(No Model.) 2 Sheets—Sheet 1.

W. J. JOHNSON.

FIRE LADDER.

No. 303,520. Patented Aug. 12, 1884.

Fig. 1.

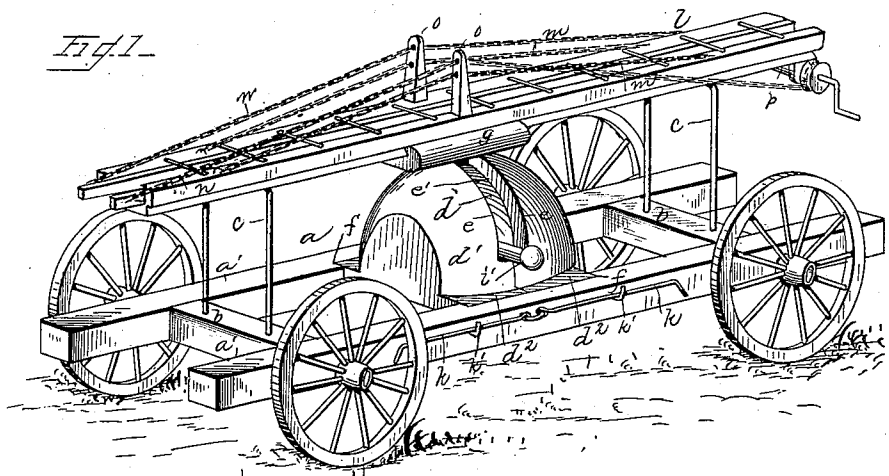
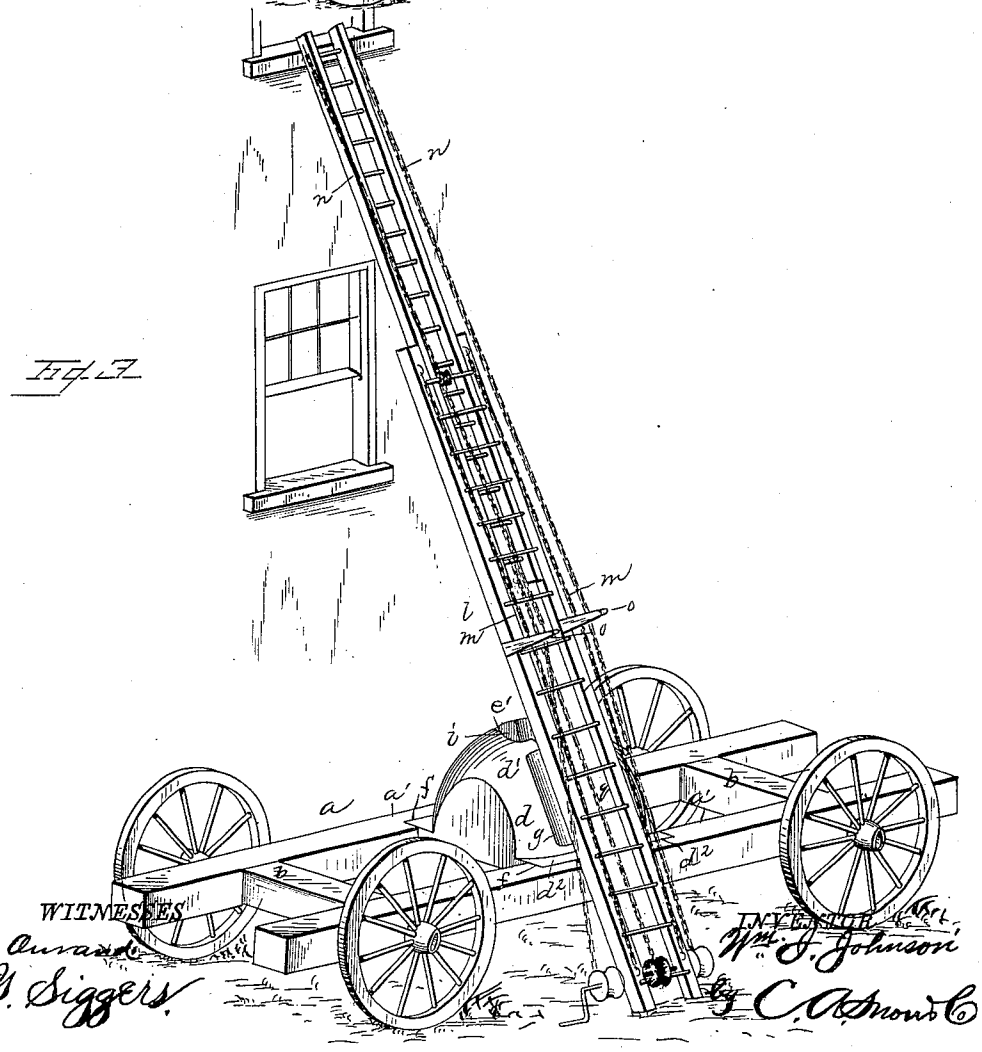


Fig. 2.



WITNESSES:

F. L. Ourand

E. G. Siggers

INVENTOR:

Wm. J. Johnson

by C. A. Snow & Co

Attorneys

N. PETERS, Photo-Lithographer, Washington, D. C.

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Fig. 2.

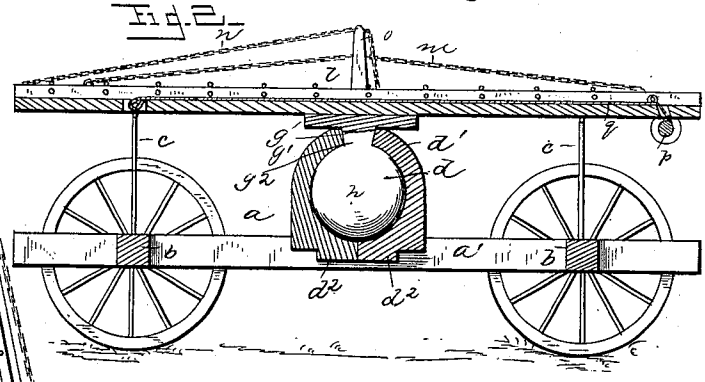


Fig. 4.

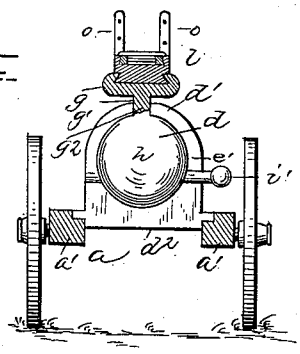


Fig. 5.

WITNESSES

F. L. Ormand.

E. G. Siggers.

Wm. J. Johnson

INVENTOR

by C. A. Snow & Co

Attorneys

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM JOHN JOHNSON, OF NEW ORLEANS, LOUISIANA.

FIRE-LADDER.

SPECIFICATION forming part of Letters Patent No. 303,520, dated August 12, 1884.

Application filed April 9, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM JOHN JOHNSON, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented a new and useful Fire-Ladder, &c., of which the following is a specification, reference being had to the accompanying drawings.

This invention has relation to that class of extension or other ladders that are mounted on trucks and designed to be used at fires by the firemen, or by painters and the linemen of telegraph and telephone companies; and it consists in the construction and novel arrangement of parts, as will be hereinafter fully described, and particularly pointed out in the claims.

Figure 1 is a view in perspective of a ladder embodying the improvements of my invention, mounted on a truck ready to be drawn to any point where it may be deemed necessary to use it. Fig. 2 is a vertical longitudinal sectional view through the middle line of the ladder and truck. Fig. 3 is a perspective view of the truck stationed in front of a wall and the ladder elevated, its upper end resting against the window-sill. Fig. 4 is a transverse vertical sectional view through the middle line of the truck and ladder; and Fig. 5 is a view in perspective of the machine, showing the ladder elevated and the extension projecting into the air—*i. e.*, not leaning against a wall.

Referring by letter to the accompanying drawings, *a* designates the truck, consisting of a bed-frame of any suitable construction, preferably made of two parallel side bars, *a' a'*, mounted on two axles, *b b*, from which latter rise ladder-supports *c c*. At the middle of the bed-frame is provided a large and strong ball-and-socket support, *d*, the shell *d'* of which is made in two sections, cast integral with the horizontal base-plates d^2 d^2. The inner edges of the shell *d'* are recessed at *e e* to form the transverse semicircular slot *e'* in the shell when the sections are united. The side bars of the bed-frame are recessed at *f* to form the seats for the ends of the base-plates d^2 d^2 of the shell of the ball-and-socket support. A grooved guide, *g*, is secured in a horizontal plane upon the end *g'* of a stem, g^2, which is cast with or screwed into the ball portion *h* of the ball-and-socket support *d*. The portion *g'* of the stem g^2 has two vertical sides, and the thickness of this portion from side to side is a little less than the width of the semicircular slot *e'*, while the length of the portion *g'* is somewhat-greater than the thickness of the same, and rests in the countersunk seat *i* at the middle of the semicircular slot *e'*. A headed pin, *i'*, is passed into a hole, i^2, in the ball *h* at one end of the slot *e'*, and holds the grooved guide *g* in its normal position, which is horizontal and longitudinally of the truck. The pin should be connected by a ring and chain to the bed-frame, to prevent its accidental loss when removed from its seat in the ball.

Hinged to the side bars of the bed-frame, at or near their middle points at each side, are two brace-rods, *k k*, which are held up by hooks *k' k'* when not in use, and are intended, when used, to have their free ends enter the ground to brace the truck and prevent it from tipping over when the ladder is elevated.

The ladder *l* is an extension-ladder, the base-section of which is braced by hog-chains *m m*, to give it the reguisite strength, and the extension is also braced by chains *n n*, connected with its upper end and passing back through eyes in the ends of the standards *o o* to pulleys on the ends of a crank-shaft, *p*, havings bearings on the rails of the base-section. A chain, *q*, connected to the lower end of the extension, runs over a pulley at the top of the base-section and connects with a pulley on the middle of the crank-shaft *p*, and is wound thereon in a direction the reverse of the chains on the pulleys on the ends of said shaft, so that in turning the crank in one direction the chain *q* will be wound up and the extension projected, the chains *n n* unwinding and moving out with the extension to form the support therefor. By turning the crank in the opposite direction the chains *n n* will be wound up, the extension retracted in its grooves in the base-section, and the chain *q* unwound from its pulley.

The ladder in its normal position occupies the grooved guide *g*, the middle portion of the ladder resting in the guide, and the projecting ends resting on the ladder-supports rising from the axles.

When the ladder is to be elevated, the pin is removed from the ball *h* to permit the ball to turn in its socket, and the butt-end of the ladder is turned around transversely of the truck, which brings the vertical sides of the portion *g'* of the stem g^2 in line with the slot *e'*, and permits the base end of the ladder to be depressed, and the ladder to be pushed upwardly in the grooved guide *g*, and given the required inclination. After the base-section has been set, if the extension is needed, it may be projected, as before described.

The ladder may be leaned against the wall of the building or the telegraph or telephone pole; or it may be elevated and used without leaning it against any support at its upper end, the truck being sufficiently well braced to hold the ladder firmly at the incline to which it has been elevated.

This ladder is simple, cheap, and durable, may be easily elevated, is perfectly safe, and is efficient for the purposes for which it is intended.

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

1. The combination, with the truck provided with a grooved guide secured to the ball portion of a ball-and-socket support mounted on the bed-frame of the truck, and having a semicircular slot made transversely of the shell portion of the ball-and-socket support, of the ladder resting in and adapted to slide in said grooved guide, substantially as specified.

2. The combination, with the truck having a bed-frame mounted on its axles, of the central ball-and-socket support having the grooved guide secured to the ball portion by a flaring-headed stem, and the headed pin passed through a semicircular slot in the shell portion into a seat in the ball portion at one end of the slot to hold the grooved guide in its normal position, substantially as specified.

3. The combination, with the truck, of the central ball-and-socket support having a grooved guide, the stem of which is secured to the ball portion, and is adapted to be worked in a transverse semicircular slot in the shell portion, the ladder-supports rising from the axles, the hinged brace-rods secured to the side bars, and the ladder adapted to slide in the grooved guide, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

WILLIAM JOHN JOHNSON.

Witnesses:
FRANK HABER,
W. B. MURPHY.