounding and engaging the thread of worm-bar G. Secured on the upper pairs of frames is the frame-work or chair V, composing the horizontal platform W, resting and secured upon the upper edges of the forwardly and rearwardly extending side bars X, near the forward end of which are pivoted the forward arms of the upper levers or frames, side bars X being also provided with the extended slots Y in horizontal alignment with the pivoted forward arms, in which are intended to slide or travel the cross-bar Z of the rear arms of the said levers when the ladder is elevated or lowered.

The platform W, forming the base of the chair V, is provided with the opening A′, in which is hinged the trap-door B′. Supported at the upper ends of vertical standard C′, bolted to the upper surface of the platform, is the railing D′, the forward open end of which is adapted to be closed by the pivotal latch-bar E′. The frames consisting of the inner lever may be provided with any suitable number of steps or rounds F′, as illustrated.

My invention in this case is operated by a hand-wheel worm-screw, but may be operated equally as well by a lever, cable, or a cam, &c.; but the operation of the invention in

this arrangement is as follows: The hand-wheel L being operated causes the operation through the meshing gear-wheels I and H of the worm-bar G, which, operating in the screw-threaded perforation of the cross-bars connecting the lower curved ends P of the rear arms of the levers, causes the said arms to advance or move toward the forward or permanently-pivoted arms. The impulse communicated to the lower pair of levers causes the simultaneous closing and vertical extension of the ladder, as will be readily understood. The trap-door in the platform W allows the person ascending to enter the chair without any difficulty. When desiring to lower the ladder, the operation of the hand-wheel in the reverse direction causes the ladder to descend and fold, as will be readily understood. When lowered, the catch-bar is opened and the passenger dismounts.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a frame-work, of a worm-bar supported therein, a cross-bar mounted upon the said worm-bar, a pair of levers having their forward ends pivoted in the said frame-work and extending rearwardly therefrom, and a pair of levers pivoted to the said rearwardly-extending levers and having their rear end slotted and sliding upon the said cross-bar, as described.

2. The combination, with a slotted frame-work, of a worm-bar supported therein, a cross-bar mounted upon the said worm-bar and having rounded ends, a pair of levers having their forward ends pivoted in the said frame-work and extending rearwardly therefrom, and a pair of levers pivoted to the said rearwardly-extending levers and having slotted curved rear ends, the slots therein sliding upon the rounded ends of the said cross-bar, and projections from the sides of the said rearwardly-extending curved levers sliding in the slots in the said frame, as described.

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

DAVID L. OSBORN.

Witnesses:
GEO. G. THORPE,
H. E. PRICE.