

(No Model.)

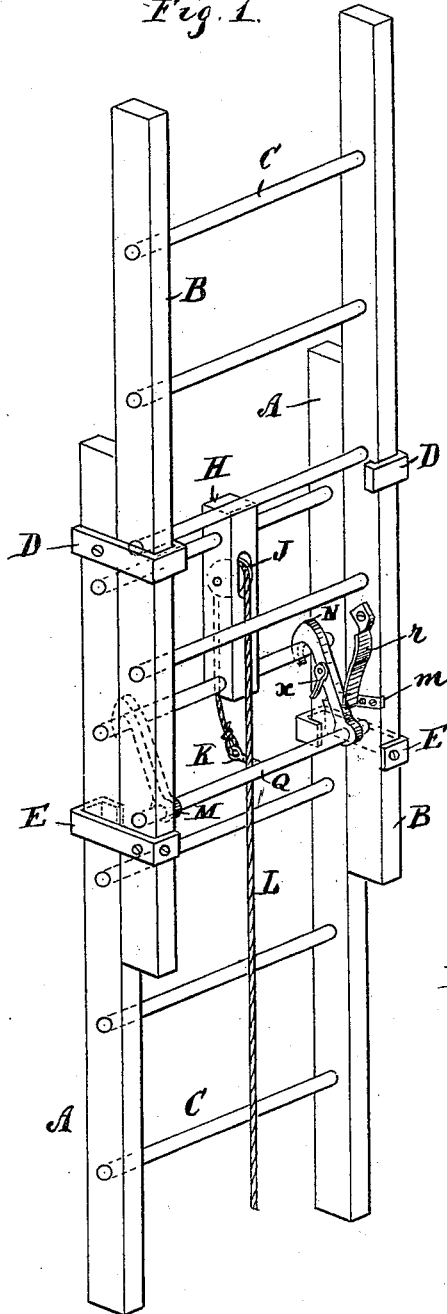
E. E. FOX & G. McDORMAND.

LADDER.

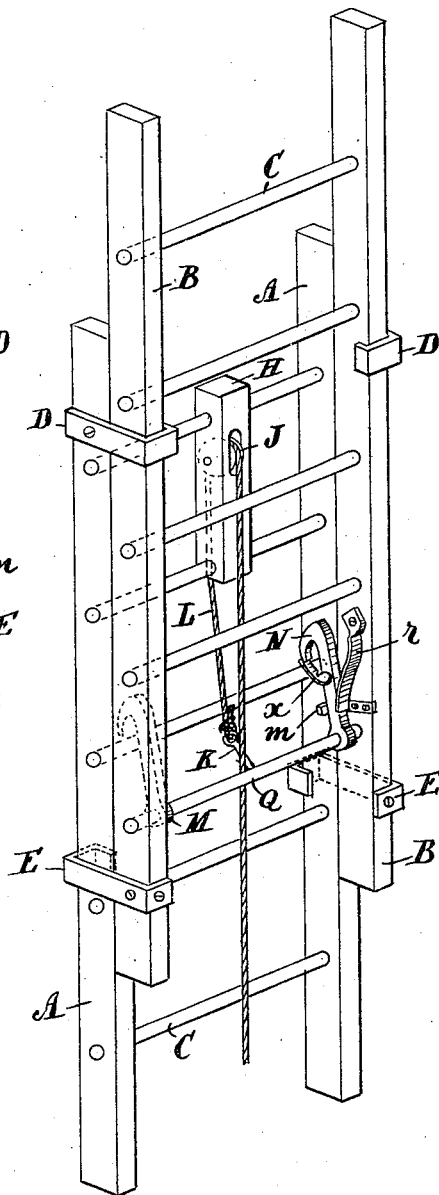
No. 304,420.

Patented Sept. 2, 1884.

*Fig. 1.*



*Fig. 2.*



*Witnesses.*

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# UNITED STATES PATENT OFFICE.

EUGENE E. FOX AND GEORGE McDORMAND, OF SOMERVILLE, MASS.

## LADDER.

SPECIFICATION forming part of Letters Patent No. 304,420, dated September 2, 1884.

Application filed June 6, 1884. (No model.)

*To all whom it may concern:*

Be it known that we, EUGENE E. FOX and GEORGE McDORMAND, of Somerville, in the county of Middlesex, State of Massachusetts, have invented a certain new and useful Improvement in Ladders, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is an isometrical perspective view representing our improved ladder partially extended and the hooks engaged with the rungs, and Fig. 2 a like view representing it nearly closed and the hooks disengaged.

Like letters of reference indicate corresponding parts in the different figures of the drawings.

Our invention relates to that class of ladders which are extensible or known as "extension-ladders;" and it consists in a novel construction and arrangement of the parts, as hereinafter more fully set forth and claimed, by which a more effective device of this character is produced than is now in ordinary use.

The nature and operation of the improvement will be readily understood by all conversant with such matters from the following explanation, its extreme simplicity rendering an elaborate description unnecessary.

In the drawings, A B represent the two sections composing the body of the ladder, and C the rungs.

Attached to either side rail of section A, near its upper end, there is a clamp, D, which loosely embraces one of the rails of section B, these clamps forming ways in which said last-named section slides longitudinally on section A. A corresponding pair of clamps, E, are attached to the lower end of the side rails of section B, and form ways for section A.

Disposed centrally between the side rails of section A there is a vertically-arranged bar, H, supported by the upper rungs of said section and provided with the sheave J.

Journaled in the side rails of the lower portion of section B there is a rocker-shaft, Q, provided at its center with the inwardly-projecting arm K, to the outer end of which a cord, L, is secured, the cord passing upwardly behind the

bar H, over the sheave J, and downwardly between the rungs of the respective sections of the ladder.

Rigidly secured to one end of the rocker-shaft in section B there is an upwardly-projecting hook, M, and to the opposite end of said shaft a corresponding hook, N, the hooks standing at nearly right angles to the arm K. The hook N is provided with a short bar or guard, *x*, which is pivoted to the body of said hook and adapted to close it when turned upwardly, as shown in Fig. 2, and thereby prevent the hook from engaging the rungs of section A. A stop, *m*, is attached to one of the rails of section B near the hook N, said stop being adapted to prevent the shaft from turning too far or the hooks from assuming such a position as to render them liable to pass under the rungs of section A, instead of over them, during the operation of extending the ladder. A spring, *r*, is secured to one of the rails of section B near the hook N, and is so arranged as to act upon said hook to force it inwardly into contact with the stop *m*.

In the use of our improvement, the ladder is erected against the building with section A innermost. The cord L is then pulled, raising the inner end of the arm K, throwing the hooks M N outwardly, opening the guard *x* and drawing up or elevating the outer section, B. When said last-named section has been raised to the required height, the cord L is slackened suddenly, permitting the spring *r* to force the hooks inwardly and cause them to engage a rung in section A, thereby suspending section B in a manner which will be readily obvious without a more explicit description. To lower section B or close the ladder, the cord is pulled downwardly far enough to disengage the hooks from the rung with which they are engaged, and while so disengaged section B is permitted to slide down section A, the guard *x* striking successively the rungs of said last-named section, closing the hook N, and thereby preventing the hooks from engaging the rungs.

We do not confine ourselves to using two hooks, as the hook M may be dispensed with. The rocker-shaft may also be used as a rung, if desired; or an additional rung may be employed, as preferred.

We are aware of the patent granted to Davis

March 23, 1875, No. 161,010, and do not claim anything therein shown or described, when in and of itself considered, our invention being essentially different from his.

5 Having thus explained our invention, what we claim is—

In an extension-ladder, the section A, provided with the clamps D and sheave J, the section B, provided with the clamps E and  
10 stop *m*, the rocker-shaft Q, provided with the

arm K, the hook N, provided with the guard *x* and spring *r*, the hook M, and cord L, constructed, combined, and arranged to operate substantially as set forth.

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Witnesses:

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