Feb. 5, 1924. 1,482,883

J. H. BULGER

DROP LADDER

Filed Nov. 23, 1922

Fig. 1

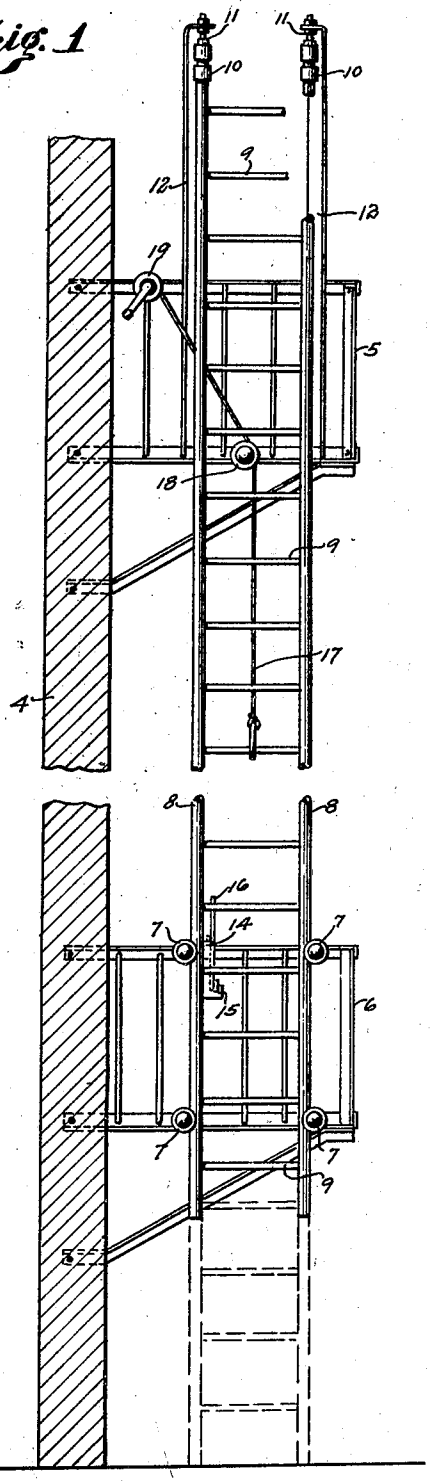


Fig. 2.

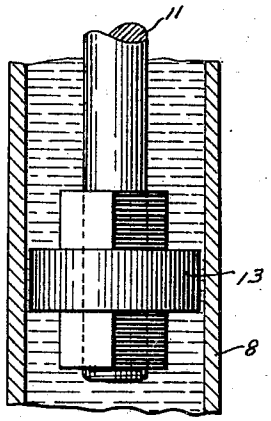
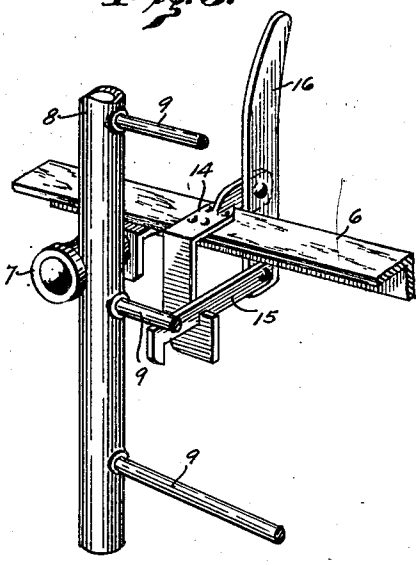


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOSEPH HENRY BULGER, OF LOS ANGELES, CALIFORNIA.

DROP LADDER.

Application filed November 23, 1922. Serial No. 602,710.

To all whom it may concern:

Be it known that I, JOSEPH HENRY BULGER, a subject of the King of England, and resident of Los Angeles, in the county of Los Angeles, State of California, have invented a new and useful Improvement in a Drop Ladder, of which the following is a specification.

This invention relates to a ladder such as is used on fire escapes whereby a ladder whose bottom is elevated from the ground may be dropped so as to permit the user to descend.

It is the common practice to build fire escapes by building balconies easily accessible from the various floors or levels to connect the balconies by ladders. The bottom balcony is commonly provided with a ladder whose lower end is elevated from the ground to prevent unauthorized persons from ascending and yet which can be lowered by a person on the balcony without trouble. My invention relates to the last mentioned ladder. It is a desideratum of such ladders that they be constructed so as to drop without violence, in order to avoid injury to those wishing to use it and to avoid destruction of the ladder itself. The primary object of this invention is to provide a ladder of this character. Another object of this invention is to provide a ladder which will be operative at any period of time and in spite of long disuse. A further object of this invention is to provide a ladder which is simple in structure, compact, and easily manipulated. A still further object of this invention is to provide a ladder which does not detract from the appearance of the building.

These objects together with other objects and corresponding accomplishments are obtained by means of the embodiment of my invention illustrated in the accompanying drawing, in which:

Fig. 1 is a side elevation of a wall having two balconies, upon the side of which my improved ladder is installed; Fig. 2 is an enlarged fragmentary vertical section of the check structure; and Fig. 3 is a perspective view on an enlarged scale of details of the stop mechanism for holding the ladder in elevated position.

Referring more particularly to the drawing, the wall of a building is indicated by 4. Installed thereon at levels suitable for access from the interior of the building are balconies 5 and 6. The balcony 6 is the lowest one of the series of balconies forming the fire escape under consideration. Mounted upon balcony 6 are rollers 7 spaced to engage the upright posts of the extension ladder and to slidably guide the ladder.

The ladder comprises tubular upright posts 8 closed at the lower ends and provided with rungs 9. The upper ends of the posts are provided with stuffing boxes 10 for slidably receiving piston rods 11. The piston rods are supported from the balcony 5 by means of standards 12 secured thereto. The piston rods are stationary with respect to the building. Secured to the lower end of each piston rod is a solid piston 13. The piston is slidably mounted within the bore of its post and has an appreciable clearance between it and the internal wall of the post. The posts are filled with viscous liquid such as petroleum. It is obvious that the ladder may be moved from its lower position as shown in dotted lines in Fig. 1 to its upper position and from its upper position to its lower position, its movement being impeded by the oil which must flow around the piston.

Normally the ladder is held in its upper position and a stop is provided for this purpose. A bracket 14 is secured to the balcony 6 and has a hanger portion for slidably receiving a stop link 15 which may be projected under a rung of the ladder or retracted therefrom. The inner end of the link is pivotally connected to a hand lever 16 which is mounted upon the bracket 14. By pushing the lever outwardly the stop link 15 will be withdrawn from under a rung of the ladder and the ladder will due to its own weight gently move into its lower position.

In order to draw the ladder to its upper position, a cable 17, idler pulley 18, and windlass 19 are provided.

What I claim is:

1. A drop ladder slidably mounted on a support and having closed hollow upright posts joined by rungs, said posts being adapted to be filled with fluid, piston rods fixed to said support and slidably extending into said posts, and check pistons secured to said rods.

2. A drop ladder slidably mounted on a support and having closed hollow upright posts joined by rungs, said posts being adapted to be filled with fluid, piston rods fixed to said support and slidably extending into said posts, check pistons secured to said rods,

and a manually operable stop to hold said ladder in elevated position.

3. In a fire escape, the combination of an upper and a lower balcony, a ladder slidably mounted on the lower balcony, said ladder comprising closed hollow upright posts joined by rungs and adapted to be filled with fluid, standards mounted on the upper balcony, piston rods depending from said standards and slidably mounted in said posts, and check pistons on said rods.

4. In a fire escape, the combination of an upper and a lower balcony, a ladder slidably mounted on the lower balcony, said ladder comprising closed hollow upright posts joined by rungs and adapted to be filled with fluid, standards mounted on the upper balcony, piston rods depending from said standards and slidably mounted in said posts, check pistons on said rods, and a manually operable stop mounted on said lower balcony to hold said ladder in elevated position.

In witness that I claim the foregoing I have hereunto subscribed my name this 9th day of November, 1922.

JOSEPH HENRY BULGER.