A. ZERLINI.

EXTENSIBLE LADDER.

APPLICATION FILED JUNE 26, 1919.

1,351,146.

Patented Aug. 31, 1920.

2 SHEETS—SHEET 1.

Fig. 2.

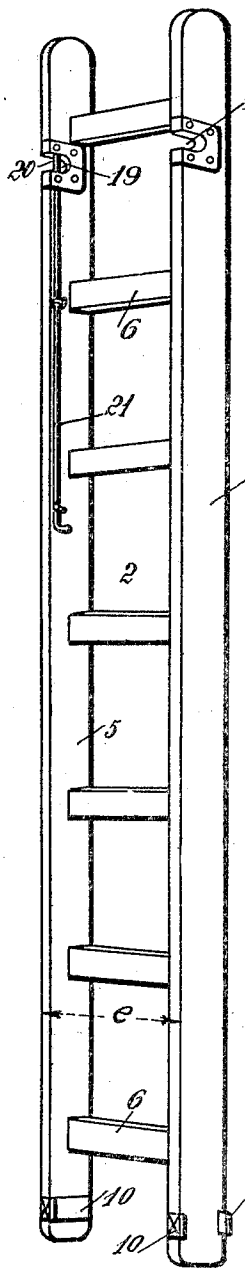


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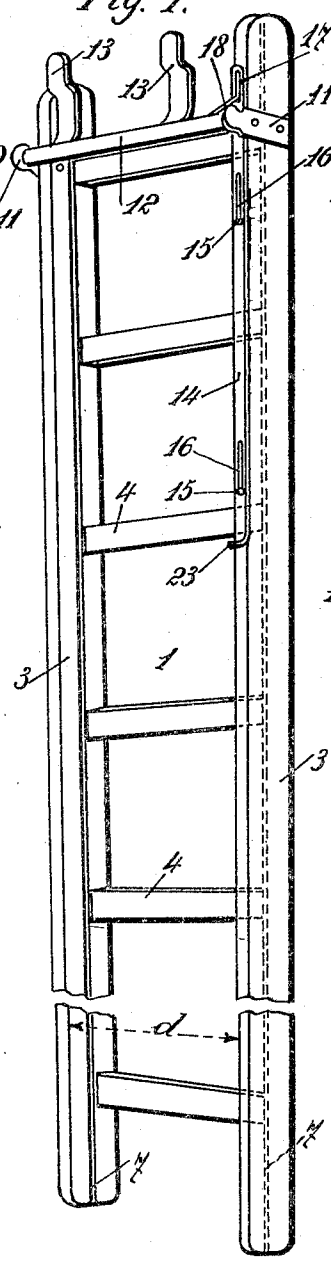
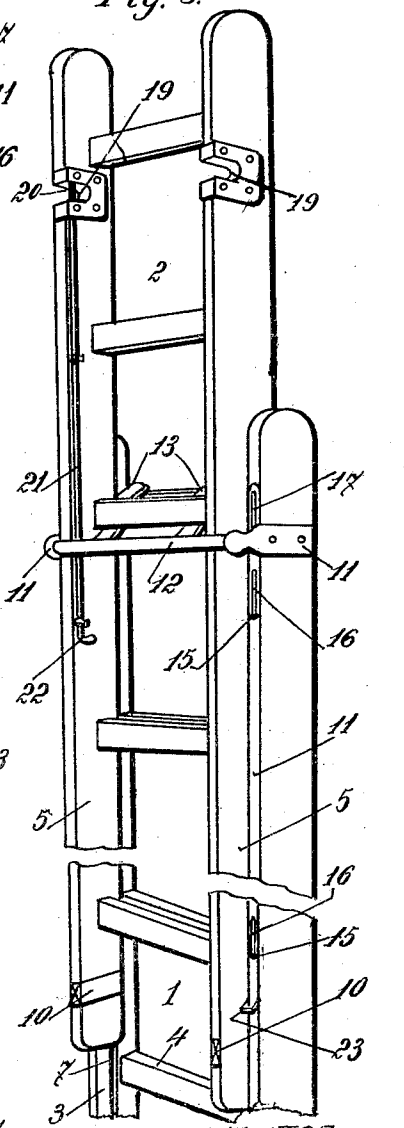


Fig. 3.



INVENTOR

Alessandro Zerlini

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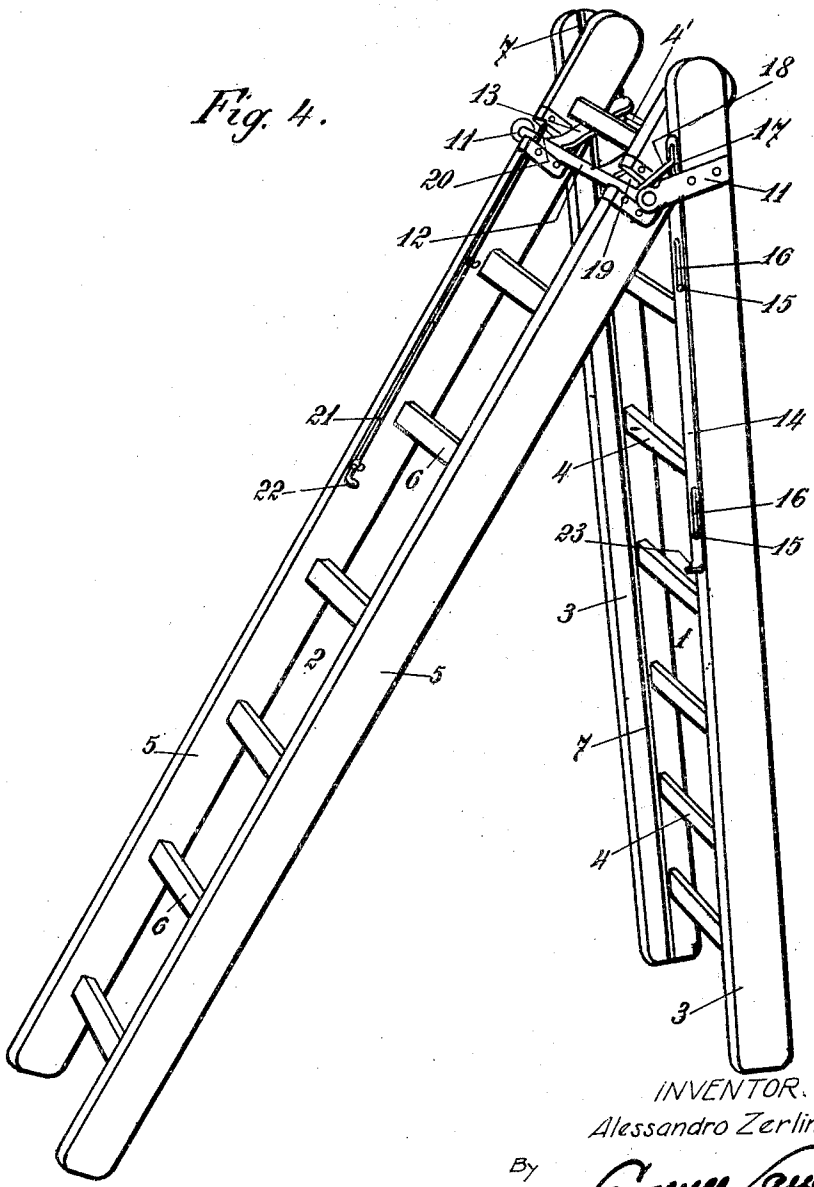
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2 SHEETS—SHEET 2.

Fig. 4.



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UNITED STATES PATENT OFFICE.

ALESSANDRO ZERLINI, OF BRESCIA, ITALY.

EXTENSIBLE LADDER.

1,351,146. Specification of Letters Patent. Patented Aug. 31, 1920.

Application filed June 26, 1919. Serial No. 306,980.

To all whom it may concern:

Be it known that I, ALESSANDRO ZERLINI, manufacturer, of Brescia, Italy, have invented certain new and useful Improvements in and Relating to Extensible Ladders, of which the following is a specification.

The invention relates to extensible ladders.

An object of the invention is the construction of a ladder constituted of two or more portions, said portions being mounted on one another and provided with means to form up both an extended, and a selfstanding ladder.

The invention will be better understood with reference to the annexed drawings of which:

Figures 1 and 2 are perspective views of the two ladder-portions.

Fig. 3 represents said ladder portions mounted one on the other to constitute an extensible ladder.

Fig. 4 shows the same two portions mounted one on the other to constitute a selfstanding ladder.

The same reference numerals designate like parts thoughout the drawing.

The ladder comprises the main flight —1— and the secondary flight —2—. The main flight is constituted of beams —3— of rectangular cross section and steps —4—; and the secondary flight is constituted of beams —5— and steps —6—.

The inner distance —*d*— between beams —3— is equal to the outer distance —*e*— between beams —5— so that portion —2— may be mounted on portion —1— and slide within the same along on steps —4—.

Beams —3— are provided with longitudinal guiding slots —7— to receive metallic projections —8— fastened to the lower ends of beams —5— by means of stirrups —10—.

About the upper end of flight —1— is mounted on supports —11— fastened to beams —3—, a rock shaft —12— provided with arms —13—. Said shaft receives angular motions through rod —14— slidably connected to a beam —3—, said rod being kept on said beam by the heads of nails —15— engaging slots —16— in said rod.

The reciprocating movement of rod —14— is converted into angular movement of shaft —12— which is obtained through lever arm —18— projecting from said shaft, the end of which engages slot —17— in rod —14—.

Flight —2— bears hinge-slots —19— one of which is adapted to be bridged or closed by the upper end —20— of an endwise movable rod —21—, the lower end of which is bent to form a finger-piece —22—.

The ladder is used as follows:

Flight —2— is mounted on flight —1—, while projections —8— enter slots —7—. By sliding portion —2— upward, the steps —6— will successively strike arms —13—, which will first be swung upward and backward as each step strikes them, so as to give free passage to the step and then drop back, as the step passes beyond them, to their resting position on the topmost step —4— of flight —1—, thus preventing a backward sliding of flight —2—.

To dismount portion —2— from portion —1—, the former is pushed forward until the step —6— resting on the arms —13— will allow the latter to be rotated to a position parallel to beams —3— by means of rod —14— and its finger-piece —23—. Thereupon flight —2— is pulled backward until projections —8— are withdrawn from slots —7—.

To mount the two flights as a self standing ladder, hinge-slots —19— are connected to shaft —12— while the upper ends of beams —5— are inserted between said shaft and the step —4'— behind it. Said shaft is held in place in said slots by the end —20— of rod —21—, which latter is manipulated by means of its finger-piece —22—.

Having now particularly described the nature of my invention and the manner in which the same should be used I claim:—

1. A ladder, comprising a pair of separable flights, each embodying connected side beams and steps; one flight being provided adjacent its top with a horizontal cross-shaft which is attached to the side beams thereof in front of and in spaced relation to the topmost step; the other flight having inwardly-extending slots provided in its side beams adjacent their upper ends to receive the adjacent portions of said shaft, and also having retaining means associated with one of said slots to bridge the same and thereby lock said shaft against displacement.

2. A ladder, comprising a pair of separable flights, each embodying connected side beams and steps; one flight being provided adjacent its top with a horizontal cross-shaft which is attached to the side beams thereof in front of and in spaced relation to the topmost step; the other flight having inwardly-

extending slots provided in its side beams adjacent their upper ends to receive the adjacent portions of said shaft; and a rod slidably arranged against one side beam of the last-named flight for movement into position to extend across and thereby close the adjacent slot, so as to lock said shaft against displacement.

3. A ladder, comprising relatively fixed and movable flights each embodying connected side beams and steps, the side beams of the movable flight adapted to fit slidably between those of the fixed flight; a horizontal rock shaft attached to the side beams of the fixed flight in front of and in spaced relation to the topmost step and provided with an arm adapted to normally rest upon said topmost step and to be struck and rocked forward by the successive steps of the slidable flight during its upward movement and to drop back to normal position as the steps pass beyond it; an endwise-movable rod slidably mounted on one of the side beams of the fixed flight and formed adjacent its upper end with a longitudinal slot; and an arm on said shaft separate from the first-named arm engaged in said slot to permit the rocking movements of said shaft during and consequent upon the endwise movement of said rod.

In testimony whereof I have affixed my signature, in presence of two witnesses.

ALESSANDRO ZERLINI.

Witnesses:

E. E. GUANIN,

IVAN LAVRETSKY.