

No. 700,073.

Patented May 13, 1902.

R. NICHOLLS.

FIRE ESCAPE AND FIRE ALARM FOLDING LADDER.

(Application filed Oct. 1, 1901.)

(No Model.)

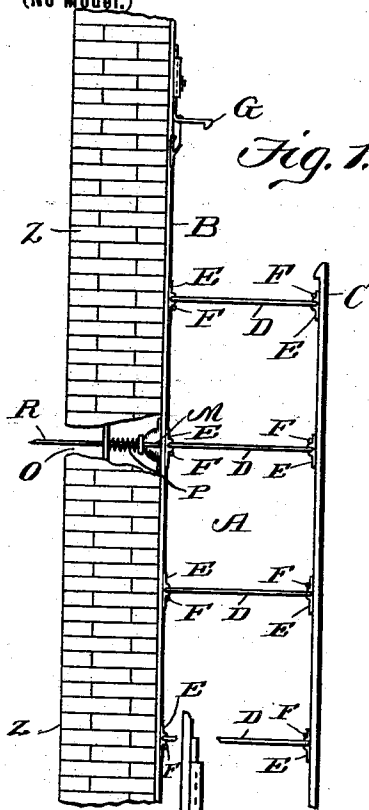


Fig. 1.

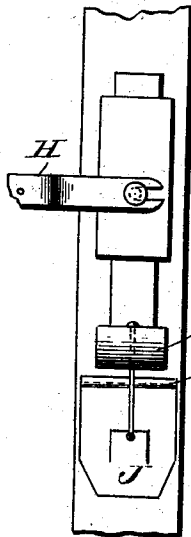


Fig. 6.

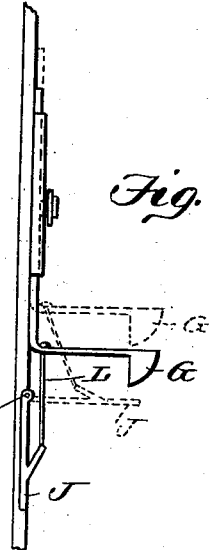


Fig. 7.

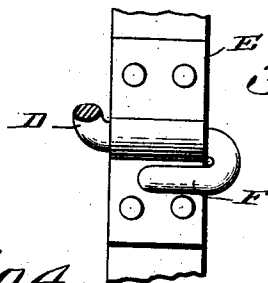


Fig. 3.

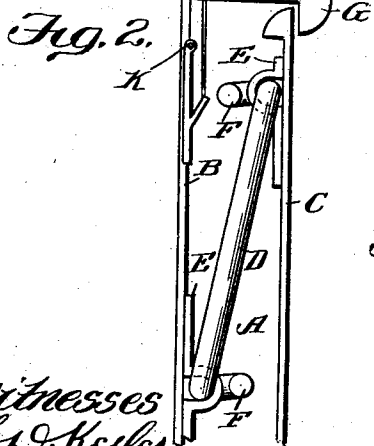


Fig. 2.

Fig. 4.

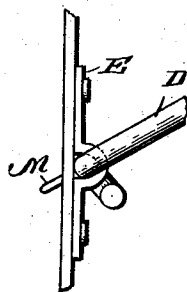
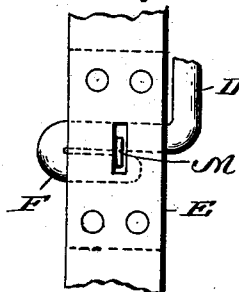


Fig. 5.



Witnesses
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REUBEN NICHOLLS, OF AUCKLAND, NEW ZEALAND.

FIRE-ESCAPE AND FIRE-ALARM FOLDING LADDER.

SPECIFICATION forming part of Letters Patent No. 700,073, dated May 13, 1902.

Application filed October 1, 1901. Serial No. 77,222. (No model.)

To all whom it may concern:

Be it known that I, REUBEN NICHOLLS, range-maker, a subject of His Majesty the King of the United Kingdom of Great Britain and Ireland, residing at the city of Auckland, in the Provincial District of Auckland and Colony of New Zealand, have invented a certain new and useful Improvement in Fire-Escapes and Fire-Alarm Folding Ladders, of which the following is a specification.

This ladder being a folding one is intended to provide a ready means of escape and at the same time to sound an alarm by the unfolding or opening out of the ladder. It comprises two parallel side pieces with specially-shaped rungs between them, a catch adjusted to inside side piece, so as to hold outer side piece folded, a trip-trigger connection to open and thrust out outer side from inner side on catch being lifted, and a peg adjustment to inner side of one of the rungs to operate fire-alarm when the ladder is being opened out.

The accompanying drawings show seven figures, of which—

Figure 1 is an elevation showing ladder attached to side of house opened out with catch and trip-trigger connected to the wall overhead and peg connection for sounding fire-alarm. Fig. 2 is an elevation showing the ladder folded up and held by catch. Fig. 3 is a view of part of rung in bearing or holder, showing turned-in piece resting against holder. Fig. 4 is a side view of part of rung and projecting peg attached, which operates the fire-alarm. Fig. 5 is a back view showing peg drawn in by folding up of ladder. Fig. 6 is a front view of catch and trip-trigger, and Fig. 7 is a side view of catch and trip-trigger.

The folding ladder A consists of two parallel side pieces, of which the inner one, B, is fixed to the wall Z of the house, while the outer one, C, is either closed up to the inner one, as shown in Fig. 2, or is opened out from it, as shown in Fig. 1. Rungs or steps D are fixed at regular distances to the insides of the pieces B and C and are held thereto by bearings or holders E, in which their opposite ends are inserted with sufficient lengths F projecting to permit of their being turned in, so as to fit immediately under or over the bearings E or against the side to which the bearings E are fixed, and main portions of

the rungs D are turned in at right angles to the bearings, and so form the steps. The ends F of the rungs D, fitted to the inner side piece B, are turned under the bearings E, while the ends F, fitted to the outer side piece C, are turned over above the bearings E, which when the ladder is open keep the rungs in a horizontal position and stiff and rigid, while in closing the ladder when the side piece C is drawn to the fixed side piece B they rise off the bearings E on both pieces and permit the rungs D to turn therein, whereby the outer or folding side piece C rises and lies close against the inner and fixed side piece B, where it is caught and held tight by a latch G. This latch G is operated by a lever H, which on being drawn down raises the latch G and with it the trip-trigger or kicking-piece J, pivoted at K by means of the rod connection L, as shown in dotted lines in Fig. 7, so that as the trigger or kicking-piece J moves out it strikes the outer piece C as the latch G is lifted off its top and gives it the requisite impetus to cause it to open out, when the rung having the peg M projecting from it through the side piece B into the hole O in the wall Z, moving into a horizontal position, causes the peg to press against the spring P, which sets the bell attached to same to or about R ringing and so gives the required alarm. Angle-iron is riveted to the side pieces B and C of such a width as not to interfere with a free movement up and down the ladder when open, but so as to come together when the ladder is folded, which both projects the rungs and stiffens the whole structure. These angle-irons are not shown on the figures in the drawings, as their use is not novel and their inclusion in the drawings would only hide parts necessary to be shown. The trip-trigger J can be reduplicated lower down the ladder or other means adopted to insure the speedy unfolding of the outer piece C.

To give effect to the invention, the inner side piece B is fastened to the wall Z, as shown in Fig. 1, when, the ladder A being closed or folded, the lever H, which is fixed close to a window or other opening, is depressed, so that the latch G is thereby raised and with it the trigger J, whereby the outer side piece C opens out until the rungs D assume a horizontal position by the resistance

of their turned ends F pressing on the upper and lower sides of the bearers E, and as the ladder opens out the alarm is sounded by the peg M pressing the spring P. The latter being opened escape can easily and readily be made down the same, as ordinarily its lower ends will be close to the ground or some place of safety. The ladder can be secured to the wall in an upright position or it may be placed diagonally across the building, so as to be within reach of more windows or openings than one, and in such a case means will be provided by cord, wire, or such like to operate the lever H, so as to insure the opening of the ladder. If so desired, a small hand-rail can be affixed to the outer side piece C and a staging provided at the opening to facilitate egress.

Having fully described my invention, what I desire to claim and secure by Letters Patent is—

1. In a ladder, side pieces having bearings, rungs or steps the ends of which extend through said bearings and are oppositely turned to embrace said bearings, combined with a catch for holding said side pieces together when folded up, and a pivoted kicker for one of said side pieces connected with the catch. 25

2. In a ladder, side pieces having bearings, rungs or steps the ends of which extend through said bearings and are oppositely turned to embrace said bearings, combined with a catch for holding said side pieces together when folded up, a pivoted kicker for one of said side pieces connected with the catch, and means carried by one of said rungs for operating a signal. 35

REUBEN NICHOLLS.

Witnesses:

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