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LE ROY WILLOUR.

STORE SERVICE LADDER.

APPLICATION FILED JUNE 26, 1906.

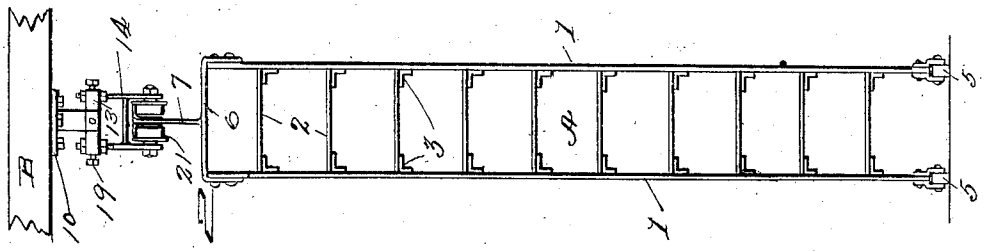


Fig. 1.

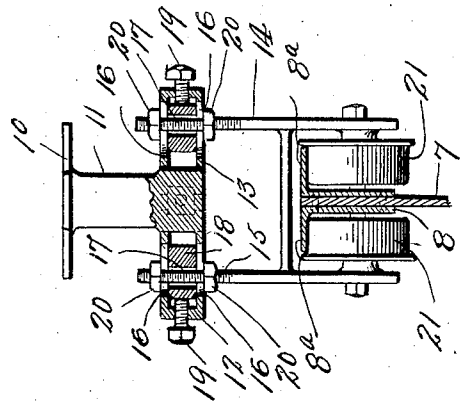


Fig. 3.

Fig. 2.

Fig. 4.

Witnesses

Chas. K. Davies.

John S. Powers

Inventor

Le Roy Willour

By Shepherd & Parker

Attorneys

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

LE ROY WILLOUR, OF ASHLAND, OHIO.

STORE-SERVICE LADDER.

No. 846,371. Specification of Letters Patent. Patented March 5, 1907.

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To all whom it may concern:

Be it known that I, LE ROY WILLOUR, a citizen of the United States, residing at Ashland, in the county of Ashland and State of Ohio, have invented certain new and useful Improvements in Store-Service Ladders, of which the following is a specification.

This invention relates to new and useful improvements in store-service ladders, and more particularly to that type of ladder designed to move along a selected line of travel and provided with suitable guide-rollers adjacent to the upper end thereof.

In this connection the invention aims, as a primary object, to provide novel means for assuring a smooth and even movement of the track without the jarring and vibrations which ordinarily occur in the ladders as at present constructed when the mountings thereof become warped or uneven. This object is attained by novel adjusting means by which the inequalities of the suspension for the ladder in its movement are compensated.

To this end the invention particularly comprises a track-section carried by the ladder and suspended from and movable over adjustably-mounted rollers.

The detailed construction will appear in the course of the following description, in which reference is had to the accompanying drawings, forming a part of this specification, like numerals designating like parts throughout the several views, wherein—

Figure 1 is a side elevation of a store-service ladder constructed in accordance with my invention. Fig. 2 is a front elevation thereof. Fig. 3 is a fragmentary section of the track and the track-supports, illustrating in detail the adjusting means; and Fig. 4 is a reduced perspective view of a track-support.

In the practical embodiment of my invention I employ a ladder A, comprising side bars 1 and flat steps or rungs 2, supported transversely therebetween upon corner-irons 3, the rungs 2 being formed at their end with a central tenon 4, projecting through the side bars 1 and affording a brace for the structure. Casters 5 are carried upon the lower end of the side bars 1, by which the ladder is supported upon and moves over the floor. In the preferred form of the invention strap-irons 6 6 are secured to the upper end of the side bars 1 and have connection with a central vertical bar 7, which passes between the depending sides of angle-irons 8, arranged on each side of said bar 7, whereby a track of substantial T shape is afforded. It is obvious that the strap-irons 6 6 are but an arbitrary form of connection and that other desired mechanical equivalents may be substituted therefor.

In conjunction with the ladder constructed as above set forth novel suspension means are provided, comprising elements which are carried by and which depend from the beams or joists B. The suspension means comprises a stationary hanger 9, provided with a rectangular base 10, having suitably-arranged openings therein, whereby the hanger may be secured in any disposition desired to a joist running either longitudinally or transversely. The hanger 9 is formed with a central depending shank 11, which carries at its base a housing 12, of cruciform proportions, provided with four coextensive conformable arms 13, in opposed pairs of which the suspension element proper is mounted. As shown in Fig. 3, this element comprises an H-shaped member 14, the upper ends of which are threaded, as at 15, and project through elongated slots 16 in the several arms 13 and through openings 17, provided in blocks 18, mounted within each of said arms. The blocks 18 are designed to coact in the horizontal adjustment of the member 14 in the slots 16; and to this end adjusting-screws 19 are threaded through the ends of the arms 13 and bear against the blocks 18. For the purpose of effecting a vertical adjustment of the member 14 upper and lower locking and adjusting nuts 20 are mounted upon the threaded ends 15 and bear against the adjacent sides of the housing 12. Track-pulleys 21 are mounted upon stub-shafts between the lower ends of the member 14, and a space is afforded between said pulleys for the passage of the track-irons 8 therethrough, the horizontal portions 8^a of said track-irons resting upon the pulleys 21 on each side of the bar 7.

In practical use the ladder is moved in the usual manner, the irons 8 serving as a track bar or carriage and riding upon the pulleys 21. Any inequalities in the construction of the building, such as warping or unevenness of the beams B, may be compensated by the proper adjustment of the position of the member 14 with relation to the hanger 9, either horizontally or vertically, in accordance with the circumstances.

It will be readily apparent that different

shapes of tracks may be employed and that the pulleys must conform thereto.

While the elements herein shown and described are well adapted to serve the functions set forth, it is obvious that various minor changes may be made in the proportions, shape, and arrangement of the several parts without departing from the spirit and scope of the invention as defined in the appended claims.

Having fully described my invention, I claim—

1. In a store-service ladder the combination with a track-section of T-iron shape carried by the ladder, of a hanger comprising a securing-base, a post depending therefrom and having a cruciform suspending portion comprising four arms extending horizontally from said post, said arms being severally provided with longitudinal slots, pulley-brackets having their two upper ends projected through a selected pair of oppositely-disposed slots in movable relation thereto and means for effecting a lateral and vertical adjustment of said pulley-brackets with relation to said arms.

2. In a store-service ladder, the combination with a track-section of T-iron shape carried by the ladder, of a hanger-securing plate, a post depending therefrom, arms extending outwardly from said post, said arms being provided in their upper and lower portions with registering longitudinal slots, pulley-brackets having their ends projected through said slots, means carried upon said arms and engaging said pulley-brackets to effect a lateral adjustment thereof with relation to said arms and means carried by said pulley-brackets and engaging said arms to effect a vertical adjustment of said brackets, as and for the purpose set forth.

3. In a store-service ladder, the combination with a track-section of T-iron shape carried by the ladder, of a hanger-securing plate, a post depending therefrom, arms extending outwardly from the post and having longitudinal slots, pulley-brackets having their ends projected through said slots, thumb-screws carried by said arms engaging said pulley-brackets to move the same laterally, and means carried by said brackets engaging said arms to effect a vertical adjustment of said brackets.

In testimony whereof I affix my signature in presence of two witnesses.

LE ROY WILLOUR.

Witnesses:
J. C. SLOAN,
IRA E. EASTERDAY.