

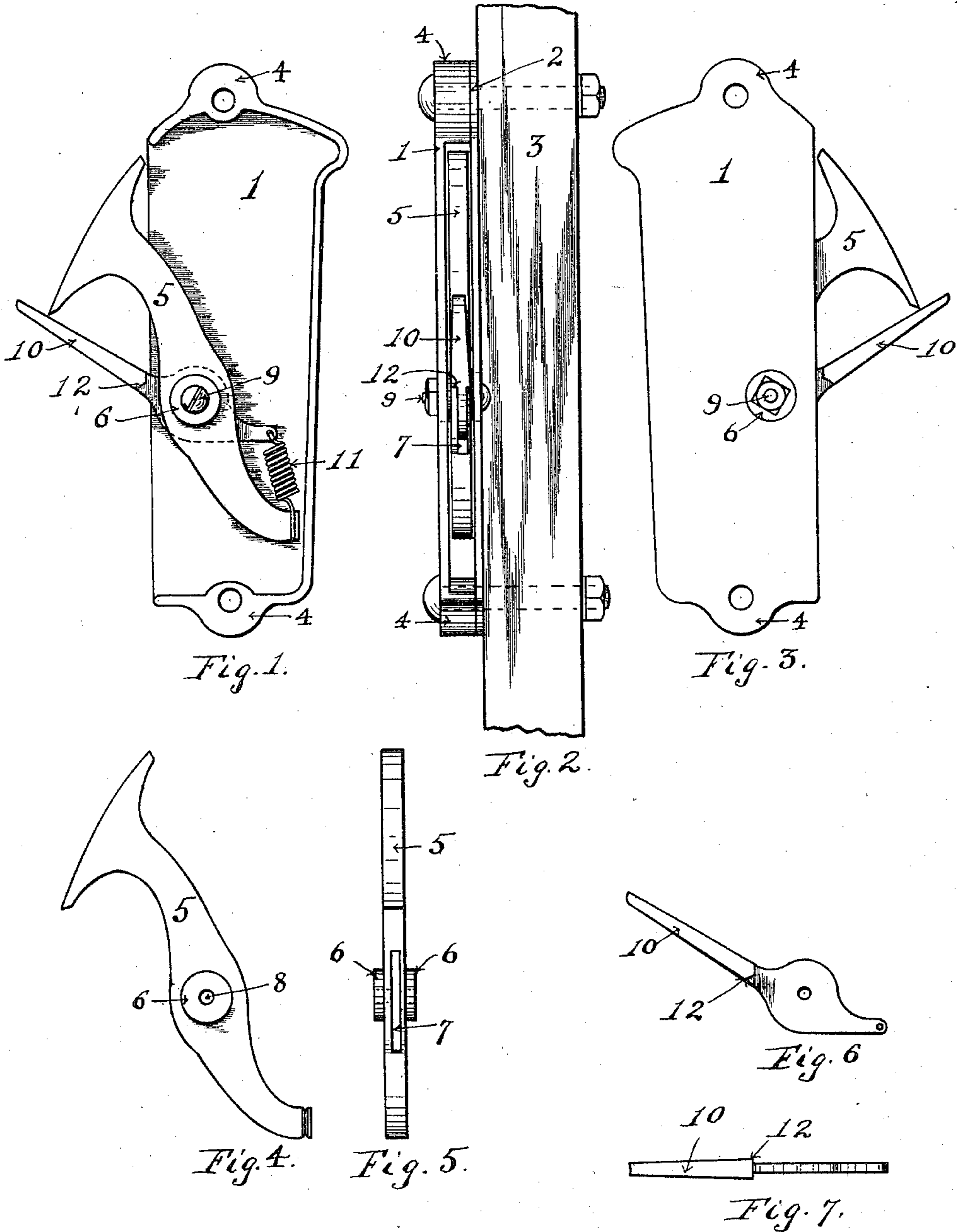
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PATENTED FEB. 3, 1903.

L. FERGUSON.  
AUTOMATIC EXTENSION LADDER HOOK.

APPLICATION FILED MAY 8, 1902.

NO MODEL.



Witnesses:

*D. B. Smith*  
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*Macomber & Ellis*

# UNITED STATES PATENT OFFICE.

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## AUTOMATIC EXTENSION-LADDER HOOK.

SPECIFICATION forming part of Letters Patent No. 719,449, dated February 3, 1903.

Application filed May 8, 1902. Serial No. 106,377. (No model.)

*to all whom it may concern:*

Be it known that I, LYMAN FERGUSON, a citizen of the United States, residing at Ithaca, New York, have invented certain new and  
5 useful Improvements in Automatic Extension-Ladder Hooks, of which the following is a full, clear, and exact description.

My invention relates to automatic extension-ladder hooks, and particularly to improve-  
10 ments upon my former invention shown and described in my Letters Patent No. 691,051, dated January 14, 1902.

The object of my invention is to simplify the construction, reduce the cost of manufacture, and to render the device less likely to  
15 get out of order and positive in its action even in the event of the breaking of the spring. I attain these ends by so pivoting the latch to the hook as to dispense with the necessity of  
20 any spring to throw the hook except the one spring connecting the hook and latch and so arranging the parts that even if the said spring is broken the hook will be forced into engagement with the rung of the ladder by the  
25 action of the latch.

Referring to the drawings herewith, in which like characters of reference indicate corresponding parts, Figure 1 is a side view with the plate or side casing removed. Fig.  
30 2 is an edge view of the hook, showing it in position upon the side piece of a ladder-section. Fig. 3 is a side view opposite to that of Fig. 1. Fig. 4 is an elevation of the hook. Fig. 5 is an edge view of the same. Fig. 6 is  
35 an elevation of the latch. Fig. 7 is a top edge view of the same.

1 represents the casing, and 2 the casing-plate, which together form a box or frame for the working parts. These are secured to the  
40 ladder side piece 3 by means of bolts which pass through lugs 4 of the casing and plate and the side piece of the ladder. The hook  
45 5 is provided with cylindrical studs 6, which engage in registering holes in the casing 1 and plate 2 and form the pivot or bearing for the hook. The rear end of the hook 5 is curved (with reference to the position shown in Fig. 1) downwardly and rearwardly to an  
50 extent such that when the hook is thrown out of the casing to the full limit for engagement the end of this downward extension will strike

against the wall of the casing and prevent the hook from falling out farther than the position proper for engagement. This extension is provided near its end with a groove  
55 to hold the end of a spring, as hereinafter described.

The hook 5 is provided with a central slot or rectangular opening, as clearly shown at  
60 7 in Fig. 5, and is transversely bored through the axes of the studs 6, as clearly shown in Fig. 4 at 8. Into this slot 7 the flattened portion of the latch 10 slides freely, and by means of a bolt or screw 9, passing through the bear-  
65 ings or studs 6 and a hole in the latch registering therewith, the latch is pivoted to the hook. The rear end of the latch 10 extends to the rear of the hook 5 sufficiently to engage, by means of an eye, the helical retracting-  
70 spring 11, the other end of which spring is secured to the extension of the hook 5, as above mentioned. The latch 10 has shoulders 12 so  
75 positioned as to engage against the face or edge of the hook 5 in the event of the spring 11 being broken or failing to act, as hereinafter described. It will now be seen that as  
80 the head of the hook 5 is considerably heavier than the rear extension and as the same is true of the latch 10 in the normal position of a ladder the hook will go to position for  
85 engagement by gravity; but should it fail to do so for any reason the end of the latch 10 which projects considerably beyond the face of the hook will lie in the plane of the rungs  
90 even when the hook is back in the casing and will, through the spring 11, throw the hook out into engagement; but suppose the spring 11 is broken in that case the latch  
95 will engage the rung whatever the position of the hook, and the shoulders 12 on the latch 11 will strike the body of the hook and carry it into action.

The normal action is of course self-evident from the above description, and with the construction described positiveness of action is  
95 secured under all circumstances.

Having thus described my invention, what I claim is—

1. In combination with an extension-ladder, a casing, a hook pivoted to said casing, a latch  
100 pivoted to said hook, an extension on said hook, and an extension on said latch, and a

retracting-spring uniting said extensions, whereby the hook is thrown into position of engagement by the engagement of the latch with a rung of the ladder, substantially as  
5 and for the purposes set forth.

2. In combination with an extension-ladder, a casing, a hook pivoted in said casing, an extension on said hook positioned so as to limit the forward movement of the hook to the  
10 proper position for engagement, a latch pivoted to said hook, an extension on said latch, a retracting-spring engaging the extension of said latch with said extension of said hook, whereby the hook is thrown into, and limited  
15 to, the proper position for engagement, substantially as and for the purposes set forth.

3. In combination with an extension-ladder, a casing, a hook pivoted in said casing, a latch, a slot in said hook, pivot-studs on said hook,  
20 a pivot carrying said latch having a common axis with said studs, an extension on said hook, an extension on said latch, and a retracting-spring engaging said extensions, whereby said hook is carried into position of

engagement by the engagement of said latch 25 with a rung of the ladder, substantially as and for the purposes set forth.

4. In combination with an extension-ladder, a casing, a hook pivoted therein, a latch pivoted in a slot in said hook, an extension on 30 said hook to limit its forward movement, an extension on said latch, a retracting-spring engaging said extensions to throw the hook into position for engagement by the engagement of the latch with a rung of the ladder, 35 and a shoulder on said latch to engage with the body of the hook and so positioned as to force the hook into position for engagement by the engagement of the latch with a rung of the ladder in the event of the failure of the 40 spring to perform its proper function, substantially as and for the purposes set forth.

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

LYMAN FERGUSON.

Witnesses:

D. B. TUTTLE,  
JOHN F. CALLAN.