

(No Model.)

W. M. LYON.

LADDER.

No. 329,922.

Patented Nov. 10, 1885.

Fig-1.

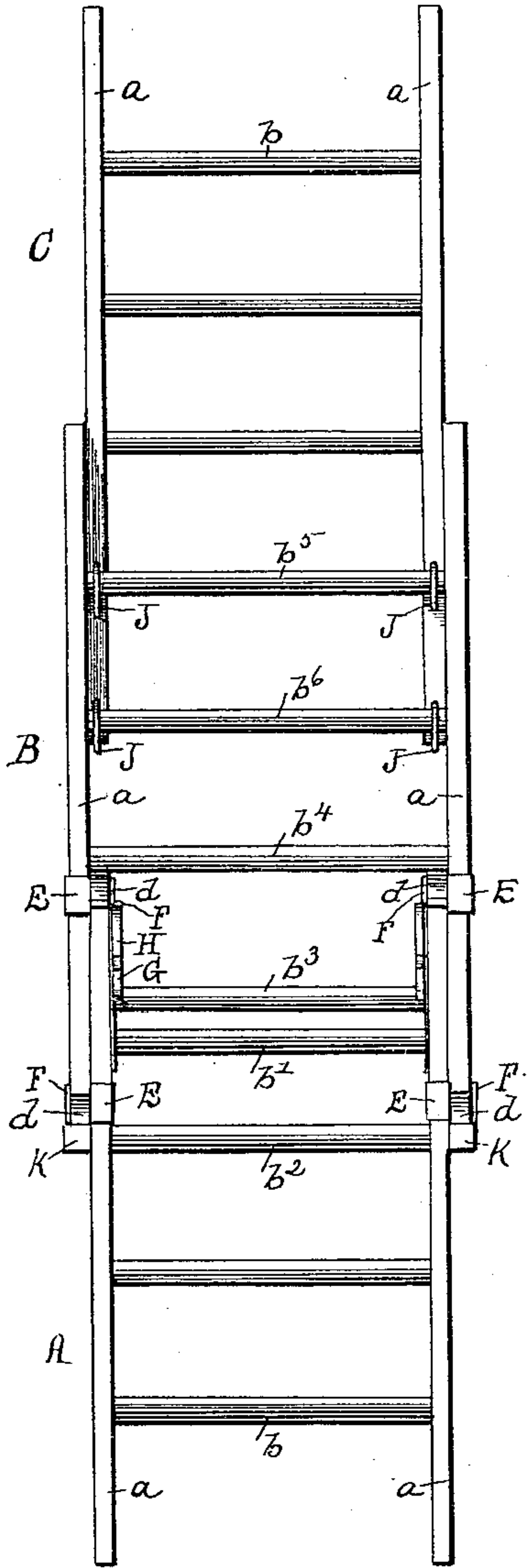


Fig-2.

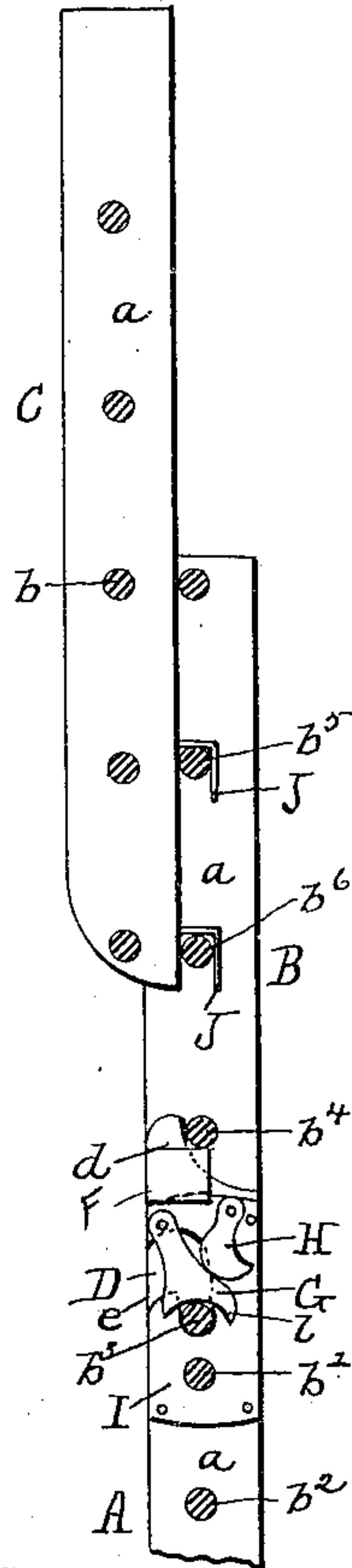
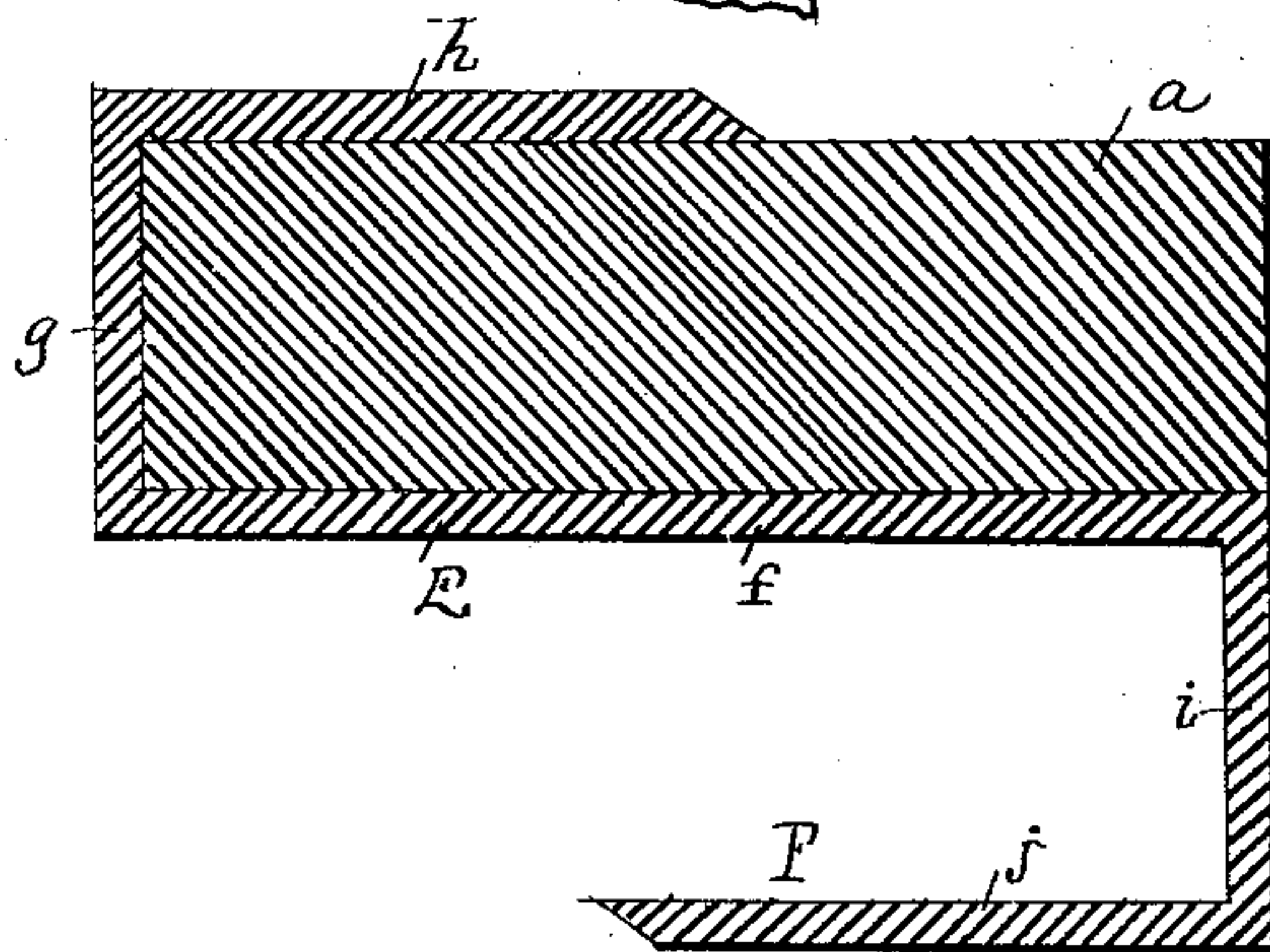


Fig-3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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LADDER.

SPECIFICATION forming part of Letters Patent No. 329,922, dated November 10, 1885.

Application filed August 10, 1885. Serial No. 173,900. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MAVOR LYON, a citizen of the United States, residing at Paola, in the county of Miami, and State of Kansas, have invented certain new and useful Improvements in 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 and figures of reference marked thereon, which form a part of this specification.

In the drawings, Figure 1 is a front view of the sections of the ladder extended to form a straight ladder. Fig. 2 is a central vertical section of a portion thereof, and Fig. 3 is a cross-section of one of the retaining-clips.

This improved extension-ladder is composed of three sections, A, B, and C. Each section is composed of side rails, *a a*, and rounds *b b*. The upper ends of the rails of section A are cut away to form catches *c c*, and the lower ends of the rails of section B are cut away to form similar catches, *d d*.

Immediately below the catches *c c* of section A, and above the top round, *b'*, the side rails are provided with open slots D. These slots extend lengthwise of the rails, and are formed with laterally-extending open branches *e e*. Between the top round, *b'*, of section A and the round *b''*, just below it, metallic clips or bands E E are riveted to the side rails. Each clip is formed with a horizontal part, *f*, which lies along the outer surface of the rail, a part, *g*, perpendicular to part *f*, and a part, *h*, perpendicular to part *g* and parallel with part *f*, which parts *g* and *h* clasp the edge and inner surface of the rail. On the edge of the rail, where the mouth *e* of slot D enters, the clip E is formed with a hook, F, which is composed of an outwardly-extending part, *i*, and part *j*, parallel with part *f*. The round *b''* on section A, immediately below clips E E, is extended out beyond the rails to form projections or stops *k k*. Section B is provided with similar clips, E E, between the two bottom rounds, the only difference being that the hooks F F, formed on the clips, are arranged on the inner sides of the rails.

To put sections A and B together to constitute an extended ladder, the bottom round, *b''*, of section B is placed in the slots D D of section A. The rounds of section B are longer than those of section A, so that the rails of section B embrace those of section A. The round *b''* having been inserted in the slots, the sections are turned until the catches *c c* and *d d* engage hooks F F, when the two sections will form one continuous straight ladder. The sections are then pressed toward each other until the round *b''* of section B reaches the bottoms of slots D D, and when in that position the catches *c c* on A will be held between the hooks F F and the second round, *b'*, of section B, and the catches *d d* on B will be held between the hooks F F and the projecting ends *k k* of the second round, *b''*, of section A. The ends of the sections being thus held from turning, the two sections form a firm and rigid ladder. To prevent the sections A and B being pulled apart when thus joined together, the following mechanism is adopted: Above each of the slots D a metallic brake, G, is pivoted to the inner side of each side rail, *a*, of section A. This brake is formed with a curved end, *l*, which fits over the round *b''* of section B when inserted in the slots D D. The brake is held tightly against the round, and is prevented from turning by a cam-shaped dog, H, which is pivoted behind it to rail *a*.

To withstand the wear caused by the pressure of the brake, the round *b''* of section B is made of gas-pipe. Preferably, metallic plates I are riveted to the inner surfaces of the side rails of section A, to which the brake G and dog H are pivoted, and in which the slot D is cut.

In case a still longer ladder is desired, the section C is used. This section is of the same width as section A, and it is connected to section B, its side rails being embraced by those of section B. Section C might be provided with slots similar to those in section A; but as it is less frequently used, and then only as the upper section, a different fastening is adopted. Each rail of section C is provided with two hooks, J J, on the same edge, which are located at the same distance apart as the rounds on section B. In connecting section C to section

B, the upper hooks, J, are placed over the top round, b^5 , of section B, and the lower hooks are placed over the round b^6 , just below.

I claim as my invention—

- 5 1. In a convertible ladder, a section, A, provided with open slots $\bar{D} \bar{D}$ in both rails, catches $\bar{d} \bar{d}$ on its ends, hooks F F below the slots on the exterior of the rails, and stops or projections $k k$ below said hooks, in combination with
10 a separate section, B, one round, b^3 , of which engages in said open slots, said section being also provided with catches $\bar{d} \bar{d}$ on its ends, (which engage between the hooks F F and projections $k k$ on section A,) and with inwardly-
15 projecting hooks F F, between which and one

of the rounds, b^4 , the catches $\bar{d} \bar{d}$ on section A engage, substantially as set forth.

2. A section provided with slots in both rails, and a section one of whose rounds rests in said slots, in combination with brakes pivoted to 20 the first-named section, which engage the round on the second-named section, and pivoted cam-shaped dogs which co-operate with said brakes, as set forth.

In testimony whereof I affix my signature 25 in presence of two witnesses.

WILLIAM MAVOR LYON.

Witnesses:

WM. B. BRAYMAN,
D. J. MINICH.