

(No Model.)

H. BARNES.  
EXTENSION LADDER.

No. 376,794.

Patented Jan. 24, 1888.

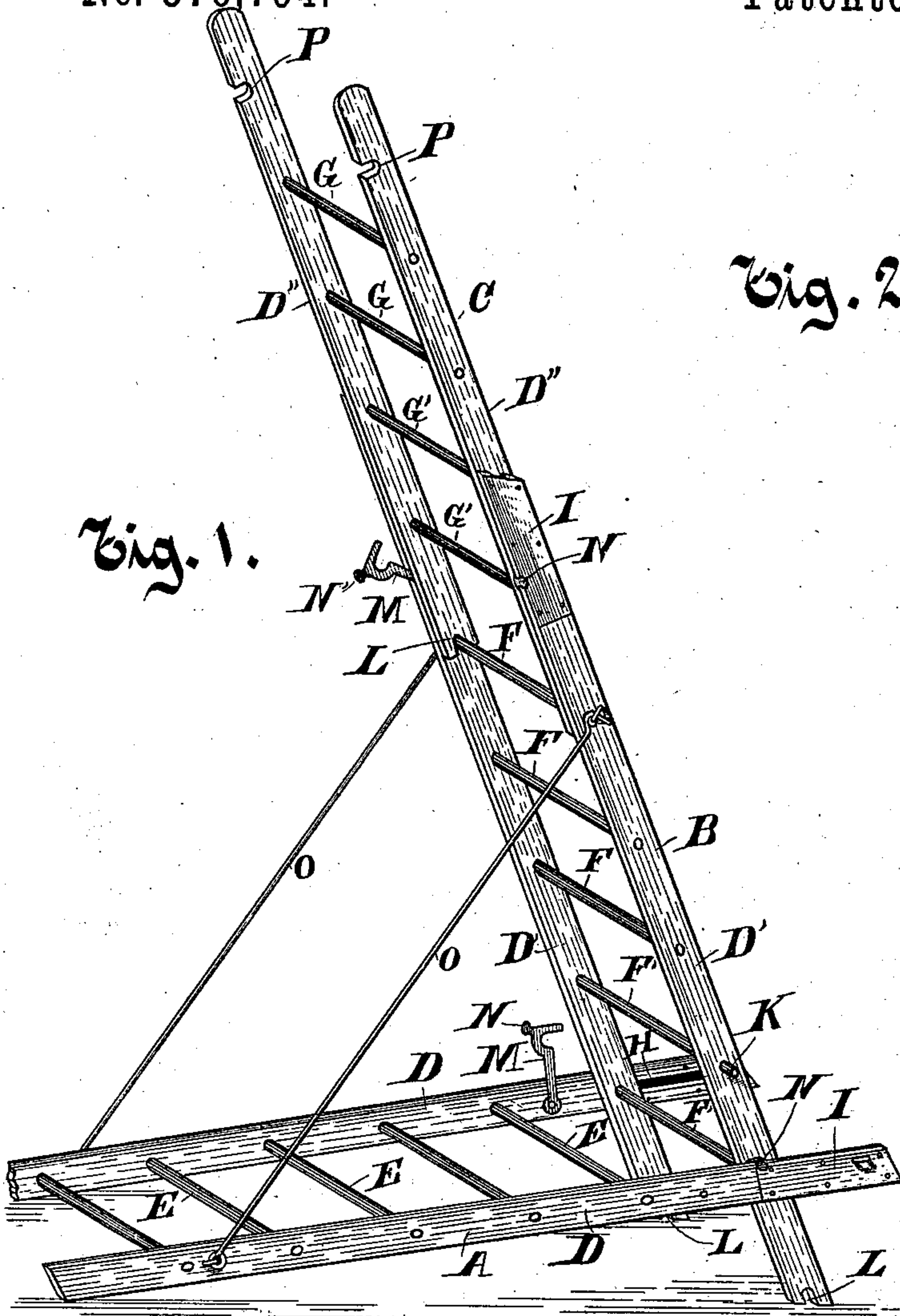


Fig. 2.

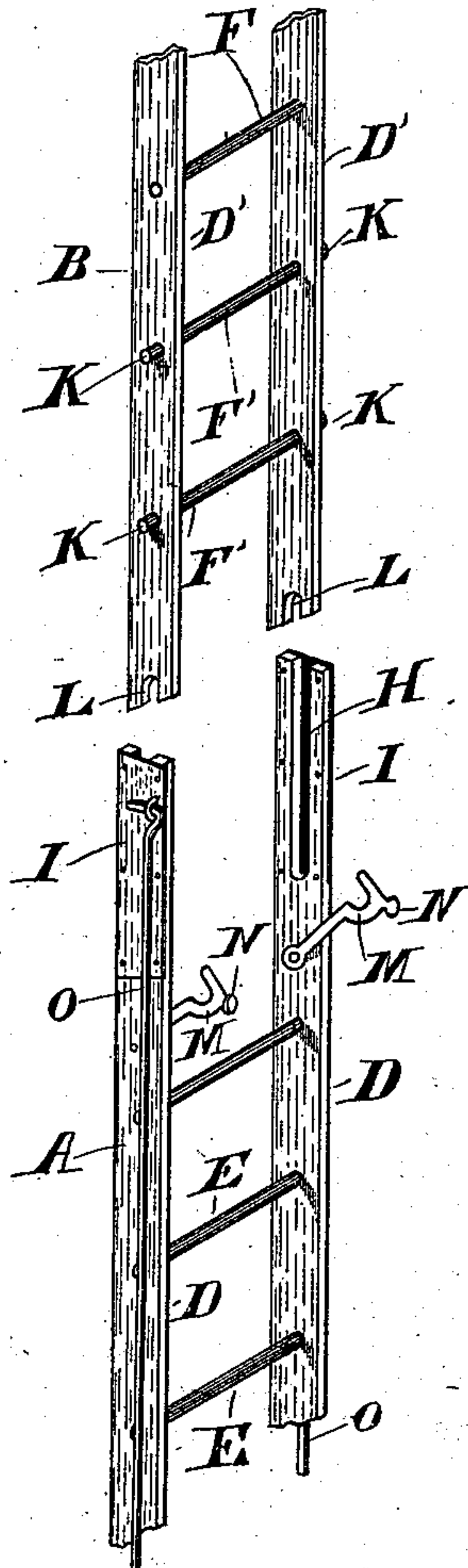
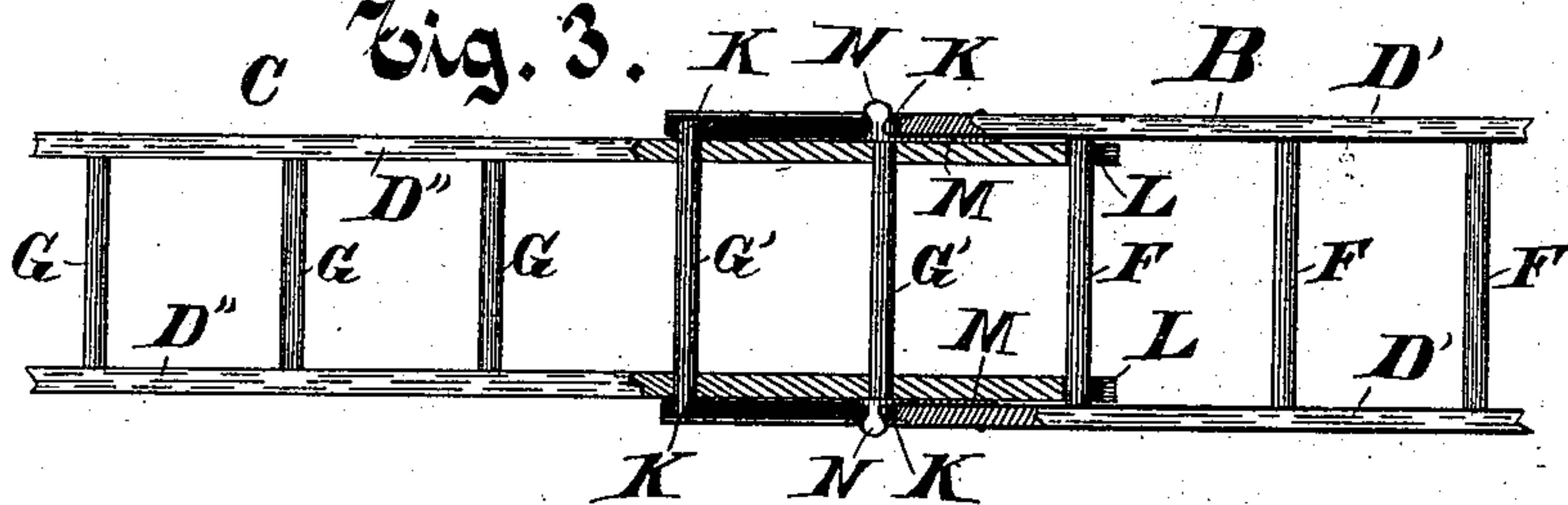


Fig. 3.



Witnesses.

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# UNITED STATES PATENT OFFICE.

HOSEA BARNES, OF KENOSHA, WISCONSIN.

## EXTENSION-LADDER.

SPECIFICATION forming part of Letters Patent No. 376,794, dated January 24, 1888.

Application filed November 17, 1887. Serial No. 255,398. (No model.)

*To all whom it may concern:*

Be it known that I, HOSEA BARNES, of Kenosha, in the county of Kenosha and State of Wisconsin, have invented new and useful Improvements in Extension-Ladders; and I do hereby declare the following to be a full, clear, and exact description of said invention, reference being had to the accompanying drawings, and to the letters or figures of reference marked thereon, which form a part of this specification.

My invention consists in the peculiar form and construction of the various parts and in the combination of the parts in a united mechanism.

In the drawings, Figure 1 shows my extension-ladder in three sections, but combined and arranged for self support. Fig. 2 shows a portion of two sections of my ladder, exhibiting, particularly, the means for and method of securing two sections together in a straight ladder. Fig. 3 shows two sections of the ladder united, parts being broken away to show the relative position of other parts.

In the drawings I have shown a ladder composed of three sections, A, B, and C; but the ladder may be made up of two or any greater number of sections. The side bars of the ladder, D, D', and D'', are connected together in the usual way by rigid rounds E, F, and G, which rounds form the steps of the ladder. The upper end of each of the two side bars of each section, except the top one, is provided with a longitudinal slot or recess, H, centrally laterally extending from the end into the bar a distance equal to the distance that two rounds are apart from each other. These side bars are, for the purpose of securing strength with lightness, preferably constructed of wood, and on the outside of the bars of the lower sections and opposite to the recesses H, I attach and fix permanently to the bars metal plates I I, for the purpose of securing greater strength and neatness of construction. The two lower rounds of all sections of the ladder above the lowest one extend through the side bars on each side of the ladder, as shown at K, a distance equal to the thickness of the side bars, forming pins or stays, and these outer ends of the rounds or stays K K are adapted to enter and rest in the recesses H H. The side bars

of each section of the ladder above the lowest one are so much nearer together than the side bars of the section next below it as equals the thickness of the side bars, whereby the side bars of section C are adapted to slide inside of the side bars of section B, and the side bars of section B are adapted to slide within and between the side bars of section A. The lower end of each of the side bars of each of the sections above the lowest one is provided with a recess, L, adapted to receive and fit upon the highest round of the next lower section, so that it will be seen that when the sections are joined together end to end, as the sections B and C are in Figs. 1 and 3, the ends K K of the two lowest rounds of the upper section, C, will be within and be retained by the side of the recess H, while the uppermost round of the lower section, B, will be within and retained by the sides of the recess L in the side bars of the upper section, whereby a strong splice is made upon and in connection with three rounds of the ladder. To secure the sections of the ladder together, two hooks, M M, are pivoted one to the inside of each bar of the lower section, A, at such point and in such manner as to hook upon and grapple the end K of the round of the next section between the adjoining sides of the side bars of the two united sections. These hooks, for convenience of manipulation, are each provided with flange or knob N, extending laterally slightly beyond the outside of the bars, to which they are attached, as shown in Fig. 3. The sections of this ladder are intended and adapted to be connected together end to end, making a continuous straight ladder; or two or more sections may be put together end to end, as are sections C and B in Fig. 1, and a third section, A, may be used for a foot, as shown in Fig. 1, thereby forming a self-supporting ladder. For the purpose of this self-supporting ladder I provide braces O O, hinged or pivoted at one end to the respective side bars of one section and at the other end hooking into eyes or staples secured in the side bars of another section of the ladder. These braces when not in use are supported in eyes therefor in the bars, to which they are hinged, as shown in Fig. 2. The recesses P P (shown in the side of the bars of section C) are for use



when my ladder is combined in a form of step-ladder not herein shown or claimed.

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

5 1. In extension-ladders, a lower section of the ladder, in which the upper ends of the side bars are each provided with a recess, H, and with a metal plate, I, in combination with another section of the ladder, having its side bars  
10 at such a distance apart as to be adapted to just slide within the side bars of the next lower section of the ladder, and having the outer ends, K K, of its two lowest rounds extend beyond the side bars, forming stays adapted to  
15 enter the recesses H H, and being provided with recesses L L in the ends of its side bars, substantially as described.

2. In extension-ladders, a section of the ladder B and therein the rounds F F, the ends of  
20 which extend beyond the side bars, forming the stays K K, and the recesses L L in the lower ends of the side bars, in combination with the section A, the recesses H H in the upper ends of its side bars, with plates I I, se-  
25 cured to the ends of the side bars opposite to the recesses H H, and the hooks M M, pivoted to the side bars of the section A and adapted to engage the lowest round of the section C, substantially as described.

3. In extension-ladders, a section of the ladder B, constructed and adapted to slide inside  
30 of a section of the ladder A, the stays K K on the section B, adapted to enter the recesses H H in section A, and the side bars of section B, adapted to rest on the upper round of the  
35 section A, in combination with the hooks M M, pivoted to section A, which hooks are provided with knobs N and are adapted to engage the outer ends of the lower round, F',  
40 between the side bars of the section B and section A, substantially as described.

4. In extension-ladders, a foot-section, A, provided with recesses H H, plates I I, hooks  
45 M M, and braces O O, in combination with an upwardly-extending section, B, having stays K K entering recesses H H in section A, and being secured to foot-section A by the braces  
O O and hooks M M, substantially as described.

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

HOSEA BARNES.

Witnesses:

S. N. BARBER,  
SAMUEL Y. BRANDE.