

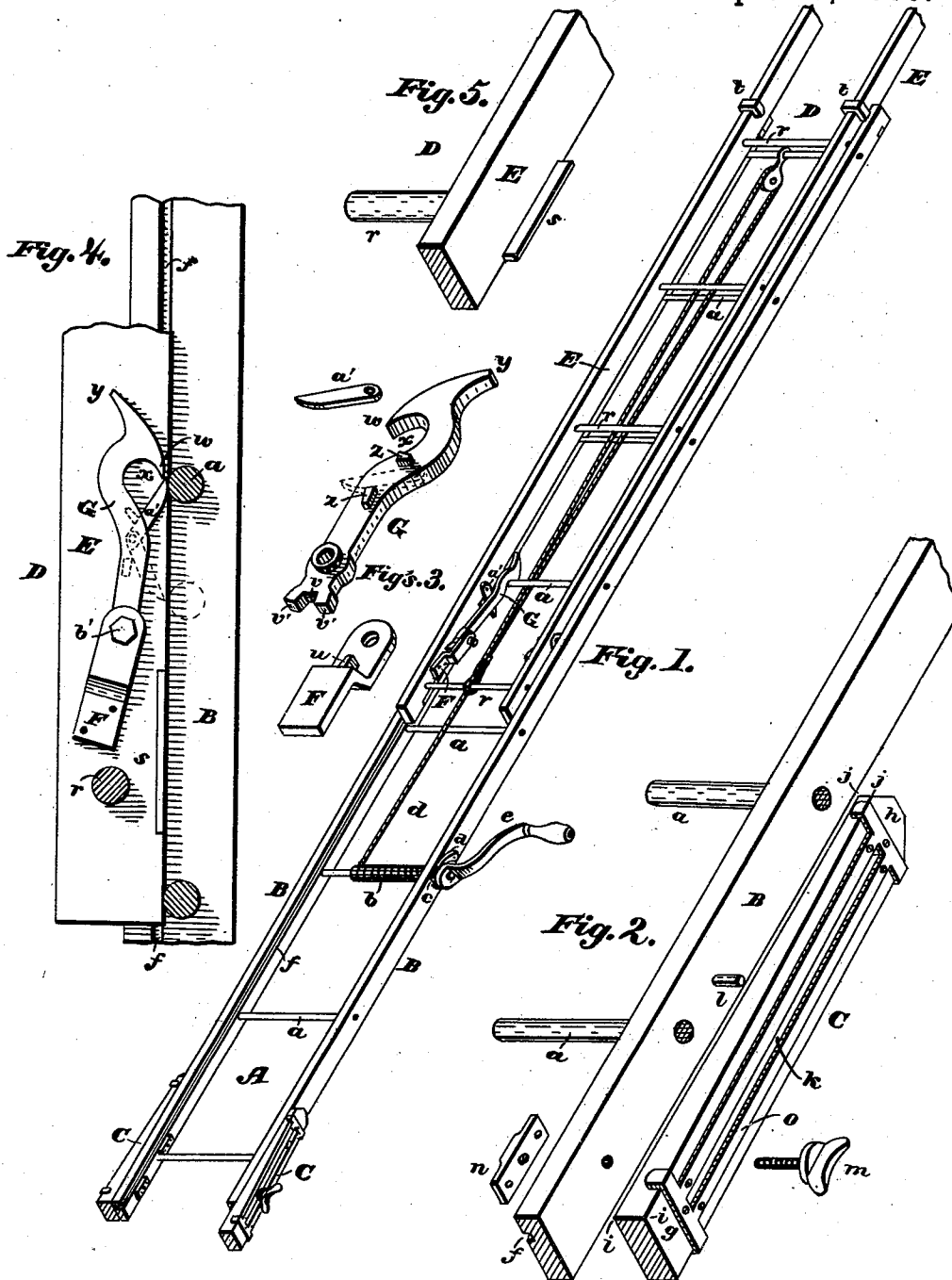
(No Model.)

D. E. ROWLAND & W. T. BLACK.

EXTENSION LADDER.

No. 349,666.

Patented Sept. 21, 1886.



WITNESSES:

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EXTENSION-LADDER.

SPECIFICATION forming part of Letters Patent No. 349,666, dated September 21, 1886. ☉

Application filed April 3, 1886. Serial No. 197,672. (No model.)

To all whom it may concern:

Be it known that we, DAVID E. ROWLAND and WILLIAM T. BLACK, citizens of the United States, and residents of Canton, county of Stark, State of Ohio, have invented a new and useful Improvement in Extension-Ladders, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

Our invention relates to improvements in extension-ladders; and it consists in providing a ladder consisting of two sections—a lower main section and an upper adjustable section—provided with means by which one section may be raised up or extended upon the other.

Our invention also relates to and consists in the means provided, and hereinafter explained, for latching and detaining the sections so extended, and for unlatching the same.

Our invention also relates to and consists in providing an adjustable foot by which the ladder may be adjusted to an uneven surface.

Our invention also consists of and relates to the detail and combination of parts, as set forth in the claims.

Letters of reference indicate similar parts in all of the figures of the drawings.

Figure 1 is an isometrical view of the ladder, showing the parts in normal position. Fig. 2 is same view of end section of side bar, showing adjustable foot-piece and setting-bolt. Fig. 3 is same view comprising the locking-latch trip and supporting-bracket. Fig. 4 is an elevation of a section of one side of the ladder, showing the inner side of side bars and locking mechanism. Fig. 5 is an isometrical view of section of adjustable side bar, showing a sliding tongue hereinafter explained.

Letter A, Fig. 1, represents the lower section of our improved extension-ladder; B B, the two side bars, which are united by rounds *a*, placed at convenient distances apart. Said section is also provided with a windlass, *b*, rack *c*, pawl *d*, and turning-crank *e*. On the inner side of side bars B B there is provided a groove, *f*, extending the whole length of the bar. The bottom ends of the bars B B are each provided with an adjustable foot, C C, which is slightly tapering from the lower end, *g*, to the upper end, *h*, being thicker at the lower

end, *g*, on a line from *i* to *i* than at the upper end, *h*, on a line from *j* to *j*. Said foot is also provided with a longitudinal slot, *k*, a steady-pin, *l*, and a setting-bolt, *m*, and nut *n*. Said wedge-shaped foot C may be adjusted on the side bars B, either for the purpose of lengthening the ladder or to adapt the foot of the ladder to an uneven surface by lengthening one side thereof, and at which adjustment the parts may be fixed, and held in said adjusted position by the setting-bolt *m*, the wedge form of the foot C contributing to that end so far as relates to downward pressure, the inclined face *o* resting against the shoulder or head of the bolt *m*. A steady-pin, *l*, is provided to preserve the alignment of the parts. An adjustable upper section, D, is provided, having side bars E E and rounds *r*. Said side bars E E are provided with tongue-pieces *s*, adapted to the grooves *f* in side bars B, and which move in said grooves as the adjustable section D is raised or lowered, and by which the two sections may be held in position. On the upper end of the side bars B loops or hooks *t* are provided that embrace the side bars E, and through which they may slide, and by which the two sections are held in their relative working position.

On the inner face of side bars E E there is provided a supporting-bracket, F, having an upwardly-projected shoulder, *u*, the locking-latch G, having in its lower end the notch *v*, forming the projecting corners *v'* *v'* the other end formed into a T shape, as shown, the one end, *w*, of the cross-section forming a hook, *x*, the other end, *y*, a nose. Said latch G is also provided with lugs *z z* and a latch-trip, *a'*, said trip having a pivotal connection with the latch G, allowing it to vibrate between the lugs *z z*. The brackets F are secured to the inner face of the bars E E, on opposite sides of the ladder, by screws or bolts. The locking-latch G is placed in the bracket, as shown, the shoulder *u* resting in the notch *v*, and is secured by through-bolts *b'*, or, if preferred, may be supported by and vibrated about a stud-pin projected from the inside of the upper section of the bracket.

To one of the rounds of the lower section, A, there may be attached a tackle having a rope rove through it, one end of which may

be fastened to the lower round of extendible section D, the other end to the windlass *b*.

The operation is as follows: To raise the extendible section, turn the windlass *b*, winding the rope *d* about it. There being no corresponding round in the upper section, the hook falls to the round on the lower section, and as it is raised up the nose *y* of the latch strikes the round, is thrown back by it and passes over. To stop on any particular round when the hook has passed over it, let the section drop back until the hooks rest on the desired round. To lower the top section, raise it up until the trip *a'* is above the round on which the hooks rest; then let it descend. The trip will pass the hook over the rounds. To stop on a round in descending it will be necessary to drop below the round, letting the trip fall. Then raise the section until the hooks pass over the round upon which they may rest. The section may be operated entirely by the use of the crank and rope, the latching and unlatching mechanism being operated by the upward and downward movement of the movable section of the ladder.

Having thus fully described the nature and object of our invention, what we claim, and desire to secure by Letters Patent, is—

1. The combination, with an extension-ladder composed of upper and lower sections, of a rising and falling latch pivoted to the upper section and adapted to engage the rounds of the lower section, and a trip pivoted to said upper section and engaging a lug on the latch,

for the purpose of raising the latch over the rounds as the upper section is lowered, substantially as set forth.

2. The combination, with an extension-ladder composed of upper and lower sections, of a rising and falling latch having a T-shaped head, the upper end of said head forming a nose for raising the latch over the round, and the lower end thereof forming a hook to engage the rounds, and a trip pivoted to the upper section and engaging a lug on the latch, for the purpose of raising the latch over the rounds as the upper section is lowered.

3. The combination, with an extendible ladder, of the latch *G*, having the points *y* and *w*, hook *x*, trip *a*, projections *v' v'*, and bracket *F*, substantially as described, and for the purpose set forth.

4. An extendible ladder having longitudinal grooves *f* on the inner face of the side bars of the lower section, tongue-plates *s*, attached to the upper section and adapted to said grooves, the rising and falling latch, as described, and means for raising and lowering said upper section, and an adjustable foot-piece, substantially as described, and for the purpose set forth.

In testimony whereof we have hereunto set our hands this 1st day of April, A. D. 1886.

DAVID E. ROWLAND.

WILLIAM T. BLACK.

Witnesses:

W. K. MILLER,

CHAS. R. MILLER.