E. J. SCHNEIDER.

LADDER.

No. 172,179. Patented Jan. 11, 1876.

Fig. 1.

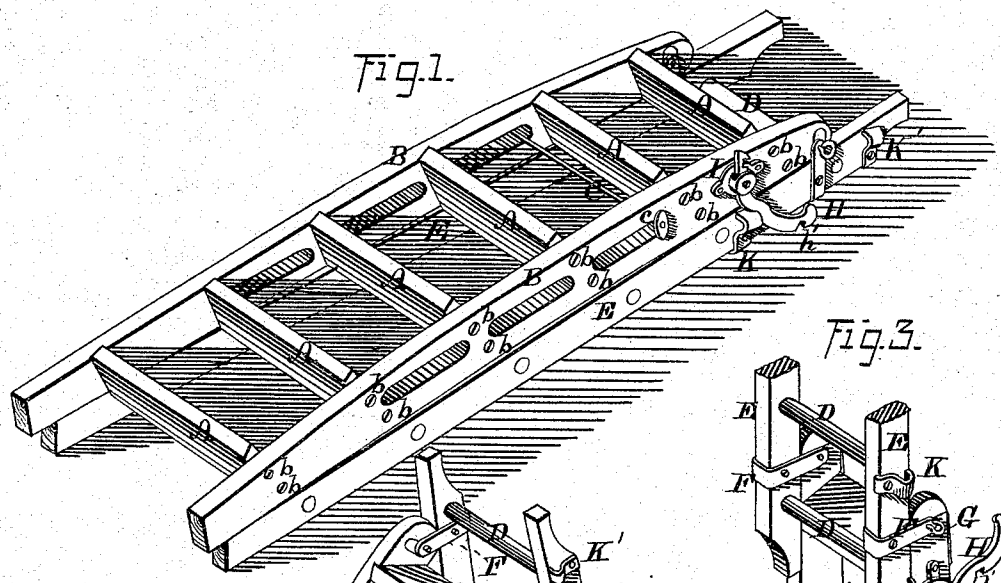
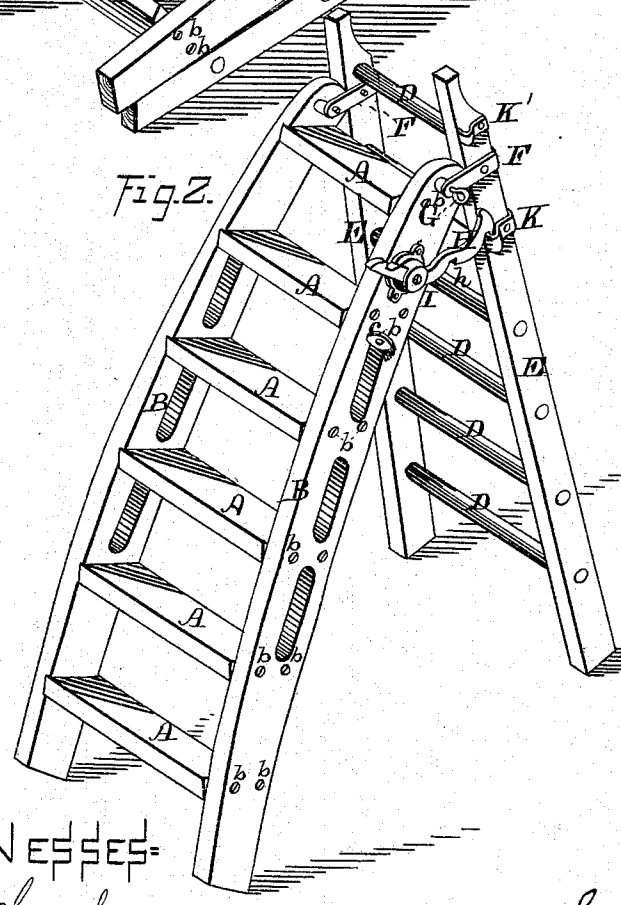


Fig. 3.

Fig. 2.



WITNESSES:

Jas. E. Hutchinson

John R. Young

INVENTOR.

E. J. Schneider, by

Prindle and Laytise Attys

UNITED STATES PATENT OFFICE.

EDWARD J. SCHNEIDER, OF DAYTON, OHIO.

IMPROVEMENT IN LADDERS.

Specification forming part of Letters Patent No. **172,179**, dated January 11, 1876; application filed September 14, 1875.

To all whom it may concern:

Be it known that I, EDWARD J. SCHNEIDER, of Dayton, in the county of Montgomery and in the State of Ohio, have invented certain new and useful Improvements in Ladders; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings making a part of this specification, in which—

Figure 1 is a perspective view of my improved ladder closed and arranged for storage. Fig. 2 is a like view of the same arranged for use as a step-ladder, and Fig. 3 is a perspective view of its central portion when arranged for use as an ordinary ladder.

Letters of like name and kind refer to like parts in each of the figures.

The design of my invention is to combine in a compact and convenient form a step-ladder and an ordinary ladder which has twice the length of the former; and to this end it consists in the means employed for locking the ladder-sections in their different relative positions, substantially as is hereinafter set forth.

In the annexed drawings, A and A represent a series of steps constructed of or from plane pieces of board, and having regularly-decreasing lengths from the lower step upward. The steps A and A are secured in relative position by means of two side bars, B and B, each of which is provided upon its inner face with a transverse groove that receives and contains one end of each step. Two screws, *b* and *b*, pass inward through each side bar into each step, and serve to secure the same together, while a metal rod, C, passing through said side bars at one or more points between their ends, and having each end contained within a metal clamp, *c*, that is placed upon the outer face of each bar, serves to strengthen and more closely confine together its parts.

A second and somewhat longer ladder is composed of round rungs D and D, secured at their ends in the ordinary manner into two plane side bars, E and E, and is hinged near its upper end to the upper end of the before-described ladder by means of two straps, F and F, one of which incloses each of said side bars E, and, extending along each face of one of the side bars B, is pivoted thereto by means of a rod, G, that passes through the ends of said strap and through said side bar B. As thus arranged, it will be seen that the ladder-sections can be closed together, as shown in Fig. 1; may be separated at their lower ends so as to enable one section to act as a back brace for the other section, as seen in Fig. 2; or said sections may be turned until in a line with each other, as shown by Fig. 3, in which latter event the pivoted ends of the side bars E and E will extend downward upon the front edges of the side bars B and B to a sufficient distance to give to the point of union of said sections strength equal to that possessed by any other portion of the combined extended ladder. In order that the ladder-sections may be locked in each of the three positions described a metal bar, H, having the form shown in Fig. 2, is pivoted within a suitable bearing, I, that is secured to or upon the outer face, near the upper end of one of the side bars B, with about one-fifth of its length projecting from the front side of said bearing, and three-fifths of its length extending rearward from the same. Upon the outer face of the side bar E, immediately in rear of the bearing I, is provided a metal lug, K, which has the shape shown in Fig. 1, and engages with either of two notches, *h* and *h*, that are formed within the lower edge of the pivoted bar H, one of said notches being placed in such position as to engage with said lug when the ladder-sections are closed together, as seen in Fig. 1, while the second notch is in position for engagement when said sections are arranged as shown by Fig. 2, the result of such construction being that said bar H operates as a lock, and insures the relative positions of said ladder-sections when occupying either of the positions named. In order that the ladder-sections may be locked in the relative positions shown in Fig. 3 a second lug, K′, similar in construction to that before described, is secured upon the side of the bar E, above its pivotal bearing, and engages with a notch, *h′*, that is provided within the upper side of the forward portion of the locking-bar H. It is found that the weight of the locking-bar is

sufficient to hold it in engagement with the locking-lugs; but, if desired, a spring may be employed for insuring such result.

The device is now complete, and furnishes in a compact form a step-ladder and an extension-ladder, each of which is as perfect and convenient as though the other was not combined therewith.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

In combination with the side bars B and E, hinged together as shown, the locking-bar H, provided with the notches *h*, *h*, and *h'*, and pivoted upon said bar B and the lugs K and K' secured upon said bar E, and engaging with said notches, substantially as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand.

EDWARD J. SCHNEIDER.

Witnesses:

DAVID B. CORWIN,

CLEMENT L. BAUMANN.