

No. 725,705.

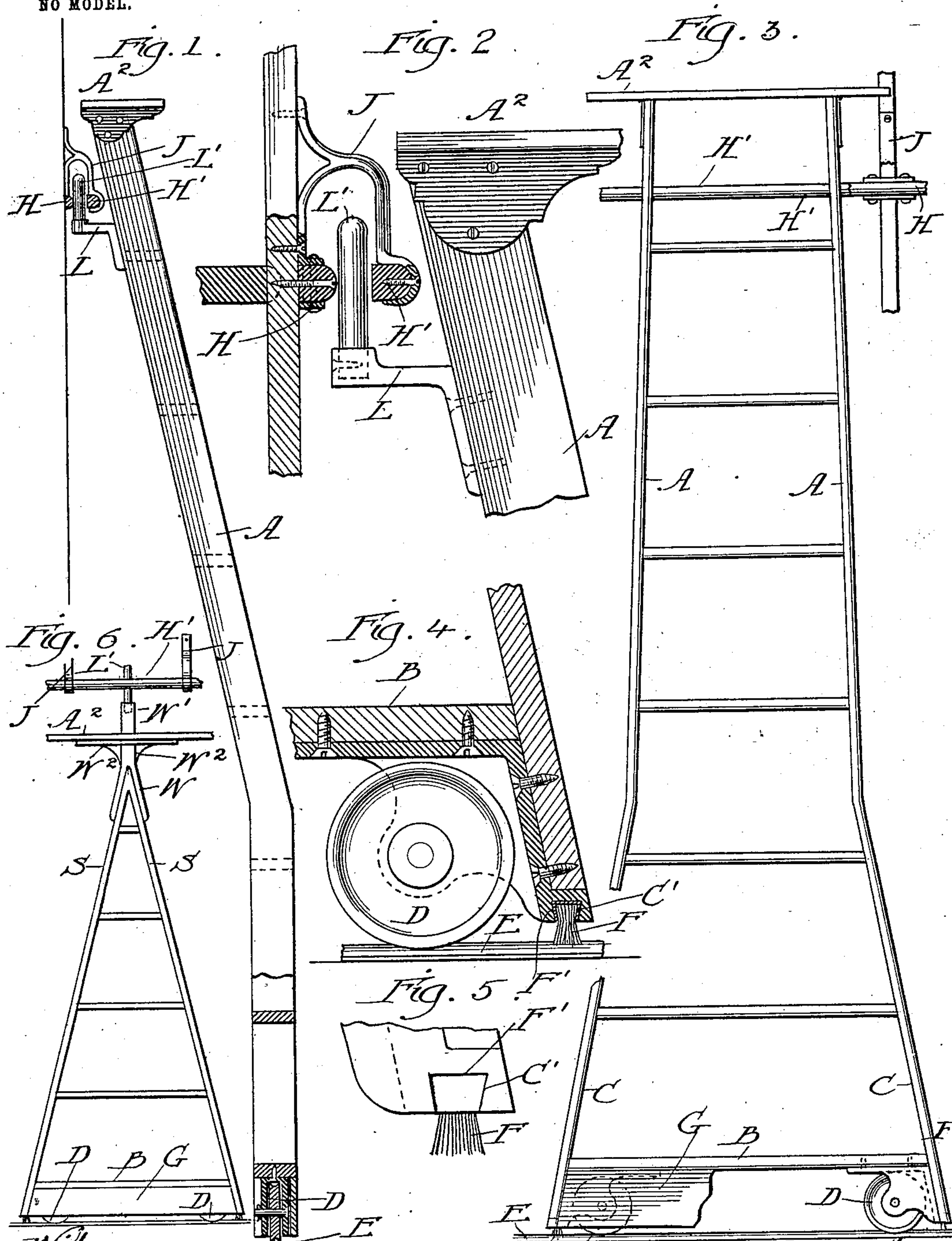
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STORE SERVICE LADDER.

APPLICATION FILED SEPT. 25, 1901.

NO MODEL.



Witnesses:

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UNITED STATES PATENT OFFICE.

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STORE-SERVICE LADDER.

SPECIFICATION forming part of Letters Patent No. 725,705, dated April 21, 1903.

Application filed September 25, 1901. Serial No. 76,568. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM T. HEUNING, residing at Chicago, and CHARLES S. BURTON, residing at Oakpark, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Store-Service Ladders, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

The purpose of this invention is to provide an improved store-service-ladder construction—that is to say, ladder and support having the advantage of increased simplicity and cheapness, together with ease of installing and removing the ladder and security while in use.

It consists in features of construction which are set out in the claims.

Figure 1 is a side elevation of our improved ladder, showing its support against the wall or case which it serves and on the floor along which it runs. Fig. 2 is a detail, on a large scale, of the upper end of construction comprising the brackets on the ladder and case, which cooperate to retain and guide the ladder at the top. Fig. 3 is a detail front elevation, partly broken away, showing the construction at the foot of the ladder. Fig. 4 is a detail section on a scale corresponding to Fig. 2 through one of the side bars and the bottom step in a plane parallel to one of the carrying-wheels. Fig. 5 is a detail side elevation of the lower end of one of the side bars of the ladder, showing the track-cleaning brush. Fig. 6 is a front elevation of a ladder of modified form.

A represents the ladder sides, which are parallel throughout, an upper portion extending, preferably, more than one-half the length and at the lower portion are spread to afford greater breadth of base at the foot of the ladder. The ladder being designed to rest upon the floor and extend up straight in front of the counter-ledge of a case of shelving and to be inclined inward from the top of the counter-ledge to reach the face of the case to which it leads and against which it leans, the spread-

ing of the side bars may preferably commence at the point at which the angle A inside the bars between the inclined and vertical portion occurs, and it is designed to be so illustrated in the drawings.

B is the lowest step of the ladder, extending between the side bars C C and brackets secured in the inner angle under the lowest step and inside the side bars, respectively, constituting means of rendering the junctions between side bars and step very rigid and secure and affording also journal-bearings for the carrying-wheels D D, which run on the track E on the floor. In order to prevent the inconvenience experienced commonly with such ladders, arising from the tendency of the carrying-wheels to wind up string and paper, &c., from the floor as the ladder runs back and forth, we provide brushes F F, lodged in sockets C' C' in the brackets C C. These brushes are preferably made with the head or sheath F' slightly expanded at the end, so that it may be retained securely in the correspondingly-shaped—that is, dove-tailed—socket C', being entered from the forward side.

G is a skirt or curtain board secured in the position of a riser to the lowest step, extending from bracket to bracket, and thus inclosing the carrying-wheels and incidentally retaining the heads of the brushes in the socket C'.

It will be noticed that the brackets C' C' are extended or offset at the outer sides under the lower ends of the side bars and that the brush-sockets are formed in this offset portion, so the brush is the outermost terminal of the structure at the floor-line, and thus clears the track before the wheels in whichever direction the ladder is moved.

The means of guiding, supporting, retaining, and receiving the leaning weight of the ladder at the upper end consists of two parallel horizontal rails H H', which are secured to the wall or case to which the ladder leads. The rail H may be secured directly on the forward side of the case, as illustrated; but to support the rail H' brackets J J J are pro-

vided, which are secured to the case immediately above the rail H and thence arch over forward and down to a point in front of said rail, where they are suitably formed to have the rail H' secured to their depending or forward ends. There is thus formed between the two parallel rails a track or path free of obstructions to the height of the arches. The ladder has secured to it at its upper part brackets L L, which are provided with terminal pins L' L', projecting directly upward, said pins being of suitable diameter and length to enter between the rails H H' and pass under the arches of the brackets J as the ladder, with its carrying-wheels following the track on the floor, moves laterally along the foot of the case. The height of the arches above the rails H H' is sufficient to allow the pins L' L' ample space for vertical movement, which might be caused by inequality of the floor, without escaping from between the rails or striking the top of the arches. Preferably the brackets L L are made with sockets to receive the pins L', which are preferably made of wood. As a matter of economy we make the rails H H' in the form shown, with one edge flat and the other edge half-round, the rail H having the half-round edge forward, so that it constitutes the lodgment for the pin L' and rail H', having the flat edge toward the pins, the round edge being provided with suitable seat in the bracket J, thus presenting a finished appearance in the front view.

We do not limit ourselves to securing the rail H' independently of the brackets J. In effect the two rails H H' are at the opposite lower ends of the arches, even though the brackets are not extended down at the rear end to take the fastenings of the rail H.

Whenever the guidance provided for the ladder at the foot is sufficient to insure the ladder keeping the track, the upper end may be guided and its leaning weight transmitted to the rail by means of one pin only entering between the rails H H'. This may be done whatever the form of the track or the engagement of the ladder therewith at the foot when the situation admits of making the ladder with its sides converging to a point substantially at the bearing of the pin on the rail—that is, when a line from the point of lodgment of the pin on the rail H to either foot of the ladder will pass outside of the ends of all the steps, so that the weight of the user will never fall outside such line, and therefore will never tend to rock the ladder over that line. We have illustrated one structure of this sort diagrammatically—that is, without detail—in Fig. 4.

In the main views we have shown the customary top shelf A² above the level of the rail H'. It will be understood that this is a mere appendage to the ladder proper, the contemplated use of the ladder not involving the

necessity of standing on this shelf nor generally upon any step as high as the rails H H', so that so far as the operation of the structure is concerned the pins L' may be considered upper terminals of the ladder; but if they should be located in a position lower than the highest step on which the user might stand the action would be the same, though the parts might require different proportions for proper strength. In the form illustrated in Fig. 4 we have shown the bracket W having the pin L' in the socket W', the bracket being formed to secure together the upper ends of the side bars S S and having flanges W² W² to hold the shelf A².

We claim—

1. A leaning store-service ladder having at the lower end a fixed support on which it is guided laterally or at right angles to the vertical plane in which it leans, and having at the upper part, offset from its rear inclined side, and rigid with it, a bracket provided with a rigid terminal vertical pin projecting upward; wall-brackets secured to the face of the wall or case which is to be served by the ladder, having downward-depending arms offset forwardly from the face of the wall; a rail carried in the lower ends of said forwardly-offset depending bracket-arms, and a rail secured to the face of the wall or case behind said first-mentioned rail; the rigid terminal pin of the latter bracket being extended up between said rails, and adapted to move freely between them and under the brackets in the lateral movement of the ladder.

2. A leaning store-service ladder, having at the lower end a fixed support on which it is guided laterally, and having at the upper part a bracket offset rearward from its inclined rear side, and having a vertical socket and a pin secured at its lower end in the socket projecting therefrom; wall-brackets secured to the wall or case to be served by the ladder, and projecting forwardly and depending at their forward ends; a rail secured to the wall or case and a rail secured to the depending forward ends of the brackets in front of the wall-rail, the distance between the two rails being sufficient to freely accommodate the pin, and the distance between the pin and the rear side of the ladder being sufficient to freely accommodate the forward rail and bracket ends.

3. A leaning store-service ladder having at the lower end a fixed support on which it is guided laterally or at right angles to the vertical plane in which it leans, and having at the upper part brackets rigid with it, projecting off rearwardly from its inclined rear side, and having each a rigid vertical upwardly-projecting terminal pin; a nosing-rail secured on the face of the wall or case to be served with the ladder; brackets secured to the face of the wall, above the nosing-rail,

and extending forward and depending, and
a check-rail secured to the depending ends
of the brackets in front of the nosing-rail, the
distance between the two rails being sufficient
5 to freely accommodate the pin.

In testimony whereof we have hereunto set
our hands, in the presence of two witnesses, at

Chicago, Illinois, this 10th day of September,
1901.

WILLIAM T. HEUNING.
CHARLES S. BURTON.

Witnesses:

HOMER L. KRAFT,
DONALD M. CARTER.