

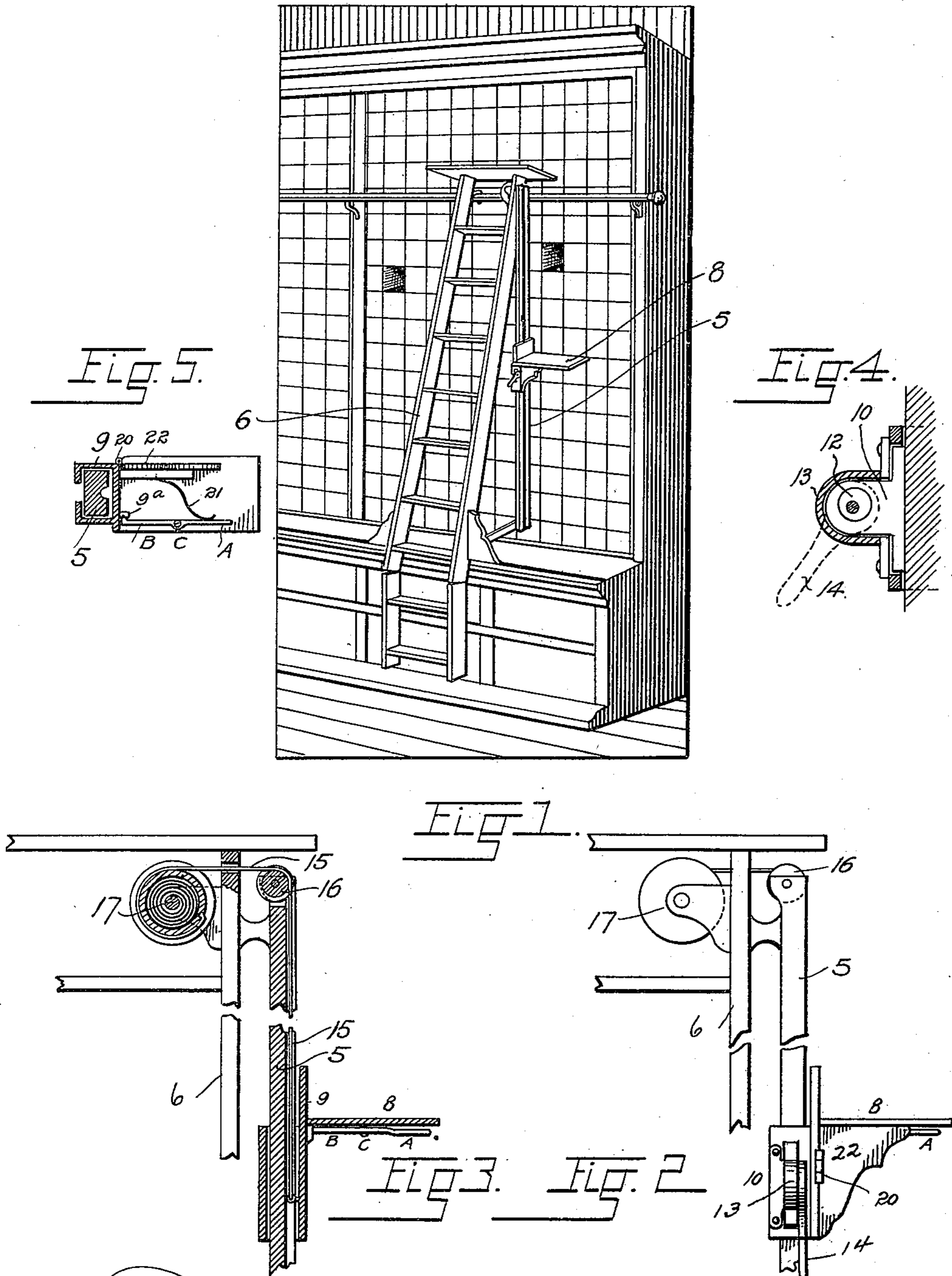
No. 662,108.

Patented Nov. 20, 1900.

E. W. BALFOUR.
STORE LADDER.

(Application filed Feb. 17, 1900.)

(No Model.)



WITNESSES:
G. J. O'Connell
Grace Mytinger

INVENTOR.
Edward W. Balfour
BY *A. J. Miller*
ATTORNEY.

UNITED STATES PATENT OFFICE.

EDWARD W. BALFOUR, OF DENVER, COLORADO.

STORE-LADDER.

SPECIFICATION forming part of Letters Patent No. 662,108, dated November 20, 1900.

Application filed February 17, 1900. Serial No. 5,645. (No model.)

To all whom it may concern:

Be it known that I, EDWARD W. BALFOUR, a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Store-Ladders; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in store-ladders adapted more especially for use in shoe-stores to facilitate the removal of boxes from shelves too high to be reached without the aid of a ladder. My improvement consists in applying to the ladder a vertically-movable shelf upon which articles may be supported. This shelf is arranged to be raised automatically and may be locked on its supporting-bar at any desired height for the convenience of the user.

The invention will now be described in detail, reference being made to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a perspective view of a ladder equipped with my improvement. Fig. 2 is a side elevation of the improvement shown in detail and on a larger scale. Fig. 3 is a vertical section taken through the same. Fig. 4 is a section taken through the casing inclosing the eccentric locking-cam. Fig. 5 is a cross-section taken through the vertical bar and the guide-shoe upon which the shelf is mounted. In this figure an underneath view of the shelf is shown.

Similar reference characters indicating corresponding parts in the views, let the numeral 5 designate a vertical bar attached directly to the ladder 6 at its upper extremity, its lower extremity being connected with the lower part of the ladder by a horizontal arm 7. The shelf is slidably mounted on the bar and is provided with a shoe 9, through which the bar passes. The shoe is provided with a locking device 10, adapted to pass through a

slot formed in one side of the guide-shoe. This locking device is actuated by an eccentric cam 12, provided with a casing 13, secured to the shoe 9 and provided with a lever-arm 14. The shelf 8 is supported by a cord 15, which passes over a pulley 16, journaled in the top of the bar, and thence to a spring-actuated roller 17, mounted on the top of the ladder. This spring-roller 17 will normally raise the shelf to its upward limit of movement on the guide-bar 5; but by means of the locking device 10 this shelf may be held at any desired height on the bar to suit the convenience of the person on the ladder. The shelf is hinged on the guide-shoe, as shown at 20, and may be turned to a position at right angles to that shown in the drawings by pressing on the arm A of a locking-lever C, whereby its opposite arm B is disengaged from the recess formed in a lug 9^a, fast on the shoe underneath the shelf. This lever C is normally held in the locking position by a spring 21, attached to the supporting-bracket 22 of the shelf and bearing against the arm A of the lever, whose opposite extremity is provided with a locking-hook.

Having thus described my invention, what I claim is—

1. The combination with a store-ladder, of a bar mounted thereon, a slidable shelf mounted on the bar, and means for automatically actuating the shelf.

2. The combination with a store-ladder, of a bar mounted thereon, a slidable shelf mounted on the bar, means for automatically actuating the shelf on the bar, and means mounted on the shelf for locking the latter on the bar in any desired position of adjustment.

3. The combination with a store-ladder, of a vertical bar mounted thereon, a shelf slidably mounted on the bar, a spring-actuated roller mounted on the ladder, and a flexible connection between the shelf and the roller whereby the shelf is normally held at its limit of movement in one direction.

4. The combination with a store-ladder, of a vertical bar mounted thereon, a shelf slidably mounted on the bar, a spring-actuated roller mounted on the ladder, a flexible connection between the shelf and the roller whereby the shelf is normally held at its limit

of movement in one direction, and means for locking the shelf on the bar in any desired position of adjustment.

5 5. The combination with a store-ladder, of a vertical bar mounted thereon, a shoe slidably mounted on the bar, a shelf attached to the shoe, a spring-actuated roller mounted on the ladder, a flexible connection between the roller and the shoe, and a locking device
10 mounted on the shoe.

6. The combination with a store-ladder, of a vertical bar mounted thereon, a shoe slidably mounted on the bar, a shelf attached to the shoe, a spring-actuated roller mounted on

the ladder, a flexible connection between the roller and the shoe, and a locking device 15 mounted on the shoe and comprising a movable friction member, and an eccentric lever for actuating the same, the friction member being arranged to pass through a slot formed 20 in the shoe to engagement with the bar.

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

EDWARD W. BALFOUR.

Witnesses:

GRACE MYTINGER,
A. J. O'BRIEN.