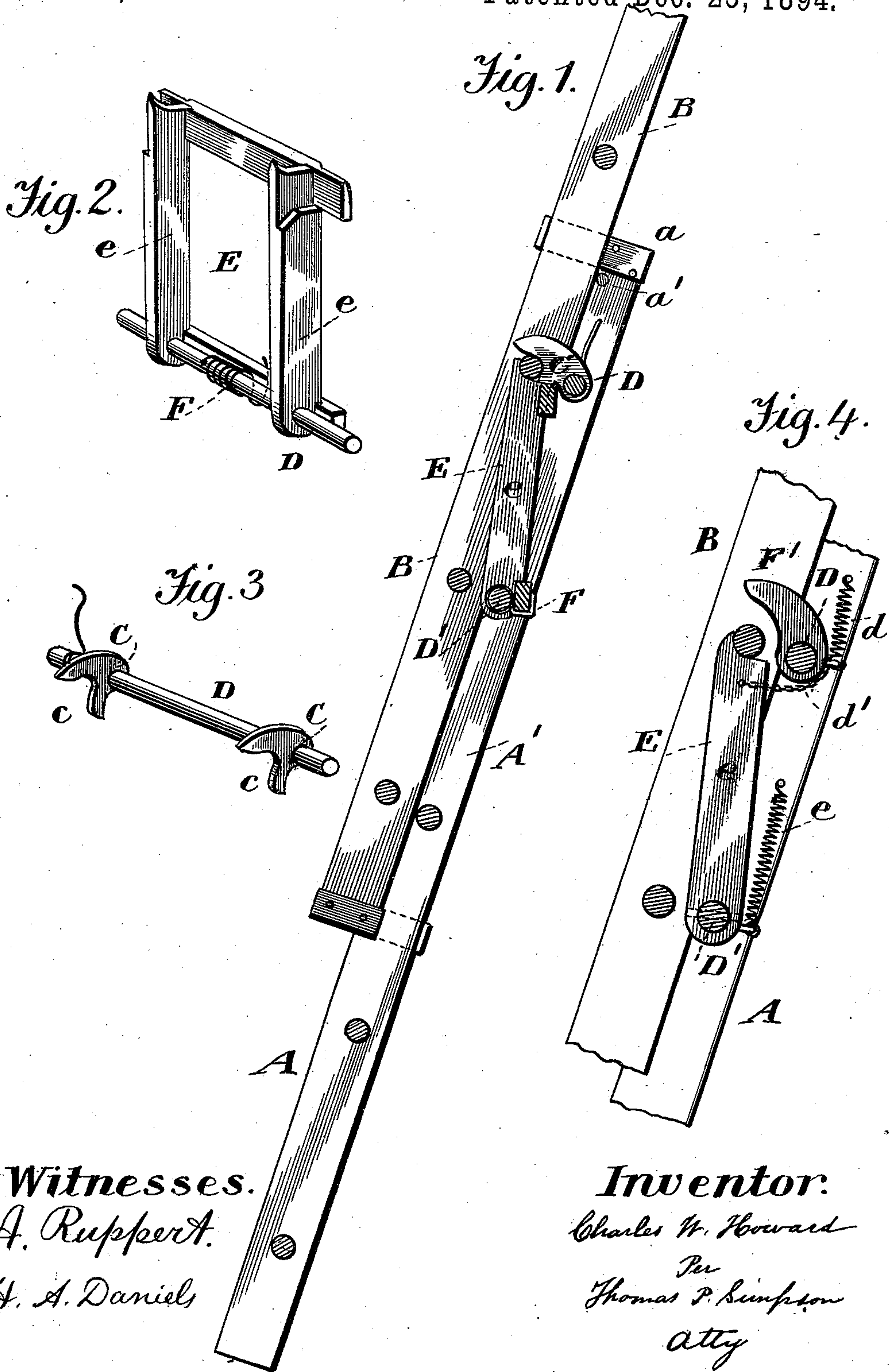


(No Model.)

C. W. HOWARD.
EXTENSION LADDER.

No. 531,534.

Patented Dec. 25, 1894.



Witnesses.
A. Ruppert
H. A. Daniels

Inventor.
Charles W. Howard
Per
Thomas P. Simpson
Atty

UNITED STATES PATENT OFFICE.

CHARLES W. HOWARD, OF NORTH HECTOR, NEW YORK.

EXTENSION-LADDER.

SPECIFICATION forming part of Letters Patent No. 531,534, dated December 25, 1894.

Application filed April 13, 1894. Serial No. 507,455. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. HOWARD, a citizen of the United States, residing at North Hector, in the county of Schuyler and State of New York, have invented certain new and useful Improvements in Extension-Ladders; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The invention relates to extension-ladders whose sections are held adjustably to one another so as to make different lengths of ladder, as may be required.

The invention consists in the particular means employed to lock the sections together.

Figure 1 of the drawings is a vertical section, showing an extension ladder in two sections with my lock mechanism; Fig. 2, a detail perspective view of the detent; Fig. 3, a detail view of the lever which depresses the detent; Fig. 4, a vertical section of a modification for depressing the detent.

In the drawings A and B represent two ladder-sections of which the former is the base or stationary section while the latter is the movable one. On the upper ends of section A are guides *a a* and a subjacent support *a'* for the movable section B.

C is an elbow-lever fulcrumed near the vertex of its angle to a rung D, and E a detent fast on the rung D', the latter being journaled in the ladder sides A' A'.

The detent E has two parallel arms *c c* concaved in front to fit on the rung and connected subjacently, near each end, by a crossbar.

To the lower crossbar, is fastened one end of a spring F coiled about a journaled rung D' and fastened thereto at the other end.

On the outer end of each arm of the detent is formed a rabbet in which plays the arm *c* of the lever when it depresses the detent, so as to let a rung of the movable section pass over it and then rise up behind it.

The movable section B may be started upward on the section A and successive rungs permitted to pass over the detent until the desired length of ladder is obtained, when a rung is allowed to press against the detent. The section may be also entered into the guides on section A and moved downward, as the desired length of ladder may be obtained by moving it in either direction.

In Fig. 4 of the drawings, I show a modification by which the detent may be depressed. This consists of a cam F connected with a spring *d*, to retract it, and a chain *d'* attached to the detent, which may itself be raised by the spring *e*—the whole involving no departure from the principle of the invention.

Having described the invention as shown in the drawings, it is proper to add that the detent may be made shorter and pivoted to the sides of the ladder by inserting an extra rung or other fulcrum, without changing its character or function.

The stops or detents, and cams or levers, may be fixed on the rungs, the latter being movable, or they may be loose upon the rungs, the latter being the journals upon which the former are fulcrumed.

I am aware that hooks on one section to engage rungs on the other have been employed on extension ladders, a clearer being pivoted to the hook and the hook being adjustably held by a setscrew; but

What I claim as new, and desire to protect by Letters Patent, is—

In extension ladders, two elbow-levers made fast near the elbow to a spring-actuated turn shaft or rung, near the upper end of the stationary section, and a two-armed detent on a spring-actuated turn-shaft of said section; whereby the rungs on the sliding section depress the levers and the levers depress the detent, while the springs retract detent and levers as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES W. HOWARD.

Witnesses:

W. H. OLIN,
B. P. OLIN.