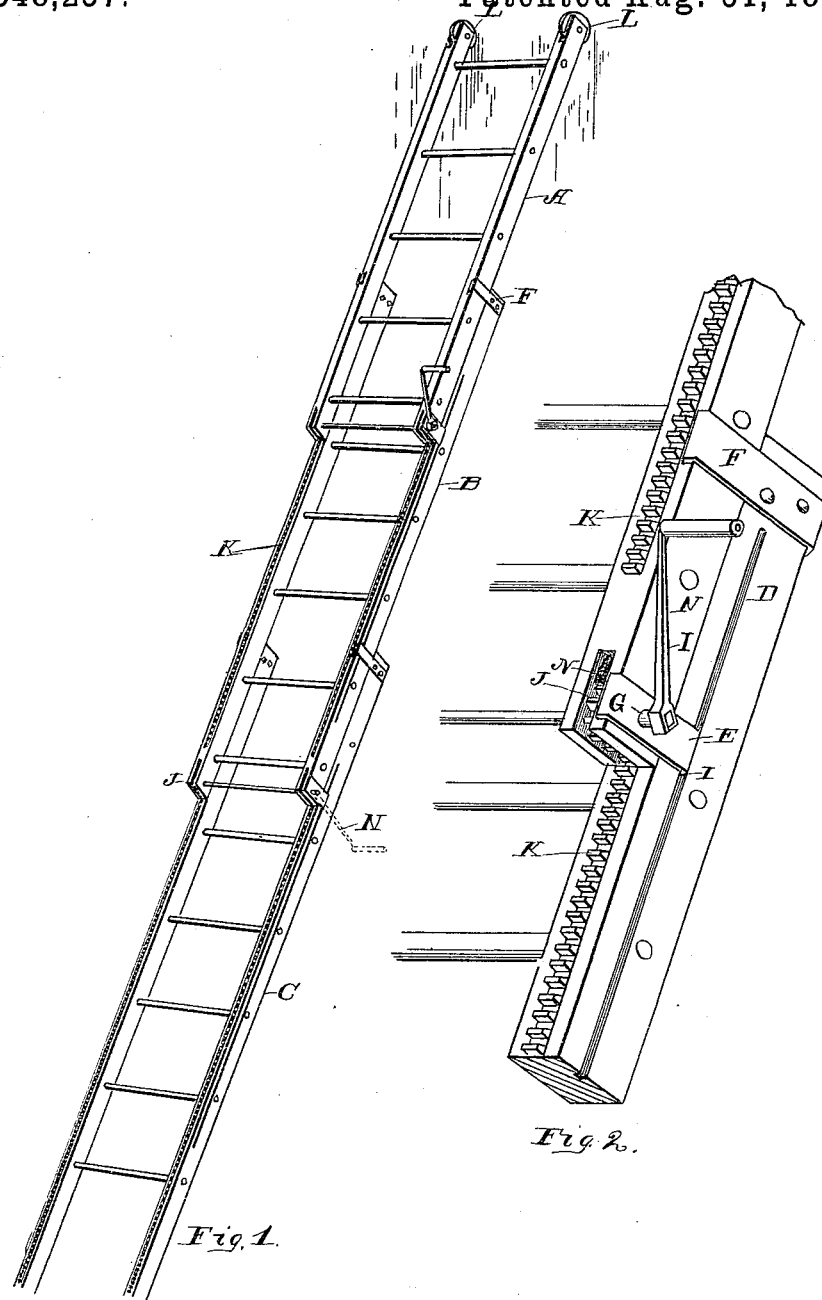


(No Model.)

J. C. WINSOR.
EXTENSION LADDER.

No. 348,257.

Patented Aug. 31, 1886.



WITNESSES:

Robert Kirk.
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INVENTOR :

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By

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UNITED STATES PATENT OFFICE.

JASON C. WINSOR, OF ROCKTON, WISCONSIN.

EXTENSION-LADDER.

SPECIFICATION forming part of Letters Patent No. 348,257, dated August 31, 1886.

Application filed November 19, 1885. Serial No. 183,331. (No model.)

To all whom it may concern:

Be it known that I, JASON C. WINSOR, of Rockton, in the county of Vernon and State of Wisconsin, have invented a new and useful
5 Improvement in Extension-Ladders, which improvement is fully set forth in the following specification and accompanying drawings.

This invention consists in certain improvements in extension-ladders, whereby the different
10 sections are raised and lowered by means of cog-wheels geared to racks, which are firmly secured to the top edges of the sections.

The object of the invention is to provide an efficient method of elevating the sections while
15 the operator is standing on the ladder, without having to descend for the purpose.

In the drawings, Figure 1 is a perspective view of three sections of an extension-ladder embodying my improvement, and Fig. 2 is an enlarged view of the lap of the sections, showing the cog-wheel, racks, and the pawl for
20 holding the cog-wheel, and through it the sections in any position.

The sections A, B, and C, of this ladder are
25 generally made of pine or hard wood one and one-half by three inches, (or more,) and of any practicable length. Each section, with the exception of the top A, has grooves made in the sides, as shown in Fig. 2, at D. Clamps E,
30 made of iron, are secured to the lower ends of the rails, and have square bents which move in the grooves D. A clamp, F, is secured to the upper end of each section excepting the top section. The upper bent end of this
35 clamp embraces the upper edge of the section above, and constitutes also a guide for the movements of said section on the one below. Through the clamps E and the lower ends of the rails of the top sections is a shaft, G, having a crank, I, at one end; and the ends of these
40 rails, except the lower one, are slotted, as shown. In the said slots of the rails are cog-wheels J, which are firmly secured to the shafts G. Firmly secured to the top edges of the rails of the lower sections, B and C, are racks
45 K, into which the cog-wheels gear. The top section, A, is provided with rollers L, which serve to prevent friction by the contact of the

ladder with the sides of the building when it is being run up to the desired length. A pawl, N, is secured to the right side of the lower end
50 of the section, which pawl engages with the the cogs of the wheel J, for the purpose of locking the sections at any desired height.

It is obvious that since the sections are arranged to slide upon each other that by turning
55 the crank I the cog-wheels are traveled along the racks and cause the section to slide up or down in accordance with the direction in which the crank is turned. The operator
60 can stand upon the wings of either section, within easy reach of the cranks and raise or lower the top of the ladder and secure it at the height desired by permitting the pawl N to drop between the cogs of the wheel J.
65

I am aware that it is not broadly new to make extension-ladders in sections and to raise the several sections by means of cog-wheel and rack.

What I claim as new is—

1. In an extension-ladder, the combination
70 of the top section slotted at its lower end, with the sections B and C, each having a side groove, D, and a rack, K, on the upper face, said section B slotted at its lower end, the fixed clamps
75 and guides F, and the sliding clamps G, cog-wheels J in the slotted ends of sections A and B, and the pawl N, all substantially as described.

2. In an extension-ladder, a cog-wheel journaled in the slotted end of the movable sections, and combined with a rack upon the under section, and a fixed clamp and guide holding the two sections together, and a clamp
80 movable in a groove in the under section, said cog-wheel being also journaled in the movable
85 clamp, the several parts constructed and combined as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 3d day of October, 1885, in the presence of witnesses.

JASON C. WINSOR.

Witnesses:

VAN S. BENNETT,
LOUIS N. LEPLEY.