

J. R. SPEARS.
EXTENSION LADDER.
APPLICATION FILED OCT. 24, 1910.

982,890.

Patented Jan. 31, 1911.

2 SHEETS—SHEET 1.

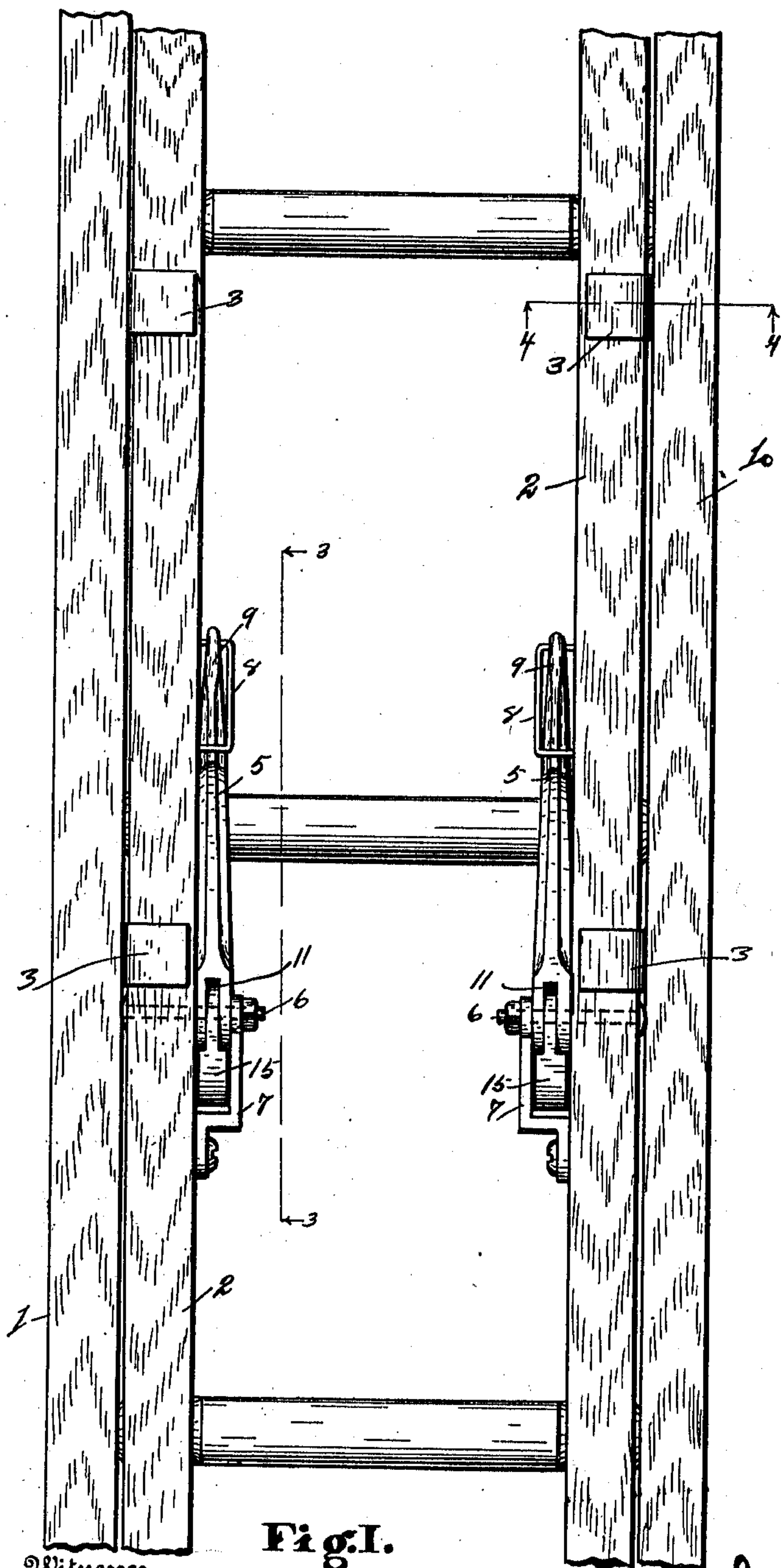


Fig. I.

Witnesses

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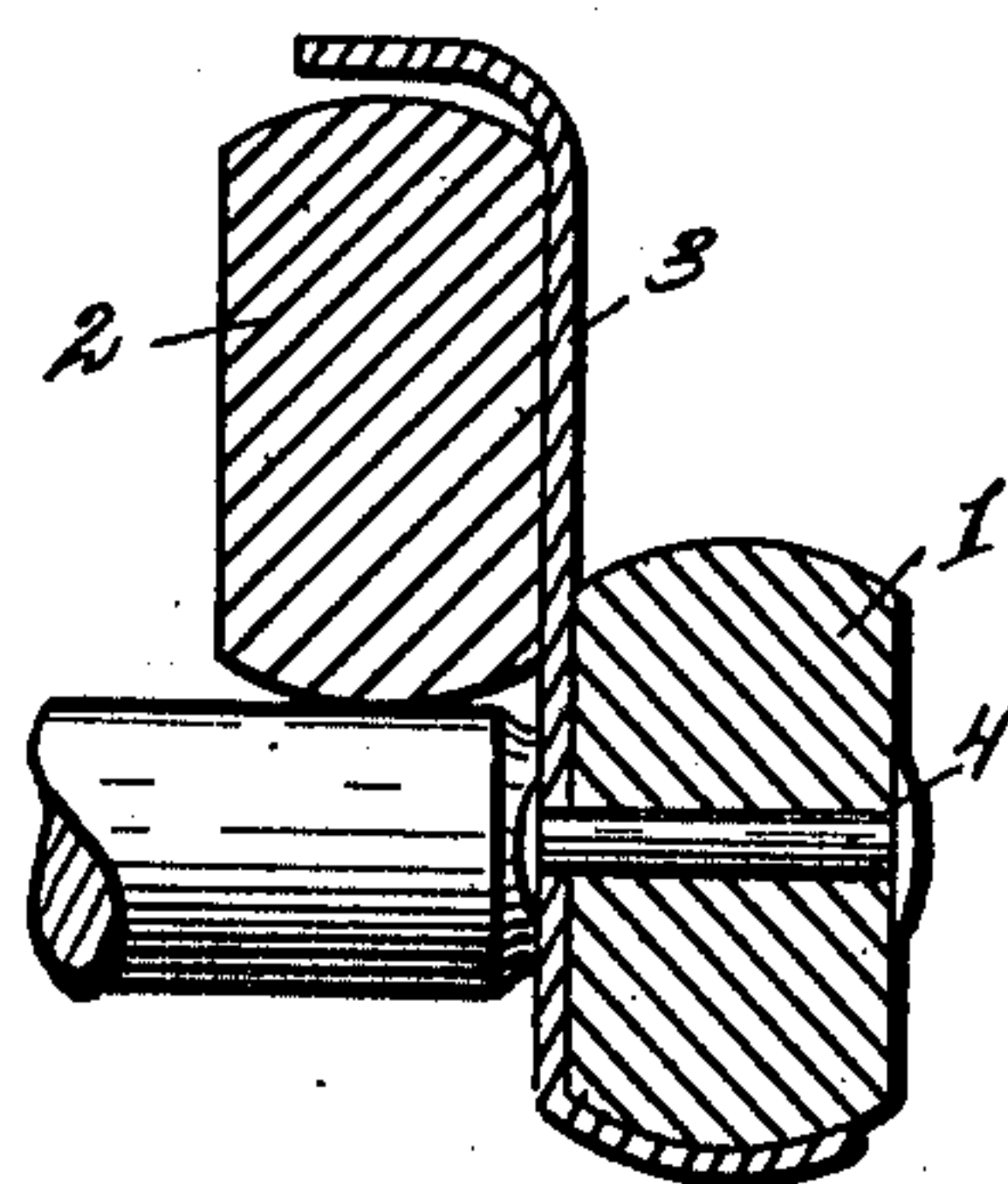


Fig. IV.

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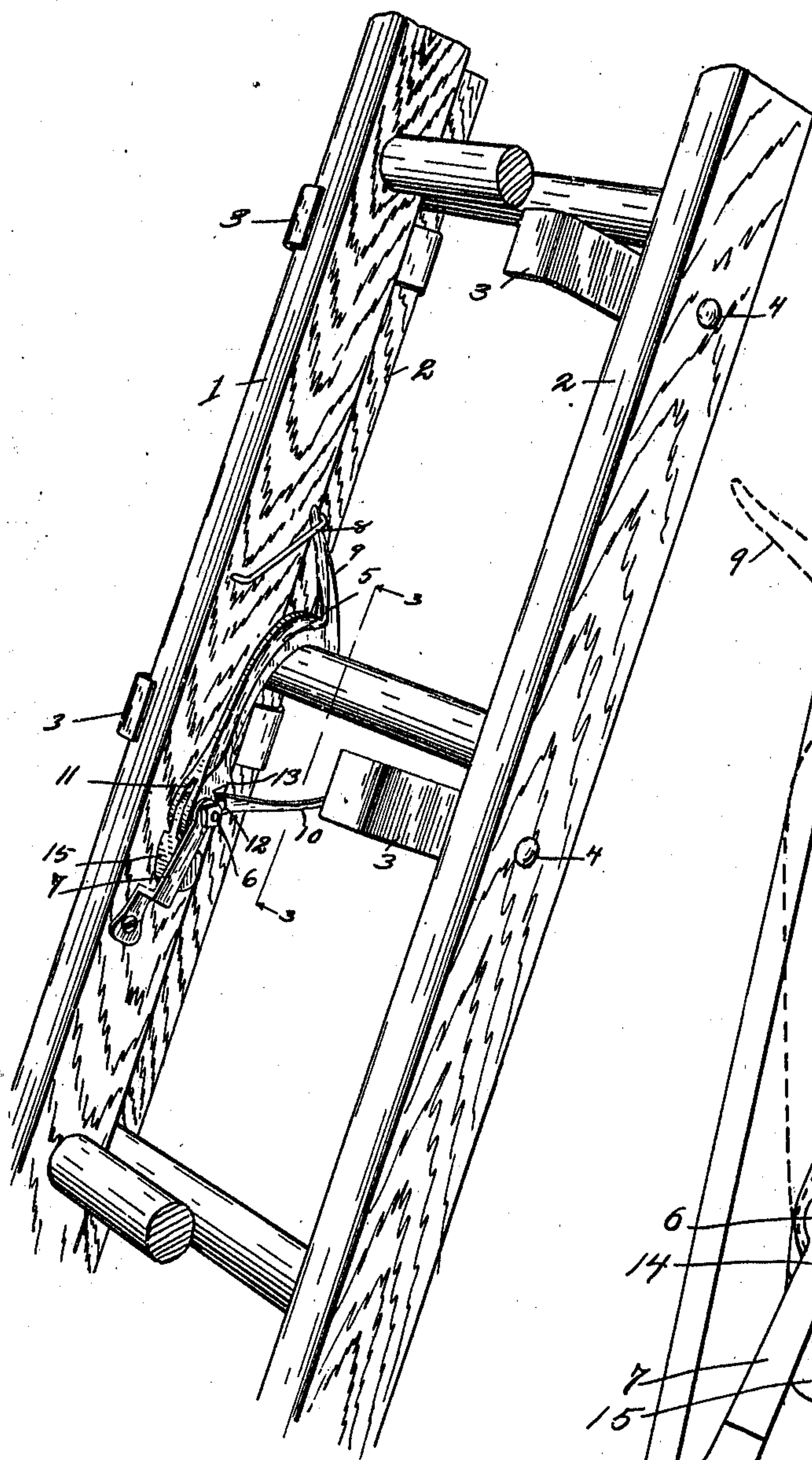


Fig. II.

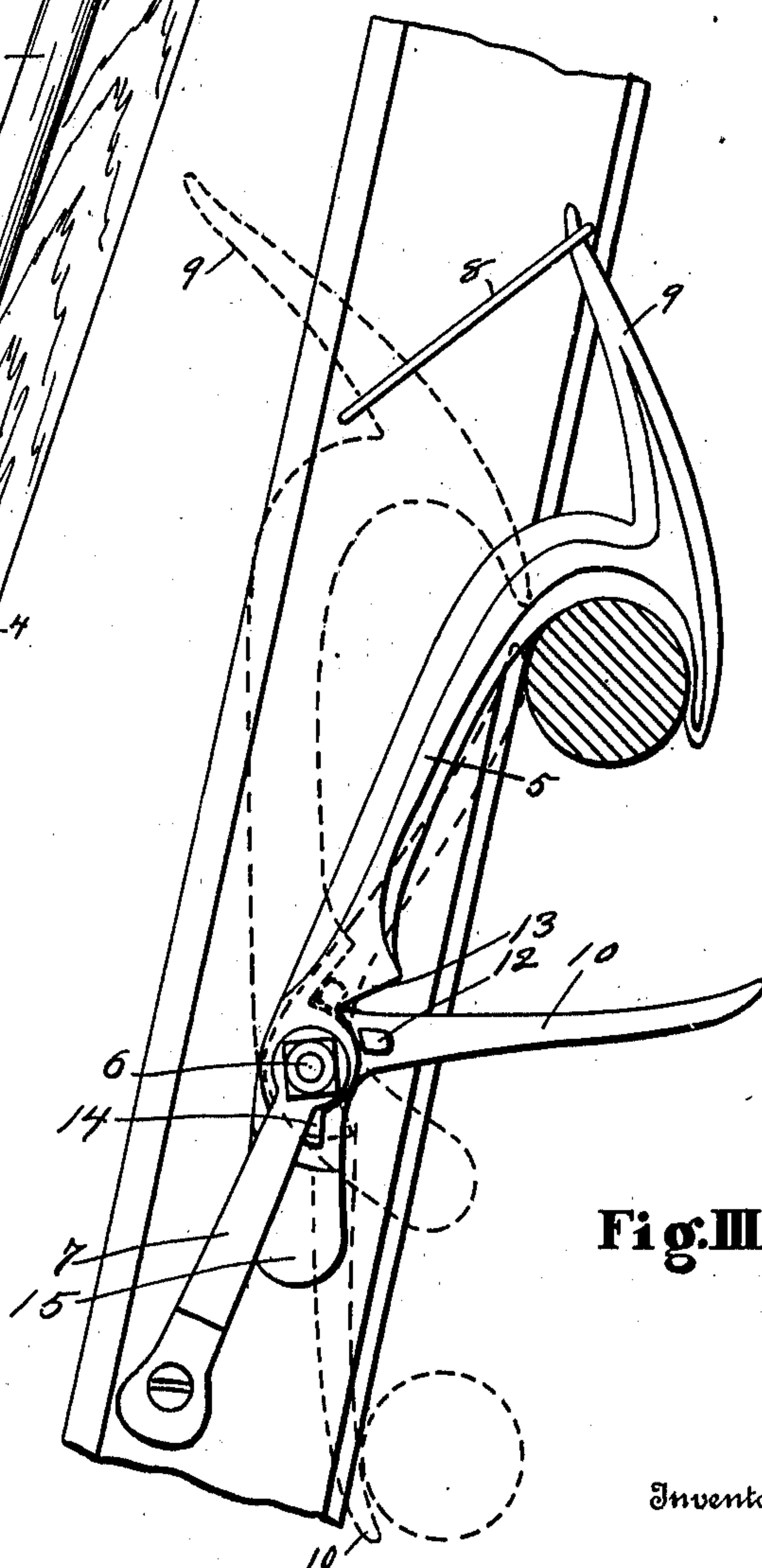


Fig. III.

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UNITED STATES PATENT OFFICE.

JESSE R. SPEARS, OF GOSHEN, INDIANA, ASSIGNOR TO GOSHEN CHURN & LADDER COMPANY, OF GOSHEN, INDIANA.

EXTENSION-LADDER.

982,890.

Specification of Letters Patent.

Patented Jan. 31, 1911.

Application filed October 24, 1910. Serial No. 588,793.

To all whom it may concern:

Be it known that I, JESSE R. SPEARS, a citizen of the United States, residing at Goshen, Indiana, have invented certain new and useful Improvements in Extension-Ladders, of which the following is a specification.

This invention relates to improvements in extension ladders.

The main objects of this invention are to provide in an extension ladder an improved securing or retaining hook which is automatic in its action and simple in structure, and one in which no springs are required.

Further objects, and objects relating to structural details, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined and pointed out in the claims.

A structure, which is a preferred embodiment of my invention, is clearly illustrated in the accompanying drawing, forming a part of this specification, in which:

Figure 1 is a detail front elevation of a structure embodying the features of my invention. Fig. 2 is a detail perspective view, the parts being broken away to better illustrate structural details. Fig. 3 is an enlarged detail vertical section taken on a line corresponding to line 3—3 of Figs. 1 and 2, the hook being shown in its inoperative position by dotted lines, and the hook actuating member being shown in engagement with a round of the rear section, in which position it throws the hook into its engaging position. Fig. 4 is an enlarged detail section taken on a line corresponding to line 4—4 of Fig. 1, showing means for slidably connecting the ladder sections.

In the drawings, similar reference characters refer to similar parts throughout the several views, and the sectional views are taken looking in the direction of the little arrows at the ends of the section lines.

Referring to the drawing, the structure illustrated comprises a rear ladder section 1 and a front section 2, the sections being slidably connected by means of the brackets 3, which are secured to the rear section, as by means of the rivets 4 to project over the side bars or risers of the front section. These sections are commonly formed of suitable

risers or side pieces and rounds, as is the usual practice in ladders of this type.

The hook 5 is mounted on the pivot 6 on the inner side of the side rail or riser of the front ladder section, so that the hook faces rearwardly and downwardly. One end of the pivot is supported by a strap-like bracket 7. The swing of the hook is limited by means of the loop 8, which engages the upwardly-projecting, rearwardly-curved arm 9 on the hook.

An actuating member 10 for the hook is provided, the lower end of the hook being slotted at 11 to receive the actuating member, which is pivotally mounted on the hook pivot 6. The actuating member 10 is provided with hook-engaging stops, preferably laterally-projecting lug-stops 12, which are adapted to engage the stop shoulders 13 on the hook above the pivot when the member 10 is swung up, and the stop shoulders 14 below the hook pivot when the member 10 is swung down. The actuating member 10 is held normally in the path of the rounds of the rear ladder section by means of the counterbalance 15. (See Fig. 3). The actuating member is adapted to close the hook as well as to actuate it.

With the parts thus arranged, when the front ladder section is moved up and down on the rear section, the hook is automatically thrown into and out of its engaging position. With the hook engaged, as is shown in the drawings, when it is desired to readjust the ladder, if it is desired to extend it, the outer section is merely pushed upwardly. The hook engaging with the round above will be swung to its disengaging position. The front section is, however, pushed up until the actuating member 10 engages the round with which it is desired to engage the hook, when the hook will be thrown into its engaging position and on lowering the front section, will engage.

When it is desired to lower or collapse the ladder, the front ladder section is moved upwardly until the actuating member passes the round with which the hook was engaged, and the front section is then lowered. The round engaging the under side of the actuating member throws the hook rearwardly, and with the actuating member adapted, as in the structure illustrated, to serve as a guard, closes the hook.

By arranging the parts as I have illustrated and described, I secure an automatic acting hook, which is simple in structure and operates effectively without the use of springs. I have illustrated and described the improvements in detail in the form in which I have embodied them in practice. I am aware, however, that the structural details may be varied considerably without departing from my invention, but as such variations in details will be obvious to those skilled in the art to which this invention relates, I have not attempted to illustrate or describe the same herein.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In an extension ladder, the combination of the front and rear slidably-associated ladder sections; a downwardly-facing hook pivotally mounted on the front section to coact with the rounds of the rear section, said hook being provided with stops above and below its pivot; and an actuating member mounted on the hook pivot to engage the rounds of the rear section as the front section is adjusted, said member being provided with means for bringing it normally to its round-engaging position and being adapted to coact with said stops on said hook, whereby said hook is thrown out of its engaging position on the downward movement and into its engaging position on the upward movement of said front ladder section.

2. In an extension ladder, the combination with the front and rear slidably-associated ladder sections; a downwardly-facing hook pivotally mounted on the front section to

coact with the rounds of the rear section, said hook being provided with stops below its pivot; and an actuating and guard member for said hook mounted on said hook pivot to engage the rounds of the rear section as the front section is adjusted, the lower end of said hook being slotted to receive said member, said member being provided with means for bringing it normally into its round-engaging position and with laterally-projecting lugs adapted to coact with said stops on said hook, whereby said hook is closed on the downward movement and thrown into its engaging position on the upward movement of said front ladder section.

3. In an extension ladder, the combination of the front and rear slidably-associated ladder sections; a downwardly-facing hook pivotally mounted on the front section to coact with the rounds of the rear section; and an actuating member arranged to engage the rounds of the rear section as the front section is adjusted, said member being provided with means for bringing it normally into its round-engaging position and being adapted, when actuated by the adjustment of the front ladder section, to swing said hook into its disengaging position on the downward movement, and to swing it into its engaging position on the upward movement of the front ladder section.

In witness whereof, I have hereunto set my hand and seal in the presence of two witnesses.

JESSE R. SPEARS. [L. s.]

Witnesses:

CHAS. McDONALD,
BERNARD S. PAINE.