

(No Model.)

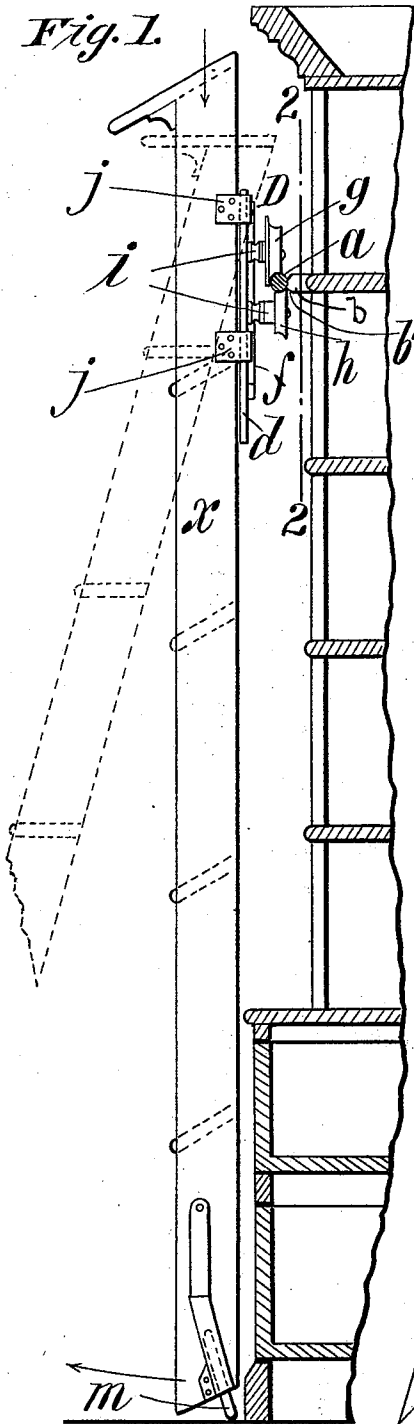
W. J. SUMNER.

STEP LADDER AND GUIDING TROLLEY THEREFOR.

No. 528,824.

Patented Nov. 6, 1894.

Fig. 1.



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Fig. 2.

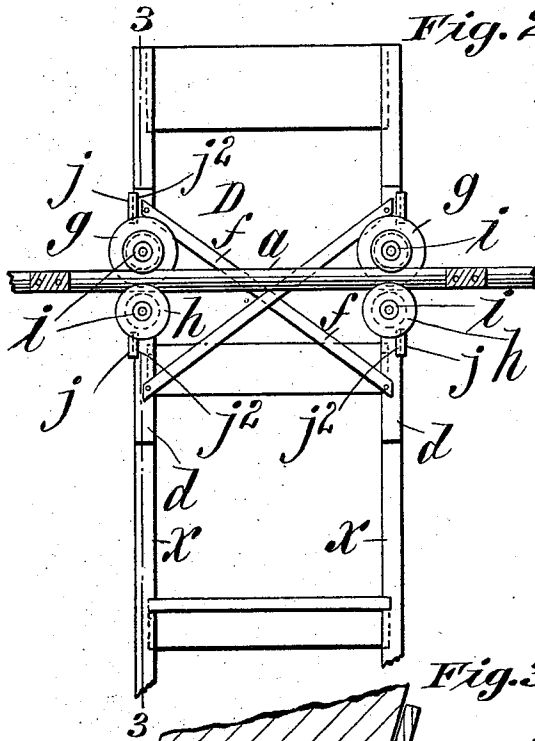
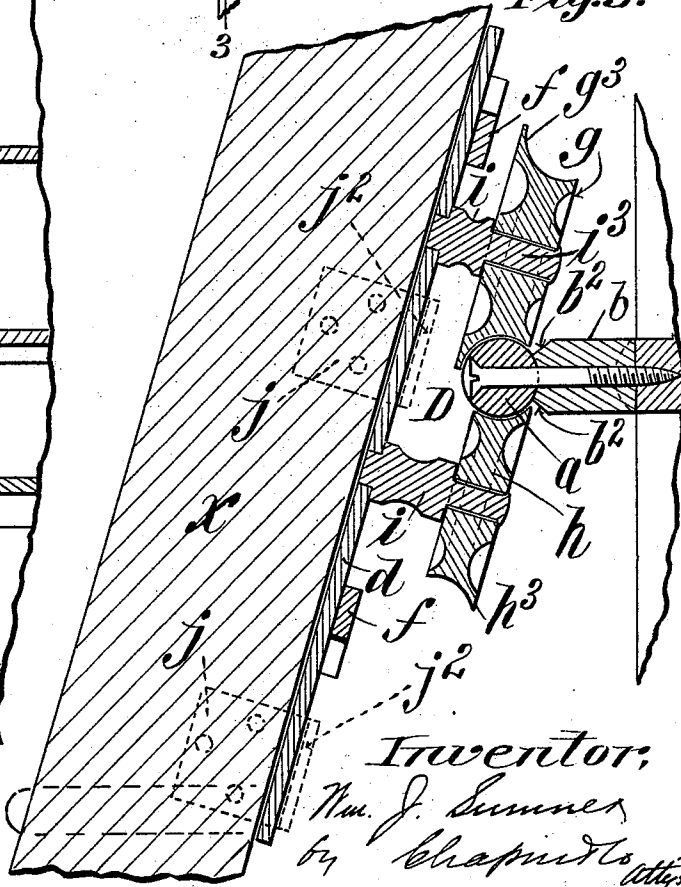


Fig. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM J. SUMNER, OF HOLYOKE, MASSACHUSETTS, ASSIGNOR TO THE
COBURN TROLLEY TRACK MANUFACTURING COMPANY, OF SAME
PLACE.

STEP-LADDER AND GUIDING-TROLLEY THEREFOR.

SPECIFICATION forming part of Letters Patent No. 528,824, dated November 6, 1894.

Application filed May 8, 1894. Serial No. 510,545. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. SUMNER, a citizen of the United States, residing at Holyoke, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Step-Ladders and Guiding-Trolleys Therefor, of which the following is a specification.

The invention relates to trolley supported and guided step ladders which are more especially available along banks of shelves, the ladder running along across the fronts of the shelves;—it being practicable in these arrangements for a salesman who is up on the ladder to push or draw the ladder so that he may, without descending, reach any tier of shelves within the traverse of the ladder.

The object of this invention is to provide a trolley, or carrier, with which the ladder is connected, that is of simplified and unusually efficient construction, and which, while having the freest possible running engagement with the round bar which constitutes the trolley track, will prevent any lateral or transverse displacement of the carriage from the track, and to furthermore effect such a connection between the ladder and carrier that the ladder may stand either in an out-of-the-way disposition vertically at the front of the shelves, or at any downward and forward inclination at the front thereof.

Reference is to be had to the accompanying drawings, in which—

Figure 1 is a side view of the ladder and carriage as in engagement with the track which is seen in cross section. Fig. 2 is a rear view of the ladder and track, and vertical sectional view of the bracket pieces, or lugs, which support the track. Fig. 3 is a vertical sectional view on the line 3—3, taken on a larger scale.

In carrying out the invention, the track is preferably constituted by a bar, *a*, of straight wood, round in cross section, and held in its horizontal position in front of the upper portions of the shelves by suitable brackets, or lugs, *b*, whose connection is had in such a way as not to embrace, or surround, the track-bar, but to leave its top and bottom even and clear of obstructions.

The brackets may be constituted by blocks of wood against the outer edges of which the track is set, while screws pass through the track, and said block and into the shelving, as seen in Fig. 3. The corners of the bracket-blocks next to the track are chamfered off as seen at *b*², so as not to unnecessarily obstruct the track-way.

The carriage, *D*, comprises two parallel bars, *d*, *d*, to lie along the rear edges, of the opposite ladder sides, *x*, the diagonal tie-bars, or trusses, *f*, *f*, which are bolted to and unite the said bars, and upper and lower pairs of rollers, *g*, *g*, and *h*, *h*, which are supported on roller-studs, *i*, of said bars, *d*, and which have transversely curved and flanged rims to embrace the track-bar to run freely along the latter, and to permit a transverse swinging of the carriage without cramping its freedom of travel along the track.

In order that the ladder may have its inclination, or the vertical disposition,—which different positions are shown or indicated in Fig. 1,—its connection with the ladder is such that, while it may always receive support by the rollers at its bottom, which rest on the floor, it may have a degree of slide movement relative to the parallel bars, *d*, *d*, of the carriage, and yet the latter can never accidentally get away from the carriage, although the disengagement may be purposely effected, as required.

The sliding engagement of the bars of the carriage relative to the side members of the ladder is effected by means of the metallic plates, *j*, which are screwed, or otherwise affixed, to the outer faces of the ladder sides and which have the angularly turned lugs, *j*², *j*², which overlie the rear faces of the upright bars, *d*, of the carriage.

The studs, *i*, *i*, projected rearwardly from the upright bars, *d*, *d*, of the carriage, have the shoulders and attenuated portions, *i*³, on which latter the rollers are journaled. The outer ends of the said attenuated portions of the studs are upset, as seen, to prevent the displacement of the rollers. Each concave-rimmed roller of the upper pair, *g*, *g*, has but one flange, *g*³, to overlie a portion of the outer

or front face of the track, while each concave-rimmed roller of the lower pair has but one flange, *h*³, which overlies a portion of the rear face of the track.

- 5 By the formation and arrangement of the rollers of the carriage, substantially as described and shown, in combination with the ladder having the manner of engagement with the carriage as set forth and illustrated,
 10 the ladder, (with its bottom by its rollers, *m*, always at rest on the floor,) may have either the vertical out-of-the-way position seen in full lines, in Fig. 1, or any suitable inclined position, it always retaining its same relation
 15 to the carriage, which latter while having a lateral swinging engagement with the track may not be disengaged therefrom, although in whatever position, or inclination, the ladder and carriage are the latter will always
 20 run most freely and without cramp, bind, or undue friction along the track.

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

- 25 1. The combination with the round track, *a*, of the carriage having, at its side, upper and lower pairs of rollers with flanges which overlie the opposite sides of the track, and the ladder having a sliding engagement with the
 30 carriage and provided at its bottom with rollers, substantially as described.

2. The combination with the round track, *a*, of the carriage consisting of the upright bars,

d, *d*, with the studs, *i*, *i*, and the uniting cross braces, *f*, *f*, the rollers, *g*, *g*, and *h*, *h*, mounted 35 on said studs and having flanges which embrace the track at opposite sides, the ladder arranged with the rear edges of its sides against the said carriage uprights, and the plates, *j*, with angle lugs, *j*², which hold said 40 bars and ladder sides against separation, substantially as described.

3. The combination with the casing, or support, having the forwardly extending bracket lugs, *b*, *b*, of the round track-bar and the 45 screws passing transversely through said bar and into the bracket lugs, the carriage comprising the upright bars, *d*, *d*, and the cross-braces, *f*, *f*, and rearwardly mounted flanged rollers which embrace the track, the ladder 50 and means for holding the same to sliding engagement with the carriage, substantially as described.

4. The combination with the upright bars, *d*, *d*, with the rearwardly projected shouldered roller studs, the cross-braces *f*, *f*, uniting said bars, *d*, *d*, and the rollers set on said studs and having the concave rims with the flanges, *g*³ and *h*³, of the round track, *b*, the ladder and means for holding the ladder to 60 sliding engagement with the said bars, *d*, *d*, of the carriage, substantially as described.

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Witnesses:

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