

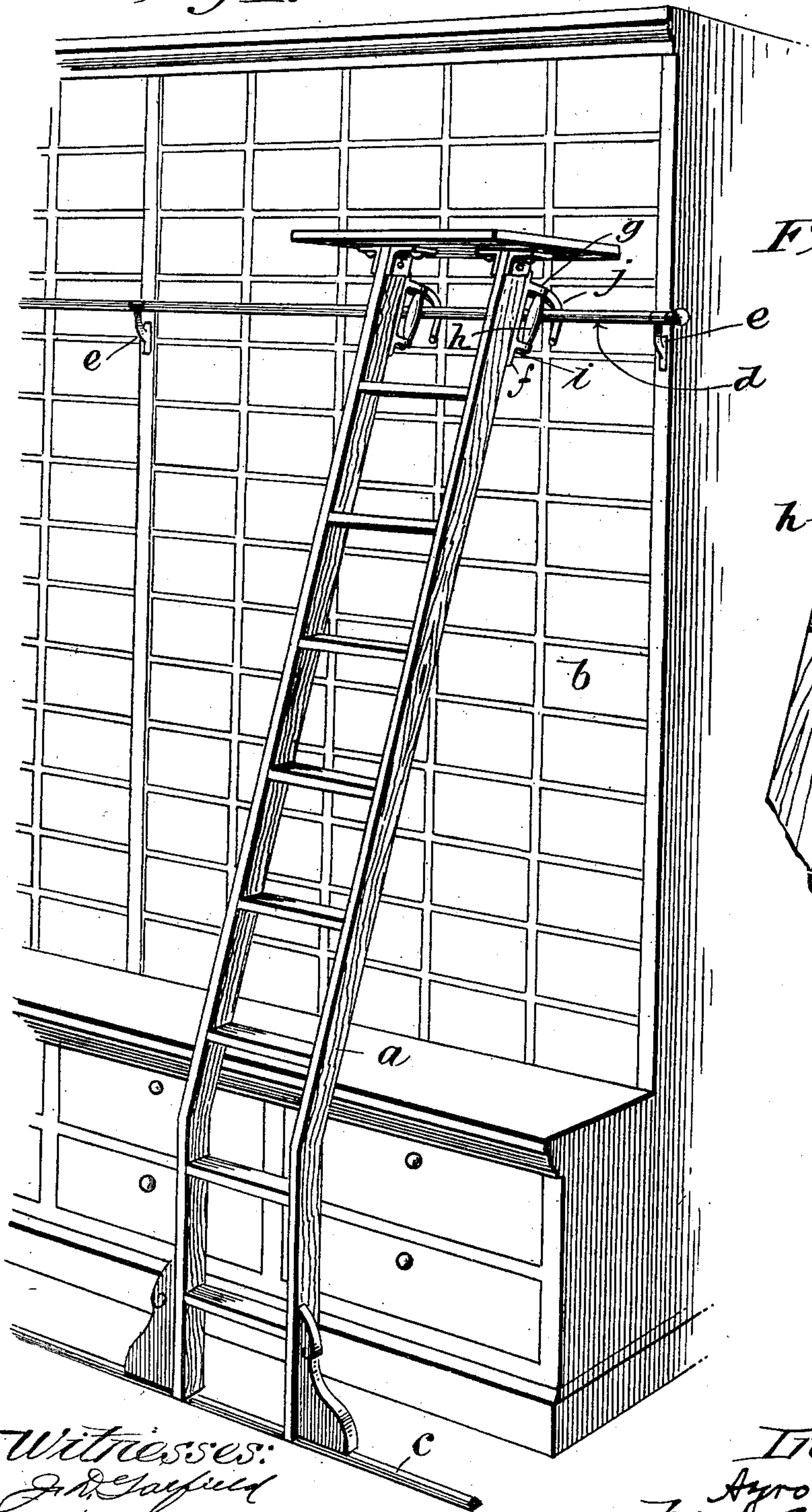
No. 706,162.

Patented Aug. 5, 1902.

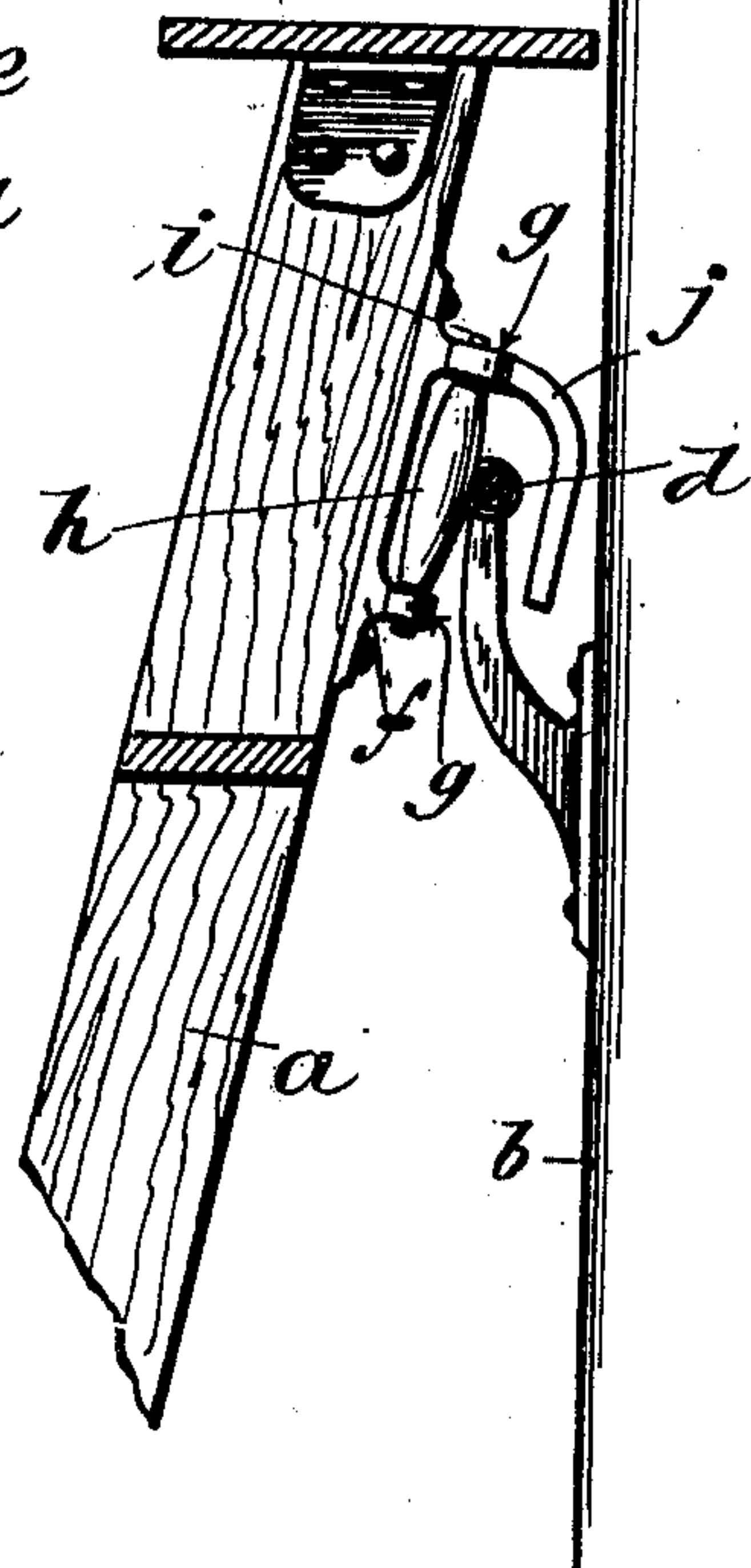
A. A. COBURN.  
STORE SERVICE LADDER.  
(Application filed Sept. 30, 1901.)

(No. Model.)

*Fig. 1.*



*Fig. 2.*



Witnesses:  
*J. D. Sanford*  
*H. J. Olemore*

Inventor:  
*A. A. Coburn*  
by *Chapman & Co.*  
Attorneys



# UNITED STATES PATENT OFFICE.

AZRO A. COBURN, OF HOLYOKE, MASSACHUSETTS, ASSIGNOR TO COBURN TROLLEY TRACK MANUFACTURING COMPANY, OF WILLIMANSETT, MASSACHUSETTS, A CORPORATION.

## STORE-SERVICE LADDER.

SPECIFICATION forming part of Letters Patent No. 706,162, dated August 5, 1902.

Application filed September 30, 1901. Serial No. 77,061. (No model.)

*To all whom it may concern:*

Be it known that I, AZRO A. COBURN, a citizen of the United States of America, residing at Holyoke, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Store-Service Ladders, of which the following is a specification.

This invention relates to ladders for store-service and the like, and has for its object the improvement in this class of construction in which the lower end of the ladder travels on a track on the floor and the upper end on a bearing-rail, the particular improvement forming the subject of this application relating to the provision of means for providing a roller for bearing on the bearing-rail, which may move vertically to follow the vertical movement of the ladder, as the latter and the rail yield more or less under the weight of a person in mounting it, to the end that the pressure on said rail may act only against the latter and not downwardly upon it. The rail is thus never subjected to the full weight of the ladder and its load.

A further object of the invention is to provide means whereby the ladder may not be disengaged from the bearing-rail should a person thereon lose his balance and grasp the ladder for support.

The invention consists in the construction now to be described, and particularly pointed out in the claim.

In the drawings forming part of this application, Figure 1 is a perspective view showing a ladder in operative position and having my improved devices applied thereto. Fig. 2 is an enlarged sectional elevation of a portion of a ladder and the bearing-rail, showing more clearly the relation of my improvements to the latter.

Referring to the drawings, *a* indicates a ladder erected in the usual manner before a line of shelving, which is indicated by *b*. The lower end of the ladder runs on a track *c*, or it may run in a groove. Across the front of the shelving there is supported a horizontal bearing-rail *d* in suitable brackets *e*, attached to the upper part of said shelving.

On each of the two vertical bars of the

ladder at a point opposite the bearing-rail *d* there is secured a roller-bracket *f*, having two projections *g* thereon, which extend toward the bearing-rail *d* and between which there is supported a long roller *h* on a pin *i*, which serves as a pivot therefor. Under normal conditions with no weight on the ladder this roller will bear against the rail *d* in about the position shown in Fig. 2, and as the ladder is moved back and forth in front of the shelving by reason of this roller bearing on the rail *d* there will be scarcely any resistance to said movements. The latter and the bearing-rail being of necessity of rather light construction, whenever a person mounts the ladder to reach the higher shelving there will be more or less yielding movement both in the ladder and the rail, which will result in a vertically-sliding movement between the roller *h* and the rail *d*, and under such a load the bearing-point between the roller and the rail would then be nearer to the upper end of the former. This vertically-sliding movement of the roller on the rail *d* prevents the weight of the person on the ladder from being applied directly in a downward direction to the rail *d*, and the weight being applied thereagainst only in the direction of the shelving requires but little to support it owing to the almost perpendicular position of the ladder. It is thus possible to employ a much lighter bearing-rail than would be the case if the connection of the ladder therewith was one which was unyielding in a vertical plane.

With the ladder in the nearly-vertical position in which it is necessary to set up these devices it is necessary to provide means for preventing the disengagement of the ladder from the bearing-rail in case a person on the ladder should lose his balance and grasp the ladder for support, and to that end a hook *j* is secured to the upper one of the projections *g* and without touching the bearing-rail is curved over and downward behind the latter in a manner to engage the rail should the top of the ladder be drawn away from the front of the shelving; but the hook is so arranged that it will not interfere with the free movements of the ladder along the rail. One of these hooks is secured to the upper one of

the projections *g* on both side bars of the ladder, and, preferably, they are cast integrally thereon, though, if desired, they may be separately made and secured in any desirable manner.

I prefer to construct the roller *h* with a slight taper from the center toward both ends thereof, to the end that the vertical movement between the roller and the rail may be as easy as possible.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

In a shelf-ladder for store-service, a track secured to the floor, a roll on the lower end of the ladder engaging said track, a rail sup-

ported in front of and out of contact with the shelves, and near the upper end of the ladder, combined with a roller-supporting bracket fixed on the rear side of the ladder, a hook on said bracket extending from the upper end thereof rearwardly and downwardly to a point below said rail, a roller tapered from its center toward its ends, supported between projections, as *g, g*, on said brackets, whereby the central portion of said roller may bear on said rail.

AZRO A. COBURN.

Witnesses:

H. A. CHAPIN,  
K. I. CLEMONS.