

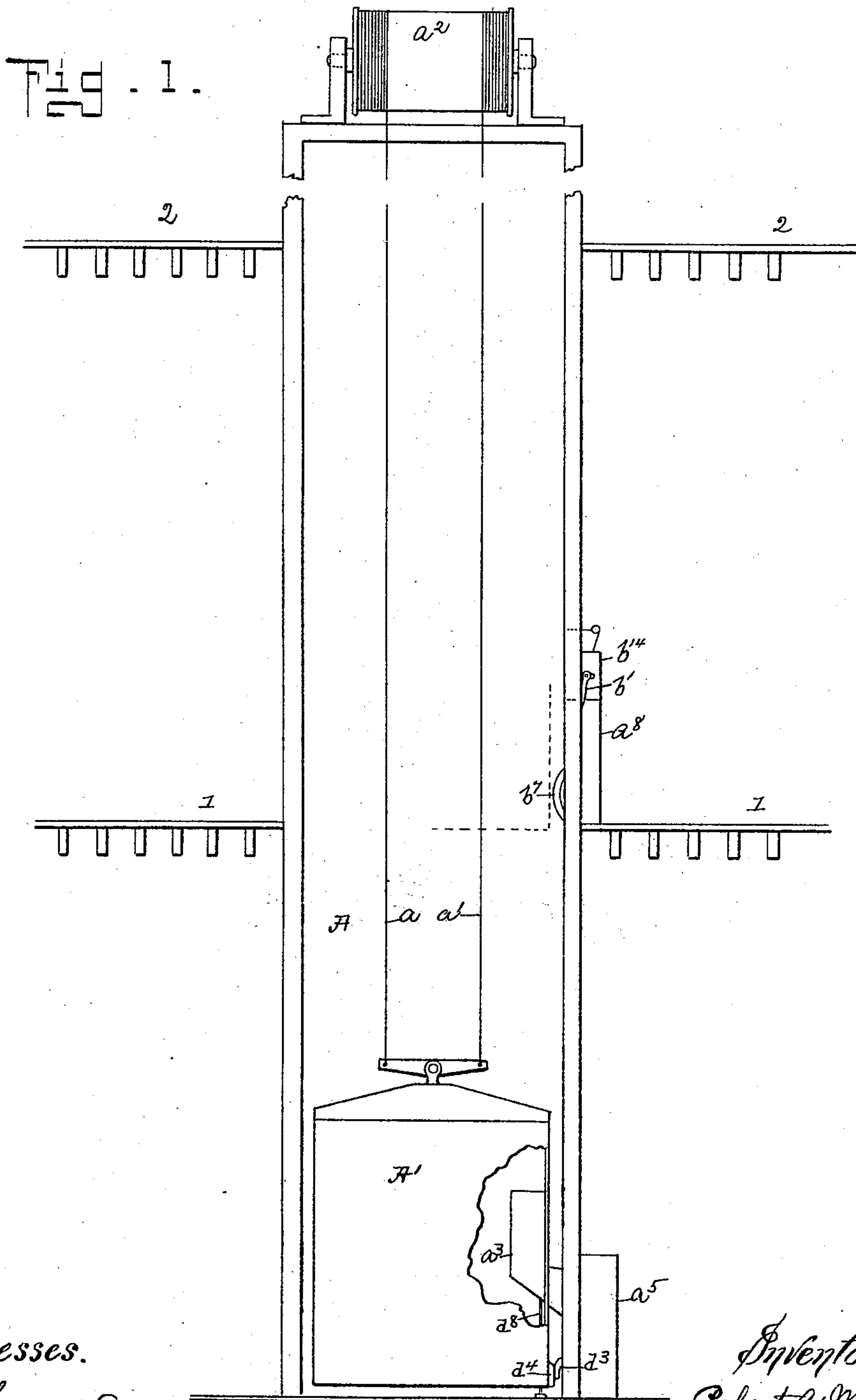
(No Model.)

2 Sheets—Sheet 1.

R. A. MORGAN, Jr.
APPARATUS FOR TRANSPORTING MAIL.

No. 517,619.

Patented Apr. 3, 1894.



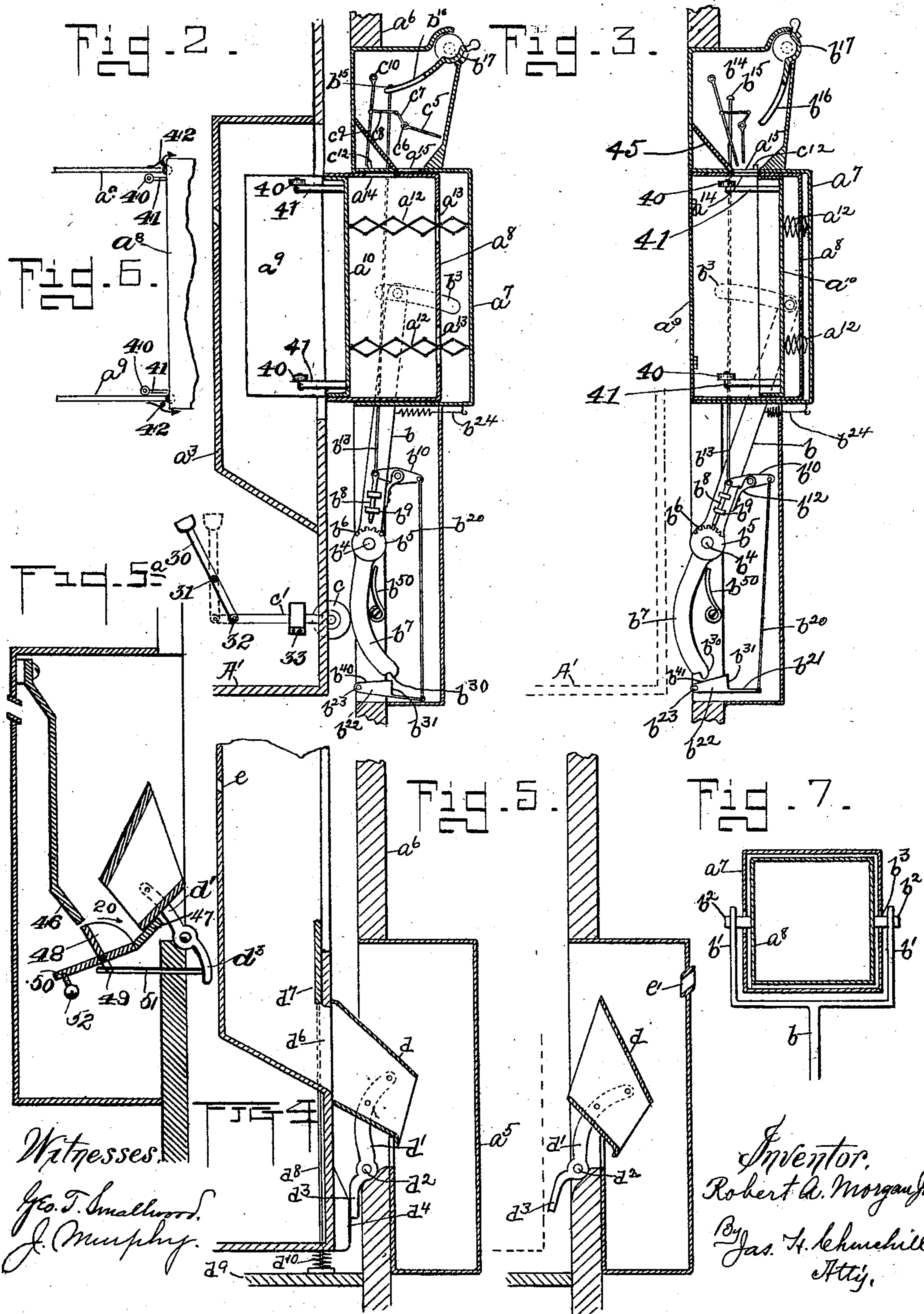
Witnesses.
Geo. T. Smallwood,
J. Murphy.

Inventor.
Robert A. Morgan, Jr.
By Jas. H. Lehighill
Att'y.

R. A. MORGAN, Jr.
APPARATUS FOR TRANSPORTING MAIL.

No. 517,619.

Patented Apr. 3, 1894.



UNITED STATES PATENT OFFICE.

ROBERT A. MORGAN, JR., OF BOSTON, MASSACHUSETTS.

APPARATUS FOR TRANSPORTING MAIL.

SPECIFICATION forming part of Letters Patent No. 517,619, dated April 3, 1894.

Application filed August 24, 1893. Serial No. 483,935. (No model.)

To all whom it may concern:

Be it known that I, ROBERT A. MORGAN, JR., residing in Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Systems for Transporting Mail, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention relates to a novel apparatus for the transmission of mail or other matter, and is especially designed for use in buildings equipped with elevator service.

In accordance with this invention, one or more boxes, receptacles or substations, for the reception of the material to be transported, are located along the route of travel of a carrier provided with a receptacle or box, into which the mail or material deposited in a box or substation may be discharged, and from which the said mail or material may be removed at the end of its route, and preferably discharged into a receiving station, box or receptacle. As applied to the elevators of buildings, substations or boxes may be located on the various floors or landings near the elevator well, and are constructed to receive the mail or material and discharge it into a box or receptacle carried by the elevator car or platform, from which the mail or other material may be removed, it being preferably automatically discharged into a station, box or receptacle located at or near the bottom of the elevator well. The discharge of the mail or material from the substations into the receptacle carried by the elevator car or platform may be automatically or positively controlled from the elevator car, which may be accomplished as will be described. The substations or boxes located on the different floors or landings of the buildings may and preferably will be constructed, so as to prevent mail or other material from being delivered into the substation or box while the latter is discharging its contents into the receptacle carried by the elevator car, as will be described. These and other features of this invention will be pointed out in the claims at the end of this specification.

Figure 1 represents in elevation partially broken out a building provided with a transportation apparatus embodying this inven-

tion; Fig. 2, a detail in section and elevation on an enlarged scale of one form of substation or box, shown as discharging its contents into the receptacle carried by the elevator car shown in Fig. 1; Fig. 3, a sectional detail on an enlarged scale of a substation or box in its normal position; Fig. 4, a sectional detail showing the receptacle or box on the elevator car in the position occupied by it when discharging its contents into the main or receiving station or receptacle; Figs. 5 and 5^a sectional details showing the main station in the position occupied by it when not receiving mail from the elevator car, and Figs. 6 and 7 details to be referred to.

Referring to Fig. 1, A represents the elevator well or shaft of a building or other structure provided with a number of floors, 1, 2, &c., and in which is located an elevator car A', which may be raised and lowered in any suitable manner, it being herein shown as suspended by means of cables a a' from a rotary drum a^2 located at the top of the elevator well. The elevator car A', constitutes one form of traveling carrier and in accordance with this invention, has secured to or forming part of it a box or receptacle a^3 , for the reception of mail or other matter collected from substations or boxes located on the different floors of the building.

It is the purpose of this invention, that the mail or other matter deposited in a substation or box should be collected on the passage of the elevator up or down the well A', and I prefer that the mail or other matter so collected should be automatically discharged from the box or receptacle a^3 into a box or receptacle a^5 located at the bottom of the elevator well, and which may be regarded as the main receiving or collection station of the apparatus.

Referring to Figs. 2 and 3, I have shown in section one form of substation or box, which may be used in accordance with this invention. The substation or box is designed to be secured to the wall a^6 of the elevator well in position to co-operate with the box a^3 on the elevator car A', as will be described. In the present instance, the substation is shown consisting of a movable box a^8 provided at its front end with normally closed doors a^9 , shown in their open position in Fig. 6, the

box a^8 containing within it a piston, plunger or other movable device or body a^{10} , which, in the present instance, is operated by pairs of lazy tongs a^{12} extended through suitable slots a^{13} in the back of the box a^8 , one link of the lazy-tongs being firmly secured to the back of the box a^8 and also to the back of a casing or box a^7 , within which the box a^8 is located the opposite ends of the lazy tongs being fastened to the plunger a^{10} . The box a^8 and its plunger a^{10} normally occupy the position shown in Fig. 3, and the said box is provided at its top or upper side with a slot or opening a^{14} , which in this figure registers with a slot or opening a^{15} in the top of the casing or box a^7 . In the normal position of the box a^8 and its plunger a^{10} , the latter is drawn back into the box a^8 so as to uncover the slot a^{14} and permit any mail or other material to pass into the box a^8 in front of the plunger a^{10} . The box a^8 is moved from its position shown in Fig. 3 to that shown in Fig. 2, by an actuating device, herein shown as composed of two members, one member being shown as an arm b , through which extend lugs or projections b^2 secured to or forming part of the sides of the box a^8 , as clearly shown in Fig. 7, the said lugs extending through suitable slots b^3 in the sides of the box a^8 . The arm b at its lower end is loosely mounted on a shaft or arbor b^4 , upon which is mounted the co-operating member of the actuating device, and which is herein shown as a hub b^5 provided with ratchet teeth b^6 , the said hub having a depending curved or cam-shaped arm b^7 for a purpose as will be described. The cam-shaped arm b^7 may be rendered fast to the arm b , as herein shown, by a pawl or bolt b^8 extended through suitable guide-ways b^9 on the arm b and connected as herein shown to one end of a walking beam or lever b^{10} , pivoted in a suitable bracket b^{12} , herein shown as fastened to the arm b . The walking beam b^{10} has secured to it a rod b^{13} extended up into a supplemental box or chamber b^{14} secured to or forming part of the main box a^7 , the said rod as represented being provided with a knob or enlarged head b^{15} , which is adapted to be engaged by an arm b^{16} secured to or forming part of the movable lid or cover b^{17} of the chamber b^{14} , when the said lid is turned to uncover the opening into the chamber b^{14} as represented in Fig. 2. The walking beam b^{10} is connected at its other end by a link b^{20} to an arm b^{21} of an inclined or cam-shaped lever b^{22} pivoted as at b^{23} to the wall a^6 . In the normal position of the substation, the lid b^{17} of the supplemental box or chamber b^{14} is closed as represented in Fig. 3, and the bolt or pawl b^8 is in engagement with the ratchet teeth b^6 on the hub b^5 , thereby locking the cam arm b^7 to the arm b , and the latter is turned on its shaft or pivot b^4 by a spring b^{24} so as to move the box a^8 and its plunger a^{10} into the position shown in Fig. 3, and at the same time project the cam-arm b^7 into the elevator well and into the position

to be engaged by an operating device on the elevator car.

The operating device referred to, may be a roller c mounted on a rod c' , which may be operated in any suitable manner, as for instance, by being connected to the usual shipper mechanism of the elevator car, which shipper mechanism is represented in Fig. 2 as a lever 30 pivoted as at 31 and having the rod c' connected to it as at 32, the said rod being movable in a suitable guide 33 carried by the elevator car, or the actuating device or roller c may be positively pushed out from the car by hand.

When it is desired to collect the mail or other matter from one of the substations, the operator on the car may project the actuating device or roller c , so as to engage the cam-shaped arm b^7 and push the latter backward, thereby throwing the arm b forward or into the position shown in Fig. 2. As the arm b is moved forward, the box a^8 is carried with it and opens the lazy tongs a^{12} , which move the plunger a^{10} forward, and the latter forces any mail or other material in the box a^7 out of the same into the box a^8 on the elevator car, the latter being provided with a suitable opening into which the doors a^9 may extend when forced open by the plunger a^{10} and through which the mail may pass into the box a^8 . In the present instance, the doors a^9 are represented in Figs. 2 and 6 as engaged by friction rollers 40 carried by arms 41 secured to the plunger a^{10} . When the plunger a^{10} has reached the limit of its forward movement, and has discharged the contents of the box or substation into the box on the car, the end of the cam-shaped arm b^7 will be locked in its backward position by the lever b^{22} , which may be accomplished by providing the arm b^7 with a finger b^{30} adapted to engage the rear portion b^{31} of the lever b^{22} . As the lower end of the cam-shaped lever b^7 moves up the inclined upper surface b^{40} of the lever b^{22} , the latter is depressed and through the link b^{20} turns the walking beam or lever b^{10} so as to raise the pawl b^8 and withdraw it from the ratchet hub b^5 , thereby unlocking the arm b from the cam-shaped arm. As soon as the arm b is unlocked as described, it is moved backward by its spring b^{24} into its normal position shown in Fig. 3, the box a^8 and plunger a^{10} being carried back with the arm b , thereby withdrawing the friction rollers 40 from engagement with the doors a^9 and permitting the latter to be closed by the springs 42 represented in Figs. 6 as secured to the box a^8 and acting on the outside of the said doors. The box a^8 and its contained plunger a^{10} are thus removed from the path of the elevator car. It will be noticed that the cam-shaped arm b^7 is locked in its backward position by the lever b^{22} and is maintained locked even after the elevator car leaves the landing or floor and the operating device or roller is withdrawn from engagement with the cam-shaped arm, while as de-

scribed the arm b is moved back into its normal position to withdraw the plunger from the path of movement of the elevator, it being permitted so to do by reason of its being separate from the cam-shaped arm b^7 , which, at such time, is engaged with the roller c . The cam-shaped arm b^7 remains in its locked position until the lid b^{17} is again opened for the deposition of mail, and when the said lid is opened, its arm b^{16} engages the head b^{15} of the rod b^{13} , lifting the said rod and rocking the walking beam or lever b^{10} , so as to lift the pawl b^8 out of engagement with the ratchet teeth b^6 and at the same time move the lever b^{22} downward a sufficient distance to release the cam-shaped arm b^7 , leaving the latter free to be turned outward into operative position by a spring b^{50} . When the lid b^{17} is again closed, the rod b^{13} moves downward and again engages the pawl b^8 with the ratchet teeth b^6 , thereby again locking the cam-shaped arm b^7 to the arm b .

In order to avoid any mail which may be deposited in the supplemental box b^{14} from becoming lodged in the slot or opening a^{15} , while the substation is discharging its contents, which might result in the mutilation of the mail, a device is provided for preventing the letters dropping upon the bottom of the supplemental box b^{14} . This device may be a series of fingers c^5 on a sleeve mounted upon a shaft or arbor c^6 and having an arm c^7 connected by a link c^8 to a preferably spring arm c^9 fastened at its upper end as at c^{10} and having its lower end extended to the bottom of the supplemental box b^{14} and into the path of movement of a stud c^{12} on the top of the box a^8 , which stud is extended through the bottom of the supplemental box b^{14} and which is adapted on the forward movement of the box a^8 to engage the spring arm c^9 and move it from the position shown in Fig. 3 to that shown in Fig. 2, thereby turning the guard or device c^5 from the position shown in Fig. 3 into the position shown in Fig. 2, in which latter position, the said guard covers the opening a^{15} and will receive upon it any mail that may be deposited in the supplemental box b^{14} , while the box a^8 is discharging its contents.

The rotation of the lid or cover b^{17} within the box and to which the arm b^{16} is secured or forms part thereof, may be made substantially short so as to permit the mail to fall upon the guard c^5 , and if desired the supplemental box may be provided at its rear portion with an incline 45, which will direct any mail that may pass from the guard toward the outlet or discharge opening a^{10} .

The box a^8 carried by the elevator car is preferably constructed to discharge its contents into the main receiving box a^5 , which in practice, may be located at the bottom of the elevator well, it being secured to the wall a^6 and being preferably provided with a movable bridge, hopper or chute d , which, in the present instance, is shown as fastened to an

arm or lever d' pivoted as at d^2 and having its arm d^3 normally extended into the path of movement of a cam d^4 on the elevator car, the said chute co-operating with an opening d^6 near the bottom of the box a^3 , which opening is closed, while the car is traveling, by a gate or valve d^7 , herein represented as actuated by a rod d^8 extended through the bottom of the car and adapted to strike the bottom d^9 of the elevator well, to move the said rod and its attached gate or valve d^7 upward, so as to uncover the door or opening d^6 when the elevator car has reached the bottom of the elevator well. The rod d^8 may be acted upon by a spring d^{10} to close the gate or valve d^7 , when the elevator car commences its upward movement. Normally the bridge or chute d stands within the box a^3 , as represented in Fig. 5, but as the elevator car approaches the bottom of the elevator well, the cam d^4 strikes the arm d^3 and turns it from the position shown in Fig. 5 to that shown in Fig. 4, thereby moving the bridge or chute d into operative position to register with the opening d^6 in the box a^3 , which opening at such time is uncovered by the valve or gate d^7 .

The bridge or chute d may be turned back into the box a^5 by the elevator car on its upward passage, which may be effected by the upper portion of the cam d^4 striking the chute d on its under side and tipping the lever d' on its pivot d^2 . The box a^3 on the elevator car is preferably provided with an inclined bottom, and it may be provided also with an opening e through which letters may be deposited into the box from within the car. The main receiving box a^5 may also, if desired, be provided with an opening e' through which letters may be deposited into the said box.

The box a^5 may and preferably will be constructed so as to prevent mail being extracted therefrom by a person in the elevator well, after the elevator car has been moved above the box a^5 . This result may be effected by providing the box with an opening formed by two walls or cross pieces 46, 47, secured within the box a^5 , and the said opening may be normally closed by a gate or valve shown as a substantially V-shaped piece 48 pivotally mounted as at 60 within the box a^5 and, as shown in Fig. 5, provided with two arms 49, 50, the arm 49 having connected to it a rod 51 extended through the box and into position to be engaged by the arm d^3 of the lever d' , so that when the elevator car strikes the arm d^3 to move the chute d into the position shown in Fig. 4, the gate or valve 48 will be turned in the direction indicated by arrow 20, Fig. 5, to bring the arm 50 against the wall or cross piece 46 and into position to permit the mail from the box a^3 on the elevator car to fall against the arm 50, so that when the elevator car ascends, the weight 52, or it may be a spring, may return the gate or valve 48 into its normal position. While the gate or valve 48 is returning to its normal position, the opening normally con-

trolled by it, is opened by the arm 50, and the mail upon the arm 50 will descend with it into the box α^5 from which it may be taken by a duly authorized person opening a suitably locked door in the said box and not herein shown. While I may prefer to employ the box α^5 , it is evident that the same is not indispensable, as the box α^3 on the elevator car may be employed as the receiving station from which the mail may be collected.

The actuating device or roller c may be an immovable fixture on the elevator car so as to operate the arm b^7 on the substations on the passage of the car in both directions, but I prefer to have the actuating device or roller c operated from within the car by the elevator attendant, and preferably to connect the said actuating device in suitable manner to the shipping mechanism, so that the actuating device will be brought into operative position only when the elevator car is stopped at a landing.

The door α^9 will preferably be constructed so as to be closed automatically by the springs 42 when the plunger α^{10} is withdrawn into the box α^8 .

I have herein shown one form of substation and one form of mechanism by which its contents may be discharged into a box or receptacle carried by the elevator car, but I do not desire to limit my invention to any particular form of substation or operating mechanism therefor, as I am aware that the mechanical construction of these parts may be variously modified.

I claim—

1. In an apparatus for the transmission of mail or other matter, the combination of the following instrumentalities, a substation for the reception of matter to be transported, means in said substation to positively discharge or remove the contents from said substation, mechanism to operate said means, an elevator car outside of the substation and provided with a receptacle or box and with an actuating device to actuate said mechanism to operate the discharging means within the substation, substantially as described.

2. In an apparatus for the transmission of mail or other matter, the combination of the following instrumentalities, a normally closed substation for the reception of matter to be transported, means in said substation to discharge or remove the contents from said substation, mechanism to operate said means, and a traveling carrier provided with a receptacle or box and with an actuating device to actuate said mechanism to operate the discharging means within the substation, and a receiving station or receptacle into which the contents of the traveling box or receptacle may be discharged, substantially as described.

3. In a structure or building provided with a series of landings, a series of normally closed substations for the reception of mail or other matter, located at the said landings a plunger in each substation mechanism for posi-

tively operating said plunger to discharge or remove the contents of each of the said substations, an elevator car in said building provided with a receptacle or box co-operating with the substations to receive the contents discharged or removed from said substations, and an actuating device on the elevator car to co-operate with and actuate the plunger operating mechanism of the substation, substantially as described.

4. In a structure or building provided with a series of landings, a series of normally closed stationary substations for the reception of mail or other matter, located at the said landings, a plunger in each substation, mechanism for positively operating the said plunger to discharge or remove the contents of the said substation, an elevator car in said building provided with a receptacle or box co-operating with the substations to receive the contents discharged or removed from said substations, an actuating device on the elevator car to co-operate with and actuate the plunger operating mechanism of the substation, and a receiving station at one end of the travel of the elevator car into which the contents of the receptacle on the elevator car may be discharged, substantially as described.

5. In a structure or building provided with a series of landings, a series of substations for the reception of mail or other matter, located at the said landings mechanism for positively discharging or removing the contents of the said substation, an elevator car in said building provided with a receptacle or box co-operating with the substations to receive the contents discharged or removed from said substations, and provided with a discharge opening, a valve or gate to control said discharge opening, an actuating device on the elevator car to co-operate with and actuate the discharging mechanism of the substations, a receiving station provided with a movable bridge or chute to co-operate with the discharge opening in the box or receptacle carried by the elevator car, substantially as described.

6. In an apparatus for the transmission of mail or other matter, a substation comprising a main box or receptacle having a normally closed discharge opening and a supplemental chamber provided with a passage communicating with the main receptacle, a lid or cover normally closing an entrance to the supplemental chamber, and a discharging device in the main receptacle and movable bodily therein to positively remove the contents through the said discharge opening, substantially as described.

7. In an apparatus for the transmission of mail or other matter, a substation comprising a main box or receptacle and a supplemental chamber provided with a passage communicating with the main receptacle, a lid or cover normally closing an entrance to the supplemental chamber, a discharging device movable bodily in the main receptacle, and a

guard in the supplemental chamber for the passage connecting the said supplemental chamber with the main chamber, substantially as described.

5 8. In an apparatus for the transmission of mail or other matter, a substation comprising a box or receptacle for the reception of mail or other matter, a discharging or removing device in said receptacle, an actuating device
10 for said discharging device consisting of two members normally locked together, and means operated by one of the said members to unlock the said members from each other, substantially as described.

15 9. In an apparatus for the transmission of mail or other matter, a substation comprising a box or receptacle for the reception of mail or other matter, a discharging or removing device in said receptacle, an actuating device
20 for said discharging device consisting of two members normally locked together, means operated by one of the said members to unlock the said members from each other and to lock one of said members in its inoperative position,
25 tion, and means to unlock the member in its

inoperative position and permit it to be restored to its operative position substantially as described.

10. In an apparatus for the transmission of mail or other matter, a substation comprising 30 a box or receptacle for the reception of mail or other matter, a discharging or removing device in said receptacle, an actuating device for said discharging device consisting of two members normally locked together, a cover or 35 lid controlling the entrance of mail into the said receptacle and means operated by one of the said members to unlock the said members from each other, a locking device to retain one of the unlocked members, and means operated by the cover to actuate the locking device and release the locked member, substantially as described. 40

In testimony whereof I have signed my name to this specification in the presence of 45 two subscribing witnesses.

ROBERT A. MORGAN, JR.

Witnesses:

JAS. H. CHURCHILL,
J. MURPHY.