

(No Model.)

2 Sheets—Sheet 1.

J. B. CHETWYND.  
BALCONY HOIST.

No. 501,455.

Patented July 11, 1893.

Fig. 2.

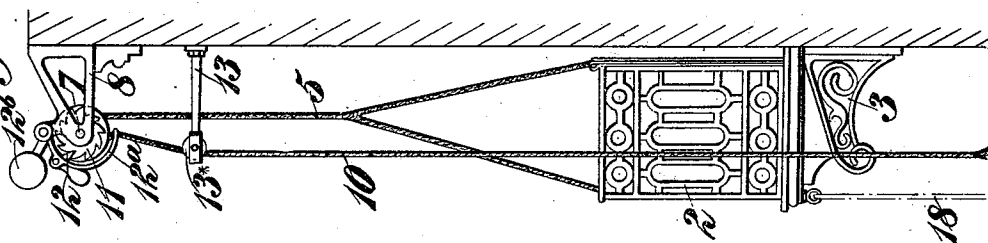
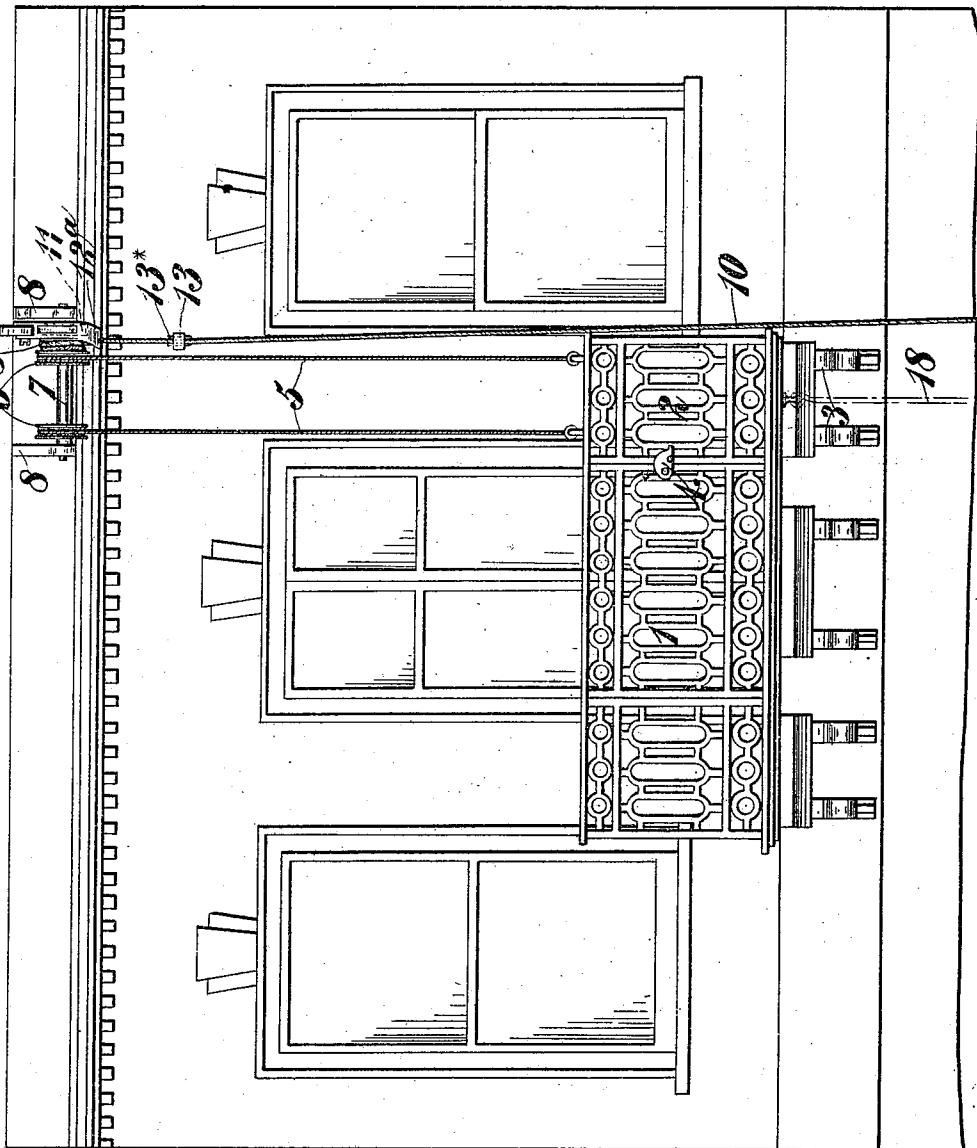


Fig. 1.



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*Percy MaHochs*

Inventor  
*J. B. Chetwynd*

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Fig. 3.

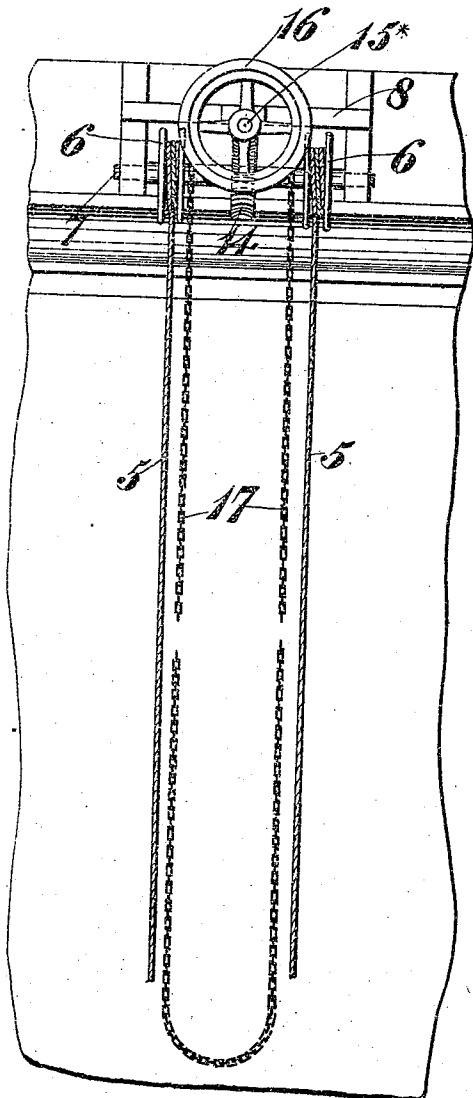
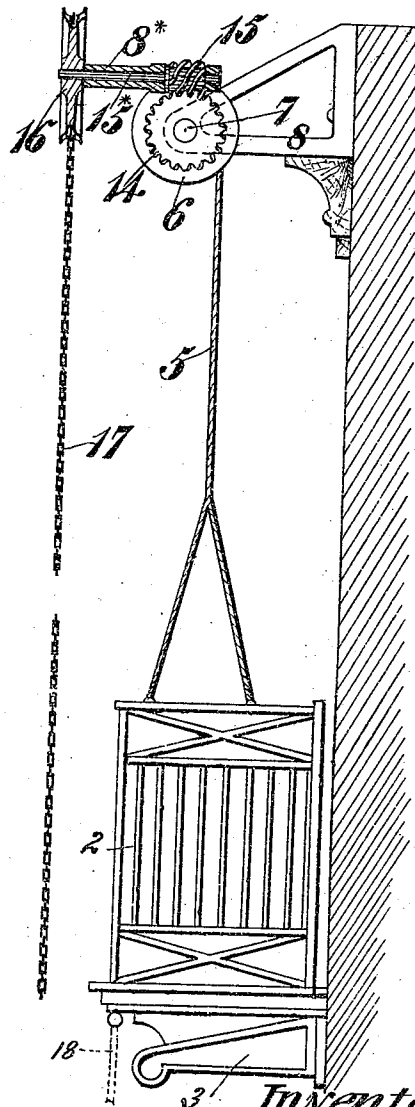


Fig. 4.



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*J. B. Chetwynd*

# UNITED STATES PATENT OFFICE.

JULIA BOSVILLE CHETWYND, OF LONDON, ENGLAND.

## BALCONY-HOIST.

SPECIFICATION forming part of Letters Patent No. 501,455, dated July 11, 1893.

Application filed February 1, 1893. Serial No. 460,570. (No model.)

*To all whom it may concern:*

Be it known that I, JULIA BOSVILLE CHETWYND, a subject of the Queen of Great Britain and Ireland, residing at Chelsea, London, England, have invented an apparatus for facilitating the ascent of persons to and their descent from the upper parts of structures such as buildings or ships, specially applicable for use as a balcony fire-escape, of which the following is a specification.

My invention has reference to improvements in apparatus for facilitating ascent of persons to and their descent from the upper parts of structures, such as buildings or ships.

The apparatus is especially applicable for use as a fire escape, but may also be used for other purposes as will be readily understood.

I will proceed to describe my apparatus adapted for use as a balcony fire escape in connection with buildings. The balcony is adapted to rest normally like an ordinary balcony on brackets or supports projecting from the building to which my invention is applied but is connected by ropes to raising and lowering gear operated after the manner of the lowering arrangement of a French window blind in such wise that a person desiring to use the appliance as a means of escape in case of fire can, while standing on the balcony, raise the same by pulling a rope, and then can gradually lower the balcony by keeping the rope taut without pulling it to such an extent as to prevent descent of the balcony. As the balcony is in this manner allowed to gradually descend it will be guided outward by the ropes by which it is suspended working in guides in the brackets or supports so as to clear them and the wall of the building as hereinafter more fully explained.

In order that my invention may be fully understood reference is had to the accompanying drawings in which—

Figure 1 shows in elevation part of a house provided with such a balcony fire escape; and Fig. 2 illustrates my invention at right angles to Fig. 1. Figs. 3 and 4 are respectively a front elevation and a section of a modified form of gear for raising and lowering the movable balcony.

Referring to Figs. 1 and 2, 1 is a balcony of which one end portion 2 (hereinafter called the movable balcony) is shown movable and

provided with means for raising and lowering it; but it will be understood that both ends might be made movable. The movable balcony 2 which is provided with a railing extending entirely around it rests upon brackets 3 whose upper surfaces are downwardly inclined, the under side of the movable balcony being so formed that the said balcony is supported in a horizontal position. The movable balcony 2 is kept in place by means of a catch 4 or a hook or link which is pivoted to the fixed balcony and is so balanced that, upon the movable balcony being slightly raised, the catch is caused to assume such a position that the said balcony is free to slide off the inclined brackets 3.

The raising and lowering gear comprises ropes 5 of non-inflammable material such as steel or asbestos to which the movable balcony 2 is attached; these ropes are wound upon wheels or drums 6 fixed to a shaft 7 journaled in brackets 8 secured to the wall of the house as shown. The shaft 7 has also keyed upon it a wheel or drum 9, around which an actuating rope 10 is wound in the opposite direction to that in which the ropes 5 are wound upon the wheels or drums 6; the shaft 7 has also fixed upon it a ratchet wheel 11 with the teeth of which a detent 12 normally engages, the arrangement being such as to prevent the shaft 7 rotating in a direction which will allow the movable balcony 2 to descend. This detent is formed with a curved extension 12<sup>a</sup> in which is formed an eye; through this eye the rope 10 passes.

Fixed to the wall a short distance below the wheel or drum 9 is an arm 13 provided at its outer end with a sheave 13<sup>\*</sup> against which the rope 10 bears. The weighted detent is so arranged that, when the rope 10 hangs slack and the detent 12 is in engagement with the teeth of the ratchet wheel, the curved extension 12<sup>a</sup> bends that portion of the rope between the wheel or drum 9 and the sheave 13<sup>\*</sup>. The detent and extension are provided with a weight 12<sup>b</sup>. This weight must be sufficient to counteract the tendency of the rope, due to its weight alone to disengage the detent from the ratchet wheel.

The action is as follows:—Upon the rope 10 being pulled, whether by a person standing upon the movable balcony 2 or by some per-

son on the ground, that portion of the said rope that is between the wheel or drum 9 and the sheave 13\* will be straightened, the detent 12 being thereby disengaged from the teeth of the ratchet wheel. Upon a further pull being exerted on the rope 10, the movable balcony 2 will be raised and the catch 4 or balanced hook or link turned over as hereinbefore mentioned, the movable balcony 2 being then free to descend. If the rope 10 be now slightly slackened the movable balcony 2 will descend slowly the ropes 5 being gradually unwound from the wheels or drums 6 which are thereby rotated together with the shaft 7 and the wheel or drum 9 mounted thereon; the rope 10 is consequently gradually wound upon the wheel or drum 9. Upon the rope 10 being released the detent 12 will re-engage the teeth of the ratchet wheel and the further descent of the balcony 2 will be stopped. In the example illustrated the wheels or drums 6 are directly above the brackets 3; grooves are formed in the ends of the said brackets in which the ropes 5 run when the movable balcony 2 has descended below the same. When the actuating rope 10 is not in use it will usually be coiled up and hung upon the movable balcony.

In the modified form of apparatus shown in Figs. 3 and 4 the shaft 7 has fixed to it two wheels or drums 6 around which the ropes 5 are wound, and a worm wheel 14 arranged between the said wheels or drums 6; with the worm wheel 14 there gears a worm 15 fixed upon a spindle 15\* mounted in bearings in a cross bar 8\* attached to or forming part of the brackets 8. Upon the spindle of the worm 15 is keyed a chain wheel 16 over which hangs an endless chain 17 of sufficient length to almost reach the ground. In this modification, the movable balcony can be slowly raised or lowered by pulling down one side portion of the chain 17; upon the cessation of the pull on the chain the movable balcony will then remain stationary. In cases where there are structural projections below the normal position of the movable balcony 2 a guy rope 18 (Figs. 1 and 2) is provided by means of which the movable balcony 2 can be guided safely over the said projections. The actuating rope 10 or the chain 17, as the case may be, may, if desired, be inclosed in a casing fixed to the wall of the building and suitable guide pulleys provided where neces-

sary, the lower portion of said casing being so constructed as to permit of the rope or chain being manipulated by a person standing on the ground.

What I claim is—

1. Apparatus for facilitating ascent of persons and their descent from the upper parts of structures comprising a movable platform, mechanism for raising and lowering the same, and fixed brackets or supports, the platform being adapted to rest normally on the brackets or supports (which project from the structure to which the apparatus is applied) but capable of being raised and lowered by a person standing on such platform as set forth.

2. A balcony fire escape comprising a movable balcony, brackets or supports fixed to the building to which the fire escape is applied and whereon said movable balcony normally rests, a rotary shaft provided with pulleys and mounted in brackets fixed to said building, flexible connectors wound on said pulleys and connected to said movable balcony, and means for rotating and controlling the motion of said shaft to raise and lower said movable balcony substantially as herein described for the purpose specified.

3. A balcony fire escape, comprising a movable balcony 2, brackets or supports 3 fixed to the building to which the said fire escape is applied and whereon said movable balcony normally rests, a shaft 7 mounted in brackets fixed to said building, pulleys 6 and 9 and ratchet wheel 11 fixed to said shaft, flexible connectors 5 connected to said movable balcony and wound upon said pulleys 6 a rope 10 wound upon said drum 9 in an opposite direction to that in which said flexible connectors 5 are wound upon said drums 6 said rope being arranged to be operated by a person standing on said movable balcony, and a weighted detent 12 adapted to engage said ratchet wheel and provided with an extension 12<sup>a</sup> through which said rope 10 passes substantially as herein described for the purpose specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JULIA BOSVILLE CHETWYND.

Witnesses:

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PERCY E. MATTOCKS,

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