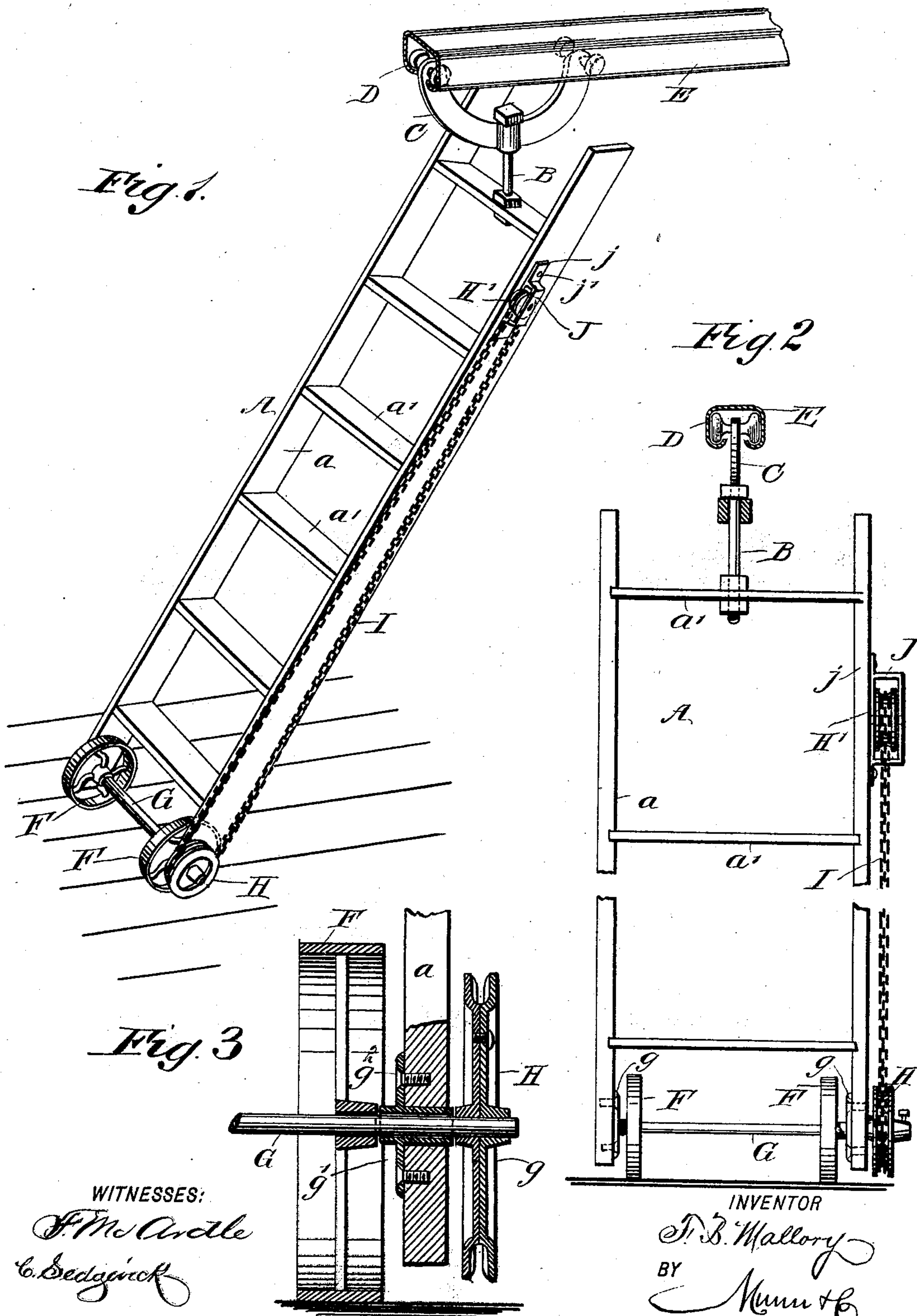


(No Model.)

F. B. MALLORY.
LADDER.

No. 521,381.

Patented June 12, 1894.



WITNESSES:

F. McArdle
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UNITED STATES PATENT OFFICE.

FRANK B. MALLORY, OF FLEMINGTON, NEW JERSEY.

LADDER.

SPECIFICATION forming part of Letters Patent No. 521,381, dated June 12, 1894.

Application filed October 21, 1893. Serial No. 488,779. (No model.)

To all whom it may concern:

Be it known that I, FRANK B. MALLORY, of Flemington, in the county of Hunterdon and State of New Jersey, have invented a new and Improved Ladder, of which the following is a full, clear, and exact description.

My invention relates to ladders for use in stores, and of the class in which a track is provided for the ladder.

The object of the invention is to provide an improved means for propelling the ladder, and which may be applied to most of the ladders now in use.

Various means have been employed whereby a person standing on a ladder could propel the same, such means being arranged in connection with the hanging devices of the ladder. Such devices possess the disadvantage that they can not well be applied to the form of ladders now generally employed, and if so applied would not give the best results, as will be explained hereinafter.

The present invention consists in the novel features hereinafter particularly described and defined in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view of a ladder and its track of the form now generally employed, showing my improvements applied thereto. Fig. 2 is a broken front view thereof; and Fig. 3 an enlarged detail sectional view of a part of the improvements.

The ladder A, comprises the side bars *a* and steps *a'*, and to the top step the hanger bolt B is secured, the said bolt depending from a curved carrier C, which has at its ends the rollers D, that move in and are supported on the inverted U-shaped track E, whereby the ladder is suspended from the track, the lower end of the ladder having wheels F, that rest on the floor. The parts thus far described are of a common construction now generally employed.

In connection with the ladder I provide a propelling mechanism of novel arrangement, as follows: The wheels F, are fixedly secured to the shaft G on which they are mounted, and the said shaft is extended at one side beyond the side rail *a* of the ladder, and on such ex-

tended end a chain wheel H, is keyed. Thus the wheels F are converted into propelling wheels instead of being merely anti-friction wheels or rollers, as in ordinary ladders. The chain wheel H, is rotated in either direction by the endless chain I, which also passes over a chain wheel H', carried by a frame or housing J, secured to the ladder near the upper end thereof through the medium of screws *j'*, or the like, that pass through flanges *j* on the frame, and engage the side bar of the ladder.

The side bars *a* of the ladder are fitted with boxes *g* for the shaft G, said boxes being tubular, extending through the said side bars, and formed each with a flange *g'*, which fits against the inner surface of the side bar and is secured thereto by screws *g''*, or the like.

With the arrangement shown it will be seen the ladder is suspended from the overhead track by the guide devices B, C, D, and in practice the weight of a person is the more often below the center of the ladder, since it is rarely necessary to stand near the top of the ladder even to reach goods adjacent to the top. The weight of the occupant of the ladder is thus effectively availed of to obtain a traction of the wheels F that will insure a propulsion of the ladder in response to the rotation of such wheels. Also the attachments are durable and inexpensive, and they may readily be applied to ladders now in use without changing the latter.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination with a ladder, of a hanger at the upper end, running wheels at the lower end of the ladder, an endless chain extending longitudinally of the ladder, and chain wheels over which said chain travels, the lower one of the chain wheels having a driving connection with the running wheels at the bottom of the ladder, substantially as described.

2. The combination, with a ladder and an over-head track, of a guide at the upper end of the ladder, suspending the same from the track, propelling wheels on the lower end of the ladder, a shaft on which the said wheels are fixedly secured, the shaft extending at one end beyond the ladder, a chain wheel on said extended end, a second chain wheel on the ladder near the upper end, and an end-

less chain passing over said chain wheels, substantially as described.

3. The combination, with a ladder and an over-head track therefor, of a guide at the upper end of the ladder, suspending the same from the track, bearing boxes at the bottom of the ladder in the side bars thereof, the boxes having flanges secured to the side bars, a shaft journaled in said boxes, having fixed wheels for propelling the ladder, the shaft projecting beyond the ladder at one side, a chain

wheel fixed to said projecting end, a second chain wheel journaled in a housing or frame having flanges secured to the ladder near the upper end thereof, and an endless chain passing over said chain wheels, substantially as described. 15

FRANK B. MALLORY.

Witnesses:

THOMAS BLOOMER,
JOHN G. SANDERSON.