

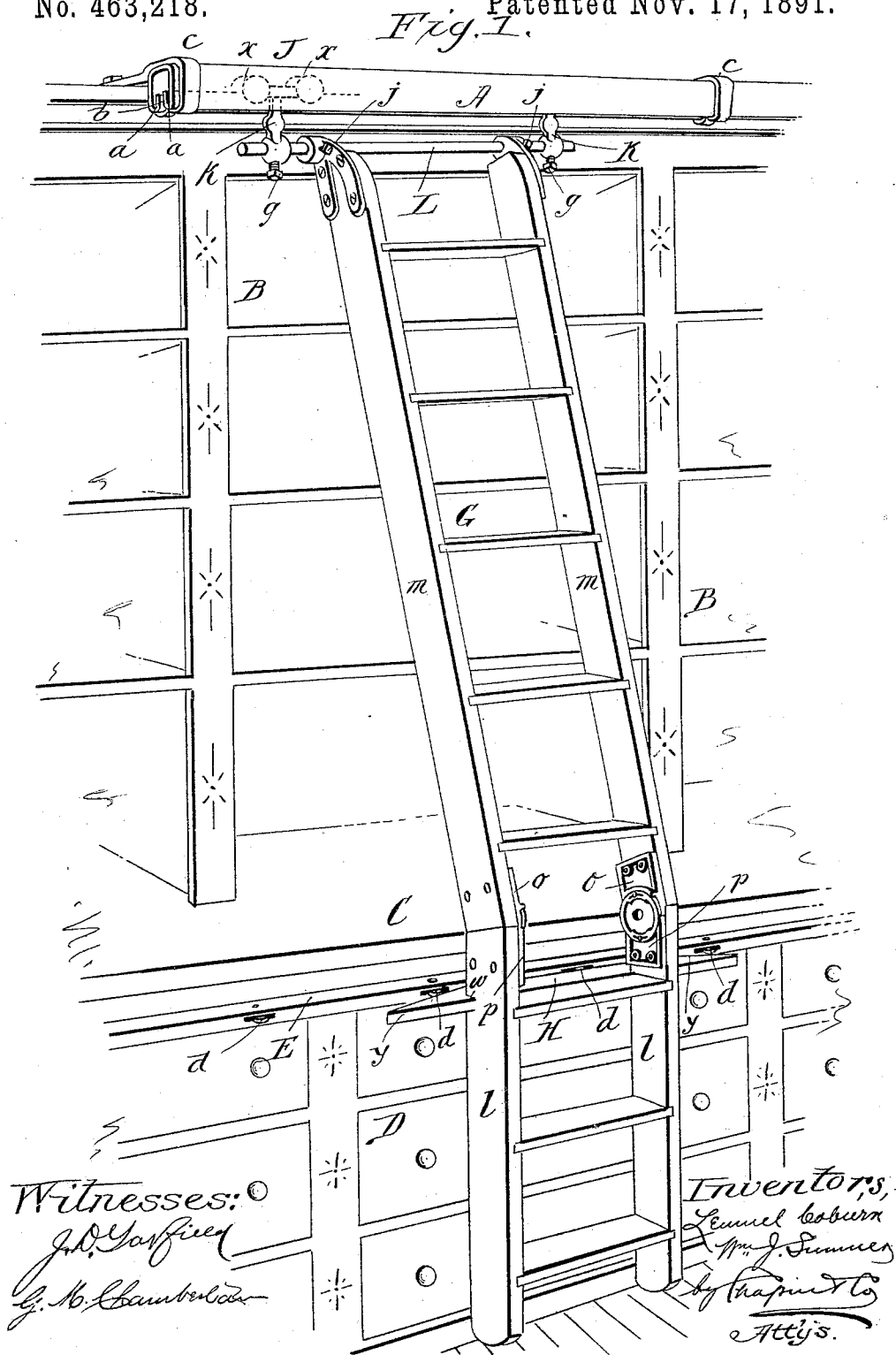
(No Model.)

2 Sheets—Sheet 1.

L. COBURN & W. J. SUMNER.
SUPPORT FOR LADDERS.

No. 463,218.

Patented Nov. 17, 1891.



(No Model.)

2 Sheets—Sheet 2.

L. COBURN & W. J. SUMNER.
SUPPORT FOR LADDERS.

No. 463,218.

Patented Nov. 17, 1891.

Fig. 2.

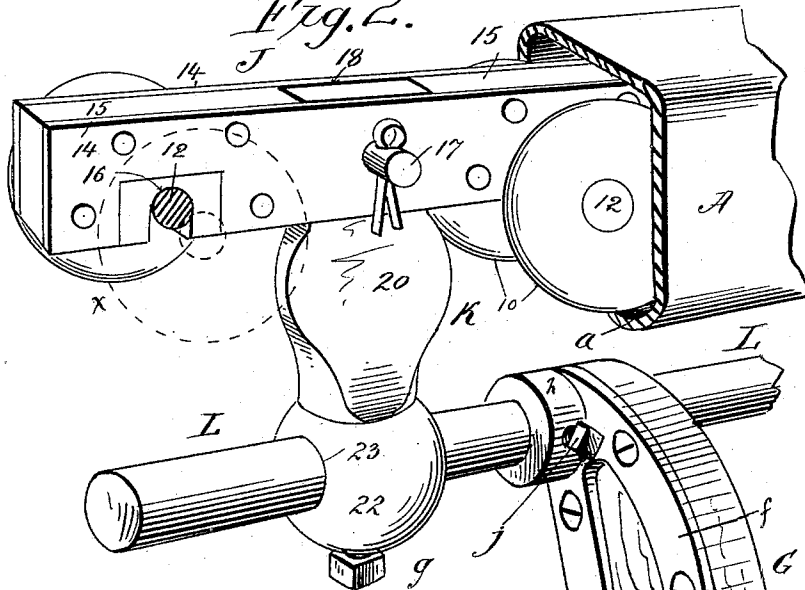


Fig. 3.

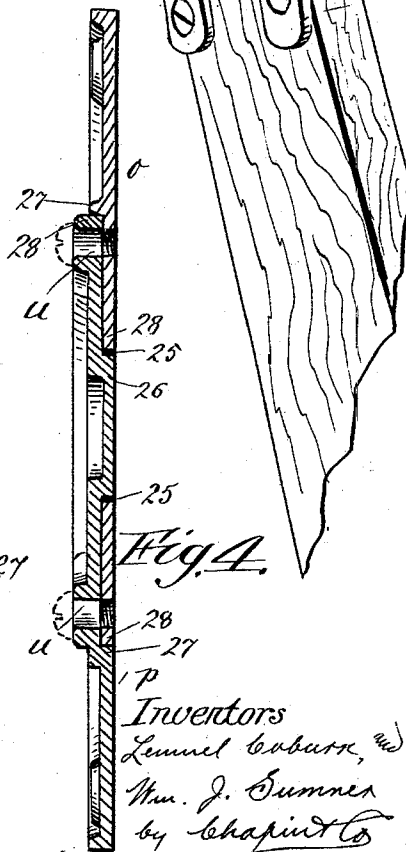
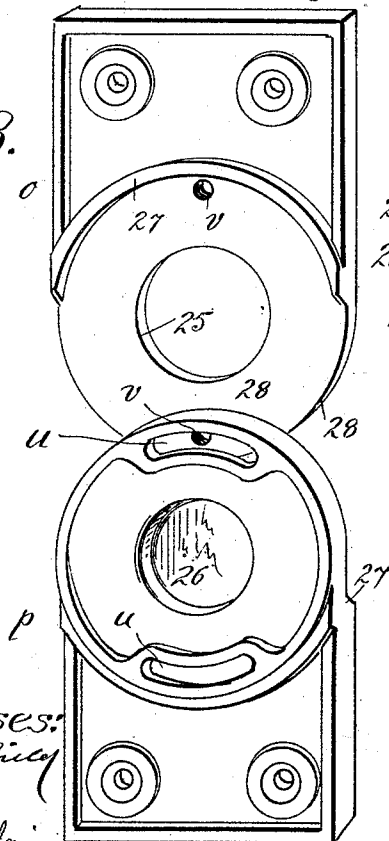


Fig. 4.

Witnesses:
J. A. Chapin
G. M. Chamberlain

Inventors
Lemuel Coburn, and
Wm. J. Sumner
by *Chapin & Co.*
Attys.

UNITED STATES PATENT OFFICE.

LEMUEL COBURN AND WILLIAM J. SUMNER, OF HOLYOKE, MASSACHUSETTS,
ASSIGNORS TO THE COBURN TROLLEY TRACK MANUFACTURING COM-
PANY, OF SAME PLACE.

SUPPORT FOR LADDERS.

SPECIFICATION forming part of Letters Patent No. 463,218, dated November 17, 1891.

Application filed March 2, 1891. Serial No. 383,508. (No model.)

To all whom it may concern:

Be it known that we, LEMUEL COBURN and WILLIAM J. SUMNER, citizens of the United States, both residing at Holyoke, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Trolley-Supports for Ladders, of which the following is a specification.

This invention relates to improvements in trolley-supported step-ladders, the object of the invention being the provision of devices in and for the ladder and in and for the supporting devices therefor, which are most adaptable and efficient for the easy and certain and freely-movable support of the ladder and for the adjustment thereof to accommodate various situations. These improvements are constituted by the constructions and combinations of parts, all substantially as will hereinafter more fully appear, and be set forth in the claims.

Referring to the accompanying drawings, Figure 1 is a perspective view of the ladder and the improved equipments therefor, the ladder being shown as suspended from a trolley-track and by a portion thereof movable upon and along a counter and past a series of shelves. Fig. 2 is a perspective view, on a larger scale, showing a portion of the trolley-track and of the roller-carrier thereon and the upper portion of one rail of the step-ladder connected to said hanger. Fig. 3 is a perspective view of parts employed in jointing the side rails of the ladder, said parts in this view being shown as disconnected, while Fig. 4 is a central longitudinal sectional view of the said parts in the united relations.

In the drawings, A represents a trolley-track provided with double parallel ways *aa*, with an intermediate slot or opening *bb* between them, and said track is shown as secured by suitable clips *cc* at the top and front edge of a bank of shelves B, which rise above a counter C, below which latter is a bank of drawers D, and all such as may be found in many stores.

G represents the step-ladder, which by its top is supported on roller-carriers, which are movable upon the said track, the said ladder by a lower portion thereof having a sliding

engagement with a roller-provided rail E, which is at the front of the counter. The ladder at its back side is provided with a runner-bar H, which bears along on the rolls *d* of the said rail E.

A preferred form of roller-carrier, as shown at J, and one which is advantageously employed in connection with the improved devices of the present invention, forms the subject-matter of a separate application for Letters Patent of the United States, filed simultaneously herewith under Serial No. 383,502, and consists of the two roller-carriers *xx*, each comprising the pair of rollers 10 10 and the uniting-axle 12, the parallel metallic side strips 14 14, confining by riveting or otherwise between their end portions the wood blocks 15 15, which have the transverse bearing-recesses 16 in their under sides for bearing on said roller-axes, and there is a cross-bar or pin 17, which is supported on intermediate portions of the said strips and traverses the opening 18, which is between them and between the ends of the said blocks 15 15.

Now, proceeding to describe novelties of construction as embraced under the present invention, K K represent hanger-bars vertically applied, each of which by its upper portion enters the said opening 18 in the carrier-body, being of a thickness about equal to the width of said opening, and each bar K is supported on one of said pins 17. Each hanger-bar at its portion 20, below the under side of the body of the carrier, has a thickness less than the width of the slot *b* in the track, and at its lower end is formed enlarged, as at 22, and bored horizontally and in a direction parallel with the line of the track, as indicated at 23. A bar L is horizontally supported under and parallel with the track at the lower ends of said bars, being entered within the said openings and rigidly held by the set-screws *g g*. Each side rail of the ladder at its upper end is provided or equipped with transverse sockets *ff*, through which the said rod L is passed and by which connection the ladder is supported. As particularly shown, the ladder-rails at their upper ends have the hubbed castings *hh* secured thereon, through which the said rod passes. Set-screws *jj* are

shown as entered through the said socket-walls and against the said bar L.

The construction described is deemed important and advantageous, for, on noting that each post K is sustained on a carrier-body J, which is supported and held against tilting sidewise by being mounted on four rollers, as explained, and the bar L, being held rigidly and against rolling or turning with relation to the said posts, and the upper portion of the ladder being by the set-screws *j j* rigidly united to the said bar L, it will be manifest that the weight of the obliquely-positioned ladder or of a person thereon will not cause any swinging of the ladder as to its upper portion, and from the line of contact with the counter as its center of movement, which might consequently exert a leverage on the lower ends of the bars K to also tilt them and cause them to bind upon one side of the track within the slot *b*. The ladder is, as it were, a rigid fixture of the carriage when the parts are once set up, although of course on loosening the set-screws the parts may be disunited or adjusted, so that the ladder may at any necessary slant extend from the edge of a counter of any width up into proximity with the elevated track.

The ladder illustrated in the drawings has its side rails jointed and the lower sections *l* thereof adjustable relative to the upper sections *m* of the ladder, so that no matter at what degree of inclination the said upper sections are placed the lower part of the ladder will, as shown, stand vertically, and therefore two castings *o* and *p*, such as particularly indicated in Figs. 3 and 4, are provided, each being adapted to be bolted or otherwise connected upon the side of the sections *m* and *l* of the ladder-rails, and one of the said castings having a central bearing-aperture 25, within which the hub 26 of the other casting fits. The end portions of these castings are rounded concentrically with the said engaging-bearings 26 25, and each casting is provided with a semicircular or arc-shaped concentric rib or bearing-edge 27, upon and against which the extreme edge portion 28 of each casting respectively bears. The casting *p* is provided with concentric-arc-formed slots *u u*, and the casting *o* has holes *v v*, with which said slots *u u* register, and bolts which pass through the said holes *v* and slots *u*, together with suitable locking-nuts applied thereon, serve to rigidly confine the one casting upon the other, and therefore when the said parts described are in their interlocked and confined relations each two-part ladder-rail is to all intents and purposes the same as one integrally formed having the desired angle.

In addition to the capability for adjustment, which has already been mentioned as being due to the provision of the joint-forming castings, incidental also to such provision arises great economy in the production of the ladder side rails, for it will be plain

that to produce an angular side rail from a single piece of stock requires stock which is very wide, and therefore expensive of employment, due to the excessive waste.

The runner-bar H is by its forward edge let into openings *w* therefor, which are formed within the rear edges of the ladder-rail sections *l l*, being confined therein in any suitable manner, and, as shown, the working or rear edge of said bar is, as to its extremities, forwardly abated or inclined, as at *y*, thereby avoiding any liability of being obstructed or impeded as the ladder runs, due to any inequality in the adjustment of the rollers *d*.

What we claim as our invention is—

1. The combination, with a pair of roller-carriers adapted to run upon a trolley-track and each of said carriers supporting a hanging bar, and a bar horizontally ranged under and longitudinally parallel with the track, which is supported and confined upon said hanger-bars, of a ladder provided with sockets at its upper portion, whereby it is engaged with and supported upon said horizontal bar, and set screws or bolts for confining the said ladder upon said bar.

2. The combination, with an overhead trolley-track and a counter or ledge therebelow, the edge of which is parallel with, but in a different vertical plane from, that of the said trolley-track, a pair of roller-carriers adapted to run upon the track and each carrier supporting a pending bar, and a bar horizontally ranged under and parallel with the track, which is supported upon said hanger-bars, of a ladder having by its upper portion a supporting engagement with said horizontal bar and thence downwardly obliquely extending, and so maintained by being supported upon the front edge of said counter, substantially as described.

3. The combination, with a pair of roller-carriers adapted to run upon a trolley-track and each of said carriers supporting a hanging bar which at its lower end is suitably formed and horizontally apertured, the bar L, engaged with said hangers and ranging under and parallel with the track, and the confining-screws *g g*, of a ladder having at its top sockets, through which the said bar L engages, substantially as and for the purpose described.

4. In combination, an overhead trolley-track and two carriages J J thereon, each of which consists of two pairs of axle-united roller-carriers and a carrier-body supported thereon, having an intermediate mortise or opening 18 therein, a vertically-applied bar K for each roller-carrier, having an upper portion which fits within said opening 18, and the transverse uniting-pin 17, longitudinal bar L, rigidly secured at the bottom of the said pair of hanger-bars K K, the obliquely-positioned ladder having at its top the socketed castings which embrace the said bar L, and the set-screws *j j*, substantially as described.

5. In combination, a counter or ledge and

an overhead trolley-track which is parallel with, but in a different vertical plane from, that of the front edge of said counter, a carrier movable upon said track, and a ladder 5 which by its upper portion is connected to the said carrier and which by its lower portion has a bearing against the said counter edge, the said ladder having a lower vertical portion and an upper oblique portion, and a 10 connecting-joint casting, substantially as and for the purpose described.

6. A ladder having each side rail thereof consisting of two sections *m* and *l* and a jointing- casting upon the end of each section, which 15 castings have engaging portions which constitute concentric bearings the one for the other, one of said castings being slotted, and confining-bolts having an engagement with 20 the one casting and passing through the slot in the other and provided with a set-nut, substantially for the purpose described.

LEMUEL COBURN.

WILLIAM J. SUMNER.

Witnesses:

WM. S. BELLOWS,

J. D. GARFIELD.