No. 705,042. Patented July 22, 1902.

J. T. COWLES.

FIRE ESCAPE.

(Application filed Jan. 11, 1901.)

(No Model.)

Fig. 3.

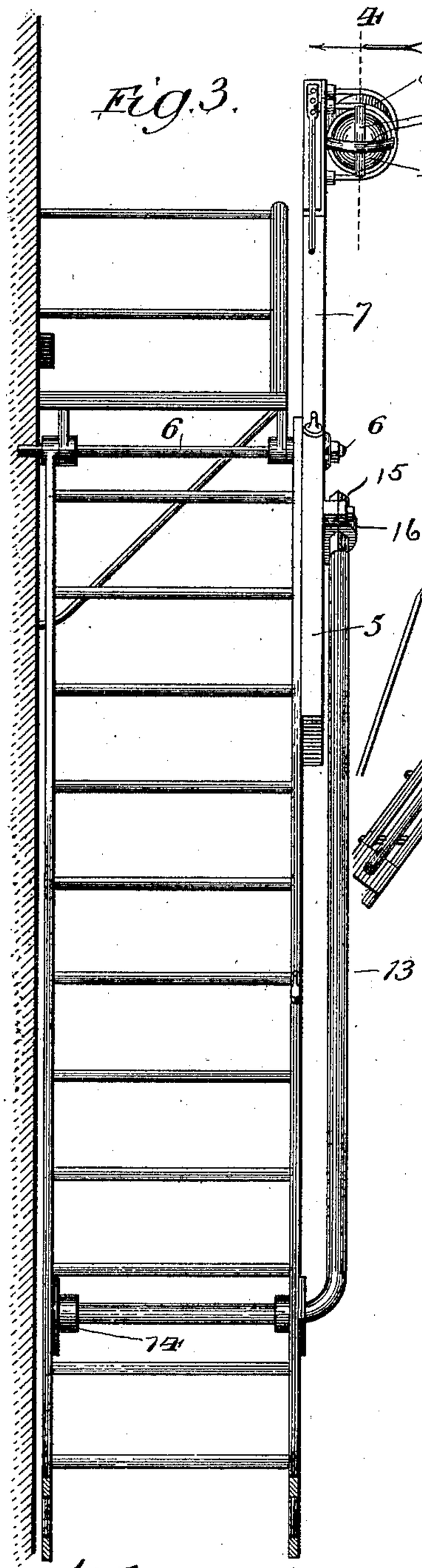

Fig. 1.

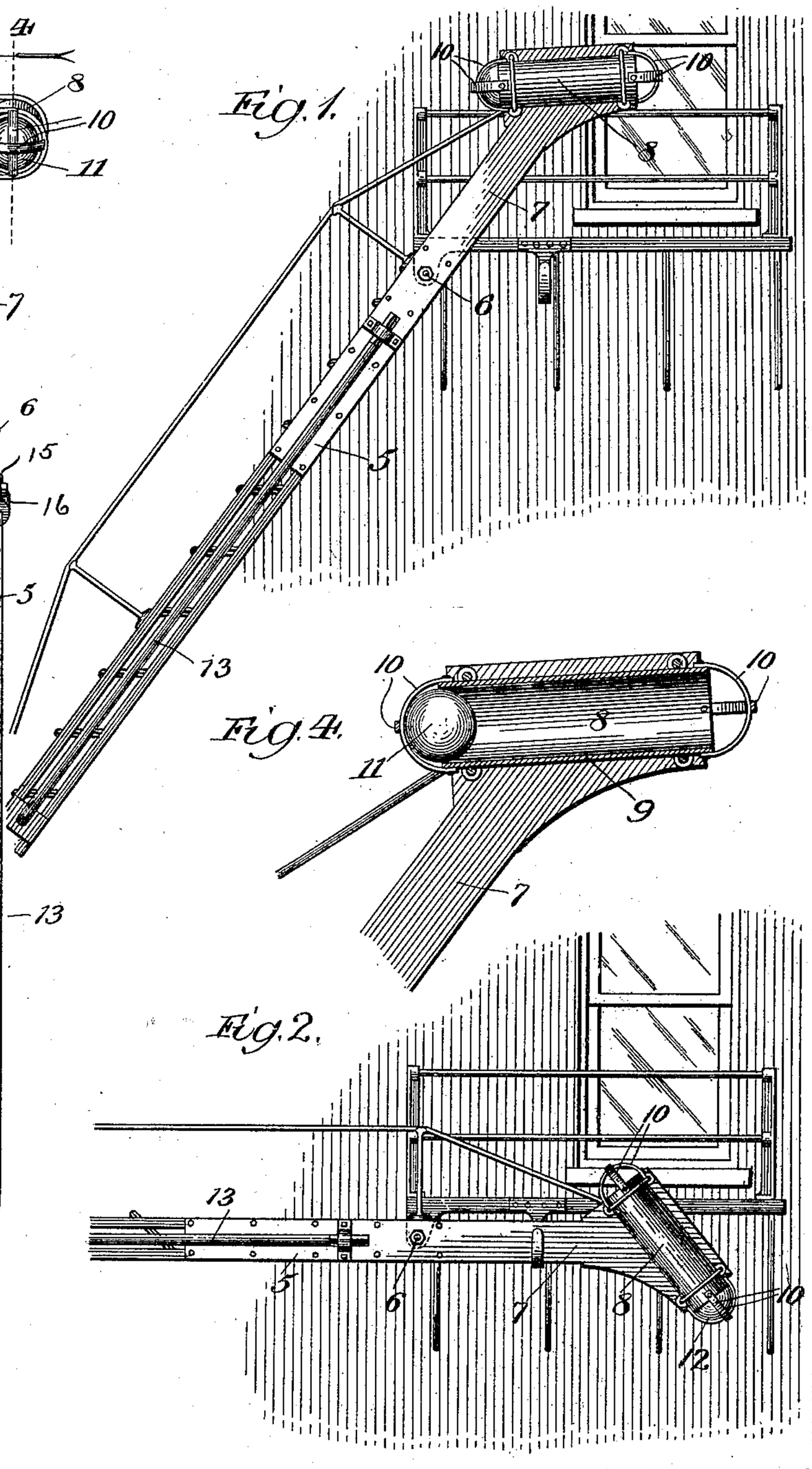

Fig. 4.

Fig. 2.

Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN T. COWLES, OF CHICAGO, ILLINOIS.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 705,042, dated July 22, 1902.

Application filed January 11, 1901. Serial No. 42,835. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. COWLES, a citizen of the United States of America, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Fire-Escapes, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to fire-escapes. Heretofore in that type of fire-escape construction which employed a stair or ladder attached to the side of the building it has been customary to form a portion or section thereof at the lower end, so that it will move upon a pivotal support into and out of operative position, the weight of the movable or pivoted section being carried by cables or other suspension devices, to which are secured suitable counterweights. In my experience in this art I have found that some difficulties are encountered in the operation of devices of this kind, prominent among which may be mentioned the danger involved due to occasional breakage of the suspensory cables and the fall of the pivoted section of the ladder or stair, this endangering the safety and lives of people who may happen to be standing below.

One of the objects of my present invention is to avoid the difficulties and dangers above enumerated, and this I aim to accomplish by the construction of a lower section of a fire-escape mounted upon a pivotal support and provided with a shifting counterbalance, whereby when the escape is in raised position it will be securely held in such position and whereby when it is pulled down in operative position the counterbalance will shift automatically, so as to hold it in operative position until it is again raised into horizontal position.

The above objects, as well as those which may hereinafter appear, I obtain by means of a construction which I have illustrated in preferred form in the accompanying drawings, in which—

Figure 1 is a side elevation of a fire-escape embodying my improvement. Fig. 2 is a side elevation with the parts in a horizontal position. Fig. 3 is a front elevation of a portion of the apparatus, and Fig. 4 is a section taken on the line 4 4 of Fig. 3.

In carrying out my invention I provide, first, a movable section 5, carried upon a pivotal support 6 and adapted to reach from some point above the ground down to some point adjacent to the ground when the parts are in operative position. Extending beyond the pivotal support 6 I provide a counterbalance-arm 7, carrying an automatically-shifting counterbalance device 8, comprising a cylinder 9, provided with a cage 10 at each end and a ball 11, mounted within the cylinder. The cylinder 9 is attached to the counterbalance-arm 7 in a position such that when the section 5 is in operative position the cylinder will be inclined a little toward the pivotal point of support, so that the ball-counterweight 11 will roll down to that end and reduce the effective force of the counterweight or balance, so as to permit the section to remain in such position without the use of any locking or extraneous mechanism of like kind. If now it be desired to raise the section 5 out of the way, the lower end can be lifted a couple of feet, when the cylinder 9 will have changed its position sufficiently to cause the ball 11 to roll over to the other end, as shown in Fig. 2 at 12, increasing the effective force or weight of the counterbalance and causing the ladder or step-section 5 to ascend to horizontal position, as clearly shown in Fig. 2.

To counteract any tendency of the inner lower corner of the ladder or step to sag, I provide a supplemental supporting device comprising a spring-rod 13, mounted alongside the section 5 and bent inwardly to reach the inner side, as indicated at 14, the said rod being provided with a squared or hexagonal end 15 and a locking device or strap 16, whereby on loosening the strap, turning the rod, and again tightening the strap the rod can be put under torsional strain to just the extent needed to hold the corner at 14 up in proper position when the movable section is in horizontal position, as shown in Fig. 2.

The hexagonal or squared end of the rod 13 is held by means of the strap 16 by the formation in the strap of a square or hexagonal hole designed to fit closely the squared or hexagonal end of the rod when the strap is tightly secured in place.

While I have described my invention as specifically applied for fire-escape purposes, it is obvious that it is applicable to other uses,

and therefore I do not desire to be understood as limiting myself to its use on fire-escapes alone.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A movable step or ladder having a pivotal support, means for holding up the free end of said movable step applied at one side thereof, a device for aiding in the support of the other side thereof, and mechanism coöperating with said last-mentioned supporting device for securing the same to that side of the ladder which is opposite the one which is to be supported by it, whereby the inner free end of the ladder is carried from the outer side, substantially as described.

2. A movable step or ladder provided with a pivotal support, means comprising an adjustable counterbalance for holding up the free end of said movable ladder applied at one side only thereof, a supporting device for the other side thereof secured to said counterbalanced side, by means, substantially as described, whereby the side opposite the counterbalanced side may be brought up, when the ladder stands in horizontal position, to the proper level, substantially as set forth.

3. A movable step or ladder carried by a pivotal support, a counterweight applied at one side only of said step, means for supporting the other side thereof, comprising a rod subject to torsional strain and arranged to extend longitudinally alongside of the counterweighted side of the step and inwardly to the opposite side near the bottom of the step, substantially as described.

4. A movable step or ladder carried upon a pivotal support, one side of said step being projected or extended beyond said pivotal support to form a counterbalance-arm, and provided with an automatically-shifting counterweight device, comprising a cylinder attached to said arm, a ball within said cylinder, means for retaining said ball within said cylinder, said cylinder being attached in a position such that when said step is in operative position the ball may roll toward the point of pivotal support, and when the step is partly raised the ball may roll away from the point of pivotal support, a device for aiding in the support of the uncounterbalanced side of the step, and mechanism coöperating with said last-mentioned device for securing the same to that side of the ladder which is opposite the one which is to be supported by it, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOHN T. COWLES.

Witnesses:
JOHN T. COWLES, Jr.,
PAUL CARPENTER.