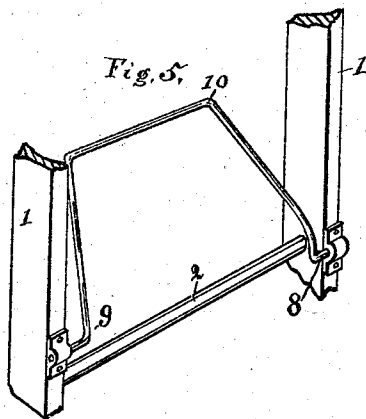
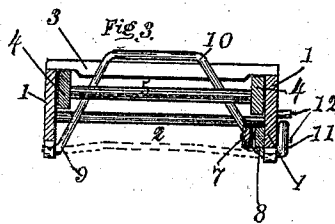
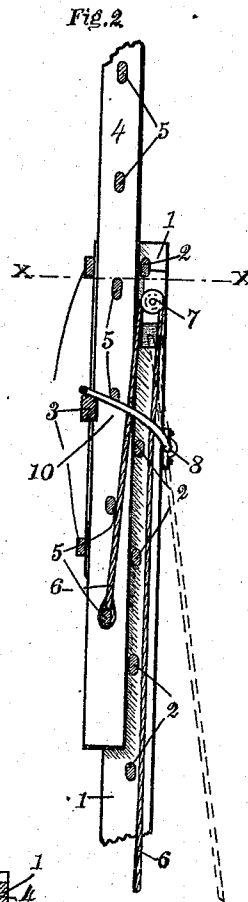
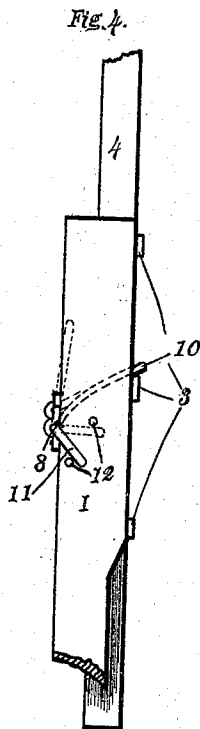
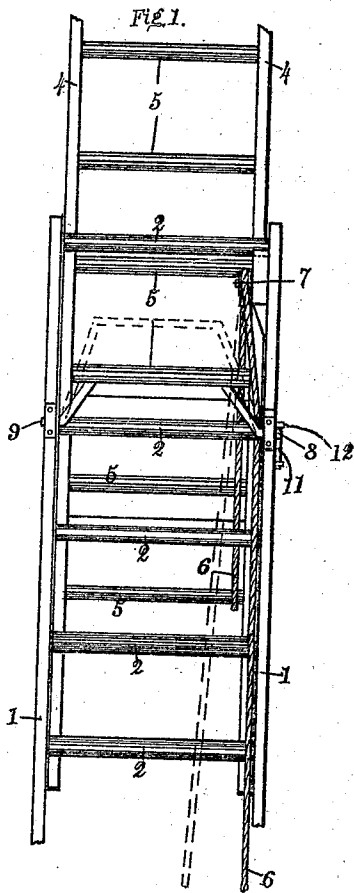


(No Model.)

L. C. TIEFEL.  
EXTENSION LADDER.

No. 555,836

Patented Mar. 3, 1896.



Witnesses:

Thomas Durant,  
Walter Tinsley.

Inventor:

Leonard C. Tiefel  
by Charles D. Smith  
his atty

# UNITED STATES PATENT OFFICE.

LEONARD C. TIEFEL, OF ROCHESTER, NEW YORK, ASSIGNOR TO HERBERT R. LEWIS, OF SAME PLACE.

## EXTENSION-LADDER.

SPECIFICATION forming part of Letters Patent No. 555,836, dated March 3, 1896.

Application filed July 17, 1895. Serial No. 556,274. (No model.)

*To all whom it may concern:*

Be it known that I, LEONARD C. TIEFEL, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Extension-Ladders; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the reference-numerals marked thereon.

My present invention has for its object to provide an improved extension-ladder; and it consists particularly in a certain improved construction and arrangement of the securing devices which may be readily manipulated by the operator when desired to extend or shorten the ladder, all as will be hereinafter fully described and the novel features pointed out in the claims at the end of this specification.

In the drawings, Figure 1 is a front elevation of a ladder embodying my improvements; Fig. 2, a longitudinal sectional view of the same; Fig. 3, a cross-sectional view on the line *xx* of Fig. 1; Fig. 4, a side elevation, and Fig. 5 a perspective view, of the catch.

Similar reference-numerals in the several figures indicate similar parts.

The sections or two parts of which the ladder is composed are of the ordinary or any preferred construction, 1 indicating the sides of the lower section having the rungs 2, and at the back near the upper end the cross-pieces 3. The upper movable ladder-section is composed of the side pieces 4 and the rungs 5, and is guided and slides vertically between the rungs 2 and cross-pieces 3, which form guides for it, the lifting rope or cord 6 being fastened to the lower end of the movable ladder, extending over a pulley 7 on the lower ladder-section and downward again at one side of the front in convenient position to be grasped by the operator.

The catch for holding the upper ladder-section when elevated is composed in the present instance of a single piece of material having an arm 8 pivoted to the front of one of the sides of the lower ladder, the arm 9 pivoted on the other side piece and the connecting portion 10, and it is so arranged relative to one of the cross-pieces 3 that when the arms

project across between the rungs of the movable ladder-section and engage one of them it will also rest upon said cross-piece 3, thereby forming a firm support for said movable section.

It will be noted that the arm 8 of the catch is pivoted below the pivotal point of the arm 9, which insures the operation of the catch as soon as the rope is pulled, and also that the arm 8 is inclined upwardly and backwardly and extends at an angle to the front portion of the lifting-rope, so that when the movable section of the ladder is supported by the catch the front portion of said rope is deflected, as shown in full lines in Fig. 1, but when said rope is pulled it will straighten to the position in dotted lines, lifting the catch and enabling the movable ladder to be manipulated as desired, and a lateral movement of the rope toward the right in Fig. 1 will permit the catch to fall and engage the rung of the movable ladder above it, holding it stationary.

11 indicates a stop-arm on the catch adapted to co-operate with pins 12 to prevent the movement of the catch forward of its center of gravity and thereby remain unfastened.

By providing for the manipulation of the catch by the lateral movement of the lifting-rope I am enabled to control it more easily than when an outward movement is required, and the movable ladder can be arrested at the precise point desired.

I claim as my invention—

1. The combination with the lower ladder having the pulley thereon, the movable ladder guided on the lower one, and the hoisting-rope passing over the pulley and with its operating portion extending downward at the front, of the catch pivoted on the lower and engaging the upper ladder, having the vertically and laterally inclined portion with which the operating portion of the rope engages, whereby the catch may be manipulated by the lateral movement of said rope, substantially as described.

2. The combination with the lower ladder having the pulley thereon, the movable ladder guided on the lower one, and the hoisting-rope attached to the movable ladder, extending over the pulley and downward at the front, of the catch pivoted on the lower lad-

der, having the supporting - arms and the cross-bar, one of said arms being vertically inclined and also inclined to the plane of movement of the ladder and adapted to be engaged by the hoisting-rope for disengaging the catch, substantially as described.

3. The combination with the lower ladder, having the pulley thereon, the movable ladder, and the hoisting-rope attached to the movable ladder, and extending over the pulley and down at the front, of the catch pivoted on the lower ladder having the support-

ing-arms and the connecting portion, one of said arms being vertically inclined and also inclined in the plane of the movement of the ladder and pivoted below the pivotal point of the other arm, and stops for limiting the movement of the catch, substantially as described.

LEONARD C. TIEFEL.

Witnesses:

F. F. CHURCH,  
H. R. LEWIS.