No. 627,257. Patented June 20, 1899.

B. W. HAINES & W. D. CREIGHTON.

ELEVATOR CAGE ESCAPE.

(Application filed Jan. 5, 1899.)

(No Model.)

Fig. 1.

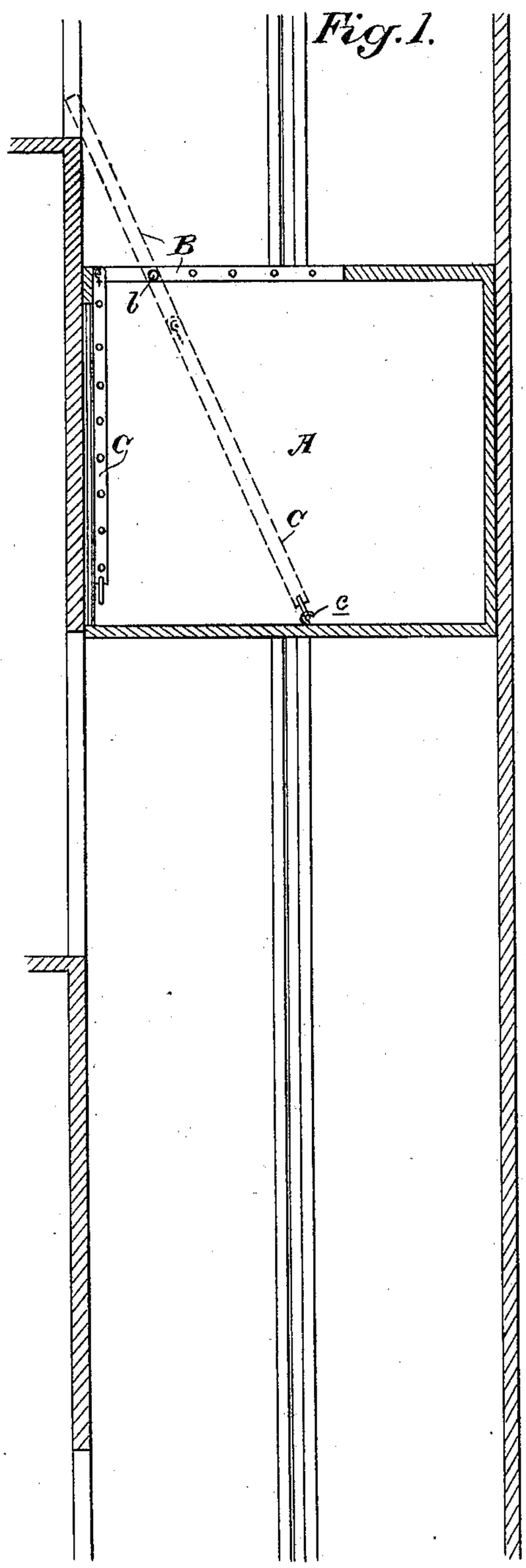

Fig. 2.

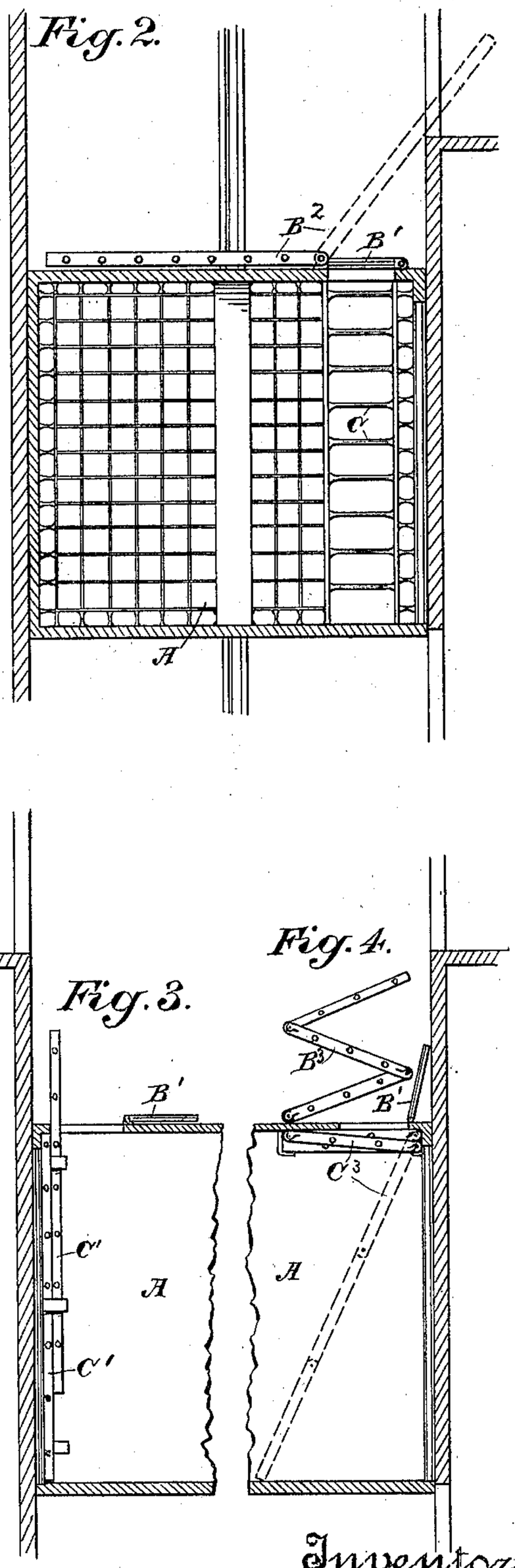

Fig. 3.

Fig. 4.

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UNITED STATES PATENT OFFICE.

BYRON W. HAINES AND WILLIAM D. CREIGHTON, OF SAN FRANCISCO, CALIFORNIA.

ELEVATOR-CAGE ESCAPE.

SPECIFICATION forming part of Letters Patent No. 627,257, dated June 20, 1899.

Application filed January 5, 1899. Serial No. 701,281. (No model.)

To all whom it may concern:

Be it known that we, BYRON W. HAINES and WILLIAM D. CREIGHTON, citizens of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Elevator-Cage Escapes; and we hereby declare the following to be a full, clear, and exact description of the same.

Our invention relates to an elevator attachment which is designed to facilitate the escape of inmates therefrom if the elevator becomes fixed and immovable at points intermediate between the regular floors or landings and in other positions of peril.

It consists in the parts and the constructions and combinations of parts hereinafter described and claimed.

Figure 1 is a sectional elevation showing the ladder and trap connected. Fig. 2 shows the interior ladder in line with the trap and the exterior one hinged with relation thereto. Fig. 3 is a modification showing the ladders foldable when not in use.

A represents an elevator-cage of the usual inclosed pattern which is used for passenger service. These cages are usually inclosed upon all sides and the top, having a side door or doors which may be opened for ingress or egress when the cage arrives at a floor or landing. The wells in which these cages move are inclosed either closely or with lattice or grill work, so that at points between the floors or landings there is no means of egress from the well even if the doors were open.

It often occurs that elevator-cages from accident to machinery or in case of fire where the elevator may be in use at the time from a sudden stoppage of the motive power will become fixed at some point intermediate between the floors and the occupants thus become imprisoned and are unable to effect their escape.

In our invention we form an opening in the roof or floor of the cage A and fit into it a closable door or trap B, and in conjunction with this we employ a ladder or steps C, by which the opening can be reached from within the cage. It is necessary to so arrange the ladder that it may be made to reach some point of escape upon a floor above or below after the occupants have emerged from the cage. We therefore make our ladder in such a manner that it can be extended and turned to any desired point exterior to the cage.

It will be obvious that many modifications in the mechanical arrangement of the device may be employed without materially altering the character of the invention.

As shown in Fig. 1, the door B consists of sides having cross rods or bars in the form of a ladder, and this door is pivoted or fulcrumed, as shown at *b*, so that it may be turned about these pivots to open or close. This portion B may be made of any suitable or desired length. The opening may be large enough for the easy egress of persons, and the part B may cover the opening only, or it may extend beyond the opening in order to give it any desired length, so that when turned about its pivots the upper end may rest against the side of the elevator-shaft and enable the occupants to reach a door or opening upon a landing at some distance from the cage. It will be obvious that this ladder portion B may also be made with a sliding or folding extension which will be normally closed to allow the ladder to fold down upon the top of the cage; but it may be extended and secured by any suitable latch or joint-holding device, so as to increase the length of the portion of the ladder which is exterior to the cage.

Within the cage is a ladder C, which normally fits closely against the side or within a recess of the cage, as in Fig. 1, so as not to intrude upon the interior of the cage, or it may be built permanently into or along the side of the cage, as in Fig. 2.

The upper end of the ladder C is shown in Fig. 1 pivoted to one end of the ladder-trap B, and when the device is to be used the lower end of the ladder C is detached from the wall and drawn across the cage toward the opposite side. This will act to tilt the trap B about its hinges and bring it approximately into line with the sides of the part C, so that when the lower end of the part C rests against the bottom or opposite side of the cage the two will be approximately in line.

Various devices may be employed for hold-

ing the parts in position while they are being used. The lower end of C may have hooks or attachments *c*, by which it can be secured to the bottom of the cage, or a slidable lock-joint may be fitted upon the meeting ends of the two sections, or they may be joined in any well-known or suitable manner, so that the two ladders will be locked together as soon as they are brought into line.

In Fig. 2 the trap-door B′ covers the opening in the roof and the ladder portion B^2 is hinged or pivoted, so that it may be turned from its normal position on the roof of the cage into the dotted position shown. In Fig. 3 the ladder is formed of sliding sections C′, and in Fig. 4 the ladder portion B^3 is formed of jointed foldable sections, while the ladder C^3 is also formed of foldable sections and may be normally contained in the upper portion of the cage.

We do not desire to confine ourselves to any special detail by which the parts are secured and operated, as these will suggest themselves to any mechanic.

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

1. The combination with an elevator-cage having an opening, of a ladder carried by the cage and foldable and extensible whereby it may be projected above the cage and folded thereon and a second ladder within the cage and affording access to the first-named ladder.

2. The combination with an inclosed elevator-cage having an opening, of a trap or cover for said opening in the form of a short ladder, pivots upon which said trap is turnable to close or open, and a ladder-section connecting with said trap from the interior of the cage.

3. The combination with an inclosed elevator-cage having a trap opening in the upper part, of a ladder-section pivoted with relation to said opening so as to normally form a closure therefor, or turnable so as to expose the opening and form a ladder extending upwardly therefrom, a ladder-section hinged to one end thereof and normally closable against the wall of the cage, said ladder acting when the lower end is drawn across the cage to open and extend the trap-covering section, and means for locking the ladder-sections in place.

In witness whereof we have hereunto set our hands.

BYRON W. HAINES.
WILLIAM D. CREIGHTON.

Witnesses:
S. H. NOURSE,
JESSIE C. BRODIE.