

(No Model.)

M. C. WALLS.
EXTENSION LADDER.

No. 353,722.

Patented Dec. 7, 1886.

Fig. 2.

Fig. 1.

Fig. 3.

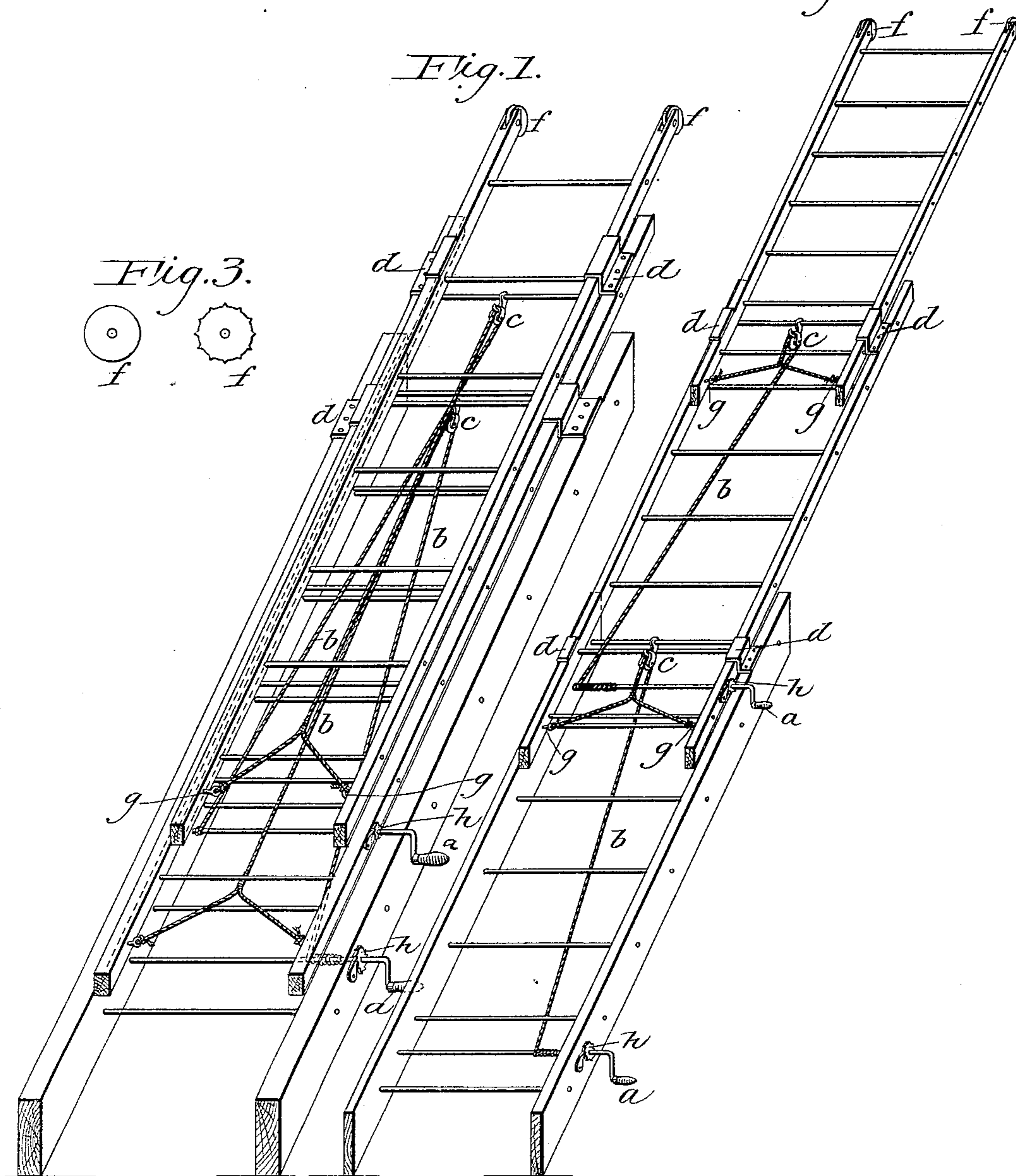


Fig. 4.

Witnesses:

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UNITED STATES PATENT OFFICE.

M. CLINTON WALLS, OF CLAYTON, INDIANA.

EXTENSION-LADDER.

SPECIFICATION forming part of Letters Patent No. 353,722, dated December 7, 1886.

Application filed July 7, 1886. Serial No. 207,373. (No model.)

To all whom it may concern:

Be it known that I, M. CLINTON WALLS, a citizen of the United States, residing at Clayton, in the county of Hendricks and State of Indiana, have invented a new and useful Extension-Ladder, which has not, to my knowledge, been patented in any country or countries whatsoever, of which the following is a specification.

My invention relates to an extension-ladder in which two or more ladders are combined and operated by means of windlass, rope, and pulleys; and the objects of my invention are, first, to raise a ladder to any height desired; second, to enable the mechanic or operator to do it easily and quickly; third, by means of the rubber-rimmed rollers in the end of the top ladder to avoid defacing or scarring the surface on which it is elevated, and at the same time to lessen the possibility of the ladder slipping sidewise. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure I is a combination of three ladders, represented as closed. Fig. II represents No. I as extended. Fig. III represents the rollers to be used in the end of the top ladder. Fig. IV represents the windlass.

Similar letters refer to similar parts throughout the several views.

Any number of ladders, together with the attachments of the windlasses *a*, rope *b*, pulleys *c*, ratchet and ratchet-wheels *h*, clamps *d*, and rollers *f*, as shown in Fig. I, constitute the machinery of the ladder. The rope is fastened to the windlass *a*, passes upward underneath the ladder to the pulley *c* in the middle of the top round of the same ladder, around which it passes, descending on the top of the ladder and fastening by two ends to rings *g* in either side of the second ladder near the batten.

The attachments for each ladder are the same, excepting the top one, which has no windlass or pulley, but has the rollers *f*, which,

as the ladder is elevated, roll up the side of the building.

To elevate the ladder, it is placed against the side of a building at suitable angle. The operator turns the top windlass, *a*, Fig. I, which elevates the top ladder, which, when raised to its full height, is held in place by the spring-ratchet *h*. The other windlass, *aa*, Fig. I, is then operated in the same manner, which elevates the second ladder, which, when raised to its full height, is held in place by its spring-ratchet *h*. When more than three ladders are combined, the machinery which elevates the top ladder is operated first, then each in regular turn, the second ladder always being the last.

To lower the ladder, the spring-ratchet *h*, Fig. II, is thrown off and the windlass *aa*, Fig. II, operated in reverse order, when the ladder descends, bringing the second windlass, *a*, Fig. II, down to the operator, which is operated in like manner, &c. The ladders at all times are held in their respective positions by the clamp *d*, between which and the second round of the ladder from the top it braces itself when elevated, as shown in Fig. II.

I am aware that prior to my invention extension-ladders have been made. I therefore do not claim such a combination, broadly; but What I do claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of any number of ladders, each of which, save the top one, has a single windlass, *a*, spring-ratchet, and ratchet-wheel *h*, a single pulley, *c*, and a single rope, *b*, attached by two ends to rings *g*, all substantially as set forth.

2. The rubber-rimmed rollers arranged in the end of the top ladder, for the purpose specified.

M. CLINTON WALLS.

Witnesses:

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