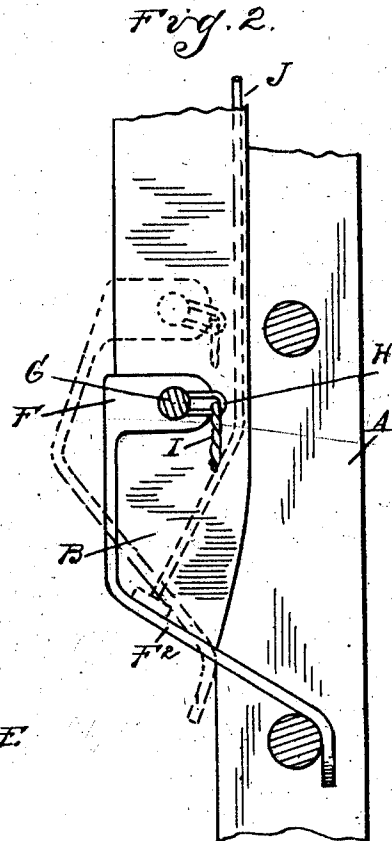
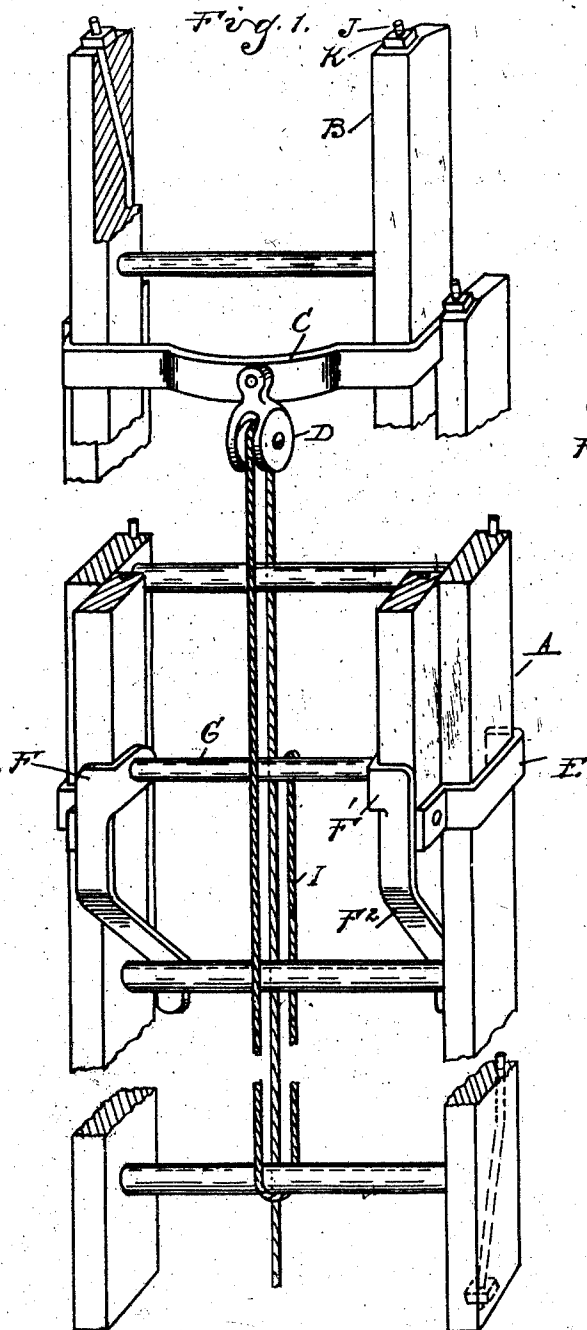


F. A. DRUMMOND.
EXTENSION LADDER.
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1,044,152.

Patented Nov. 12, 1912.



Witnesses
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UNITED STATES PATENT OFFICE.

FREDRICK A. DRUMMOND, OF LONDON, ONTARIO, CANADA.

EXTENSION-LADDER.

1,044,152.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FREDRICK A. DRUMMOND, a subject of the King of Great Britain and Ireland, residing at London, in the Province of Ontario and Dominion of Canada, have invented certain new and useful Improvements in Extension-Ladders, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to extension ladders and consists first in the peculiar construction and arrangement of the dogs or holding devices for securing the ladders in different positions of adjustment, and further in various features of construction as hereinafter set forth.

In the drawings,—Figure 1 is a sectional perspective view; and Fig. 2 is a central longitudinal section.

A and B are respectively the lower and upper ladder sections which are arranged to engage each other in the usual way, the side rails of the upper section preferably fitting within the side rails of the lower section.

C is a strap at the upper end of the lower section for embracing the upper section and having centrally secured thereto, the sheave or pulley D.

E are straps secured to the lower end of the upper section embracing the opposite side rails of the lower section. Thus the straps C and E will together hold the ladder sections in slidable engagement with each other.

One of the objects of the invention is to avoid all danger of accident and collapsing of the ladder through the breaking of a rung. It is usual to attach the holding dogs which secure the ladder sections, in different positions of adjustment, to the lower rung of the upper section, and thus if at any time this rung is broken a serious accident may occur. With my improved construction the dogs are so attached as to engage the lower ends of the side rails of the upper ladder section and thus secure the same without depending upon the strength of the rung.

In detail, F and F' are dogs which are mounted upon a cross rod G pivotally engaging bearings in the opposite side rails of the upper ladder section. These dogs are fashioned to overlie the outer face of each side rail and are then bent inward beneath the end of the rail and extend a sufficient

distance to engage with the rung of the lower ladder section. The inclination of the bent portion F² forms a cam which forces the upper section inward against the lower section, increasing the frictional engagement and assisting in holding the parts from movement without transmitting all of the downward stress to the supporting rung.

For disengaging the dogs, the cross rod G is provided with a rearwardly projecting hook or arm H to which one end of the rope or cable I is attached, said cable extending around the lower rung of the ladder section and then upward over the sheave or pulley D and then down again to the lower rung of the upper ladder section. The arrangement is such that by pulling the rope I in one direction the upper ladder section is hoisted, while by pulling in the opposite direction or by drawing upon a portion of the rope attached to the hook H the dogs will be thrown outward so as to clear the rungs of the lower ladder section and permit the upper section to be lowered.

To increase the strength of the ladder I preferably employ reinforcing metallic rods which extend in a groove on the under face of each side rail. These reinforcing rods J near the ends of the rails are bent and extend through bores in the rails to the ends thereof where they are provided with adjusting nuts K. These permit of tensioning the rods up so as to greatly increase their efficiency in trussing the rails.

It will be understood that a ladder constructed as described has a large factor of safety and at the same time is easily manipulated and is simple in construction.

What I claim as my invention is:

1. In an extension ladder, the combination with a lower section and an upper section slidably engaging each other, of a locking dog pivotally attached to the upper section and extending beneath and in contact with the end of the side rail thereof, said dog being adapted to engage the rung of the lower ladder section and constructed to force the upper section inward against the lower.

2. In an extension ladder, the combination with a lower section and an upper section slidably engaging each other, of a locking means comprising a cross bar pivotally engaging the side rails of the upper ladder section, dog members secured to said cross rod overlapping the front face of said

side rails and extending beneath and in contact with the ends thereof, said dogs projecting inward for engagement with the rungs of the lower ladder section.

3. In an extension ladder the combination with a lower and an upper section slidably engaging each other, of a securing device therefor comprising a rod pivotally engaging the side rails of the upper ladder section, and dogs mounted upon said rod lying adjacent to the outer faces of said side rails and extending inward in an inclined position adjacent to the lower ends of said side rails and into engagement with the rungs of the lower ladder section.

4. In an extension ladder, the combination with a lower and an upper section slidably engaging each other, of a securing device therefor comprising a cross rod pivotally engaging the side rails of the upper ladder section, dogs mounted upon said cross bar and bent to lie adjacent to the outer face of said side rails and then to ex-

tend inward adjacent the lower ends thereof into engagement with the rungs of the lower ladder section, a hoisting cable for extending the ladder sections, and a return loop of said hoisting cable extending from the lower rung of the lower ladder section and operatively connected to said rod to rock said dogs out of engagement with the rungs. 25

5. In an extension ladder, the combination with a lower section and an upper section slidably engaging each other, of a locking dog pivotally attached to one of the sections and having a cam face for engaging the rungs of the other section, said cam face being constructed to force the sections toward each other. 35 40

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

FREDRICK A. DRUMMOND.

Witnesses:

JAMES P. BARRY,
WILLIAM PAGEL.