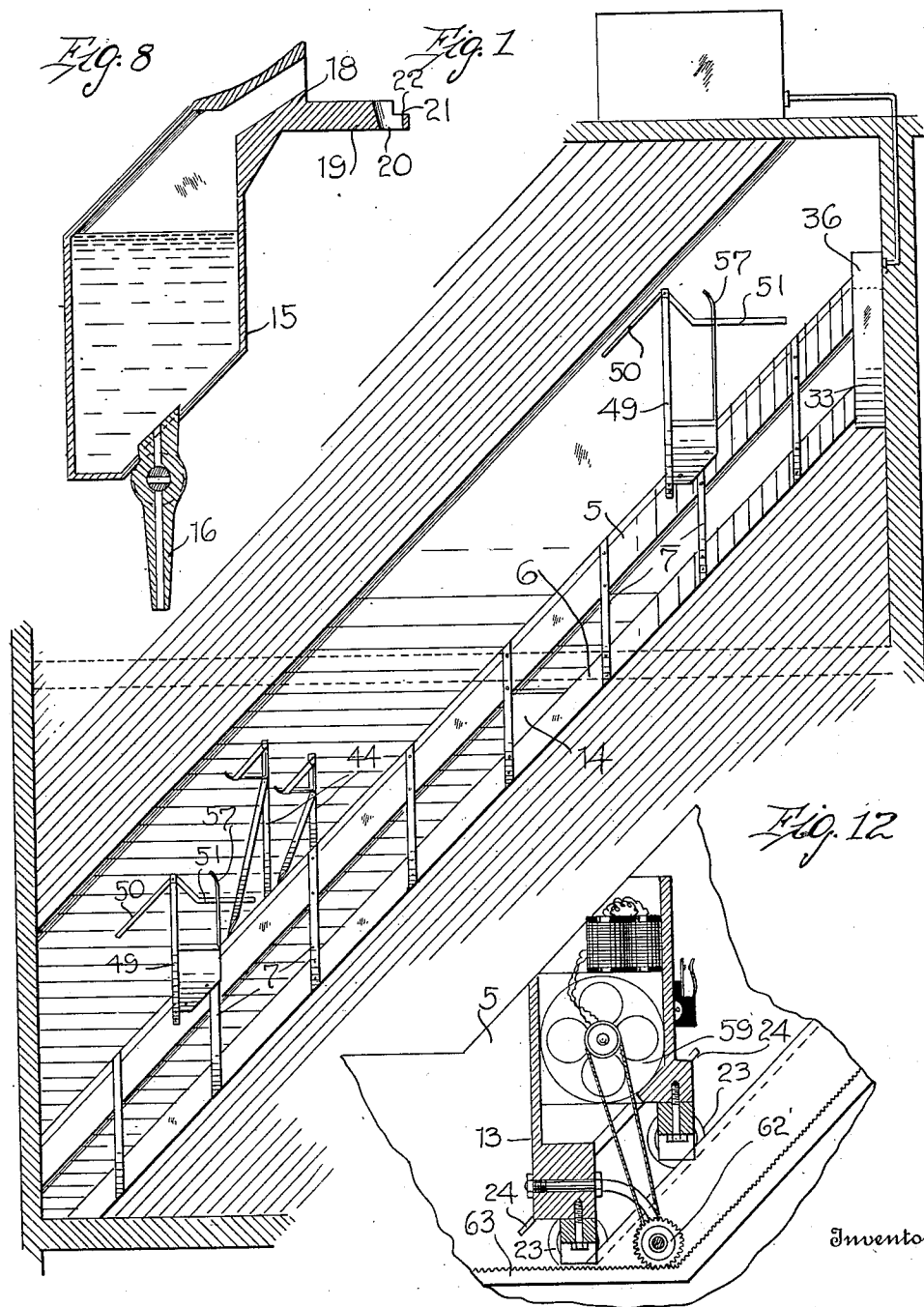


J. STEIN.
MAIL DELIVERING APPARATUS.
APPLICATION FILED JAN. 22, 1913.

1,065,630.

Patented June 24, 1913.

5 SHEETS—SHEET 1.



Witnesses
Robert M. Sutphen.
A. C. Fink.

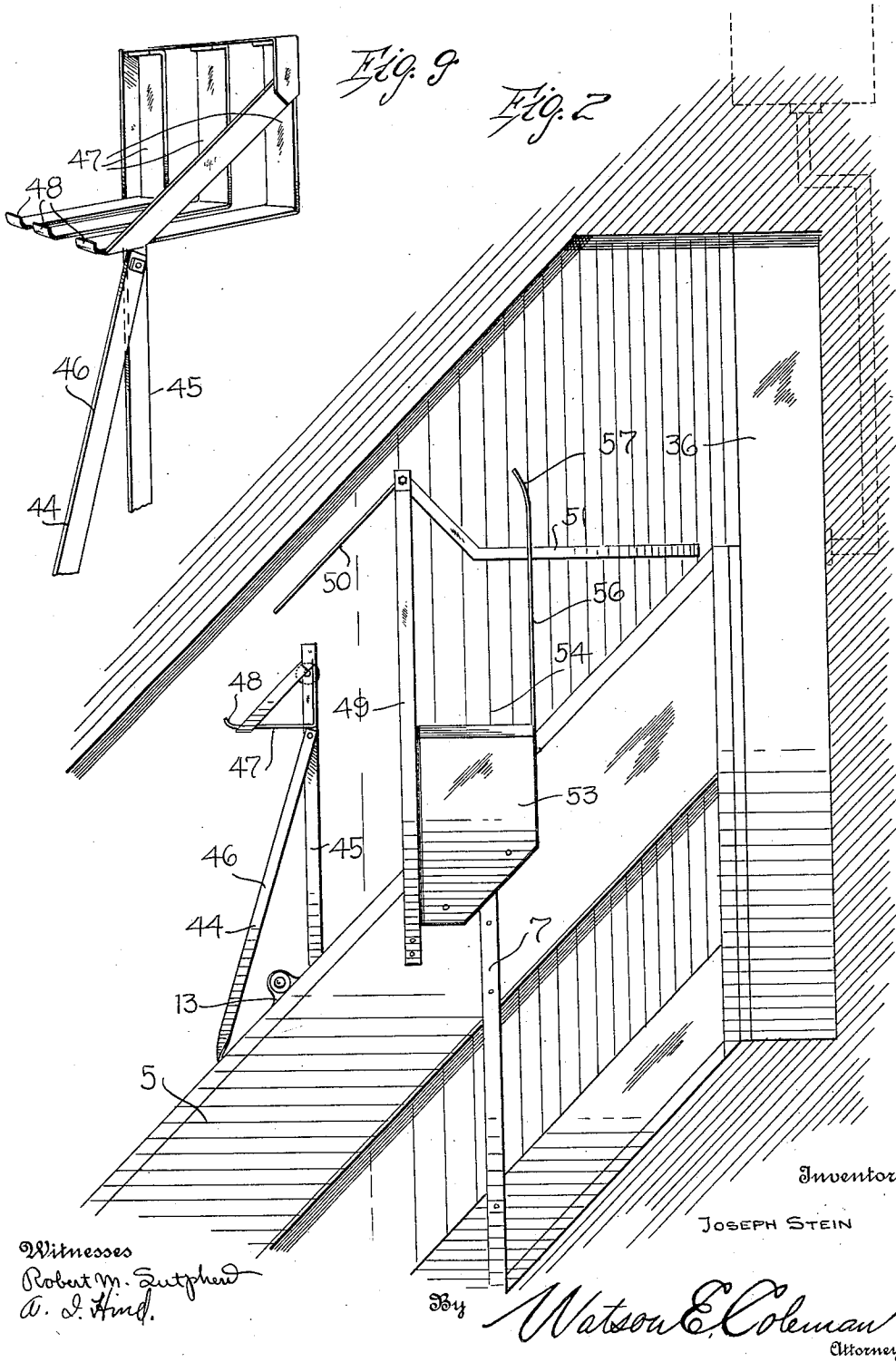
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5 SHEETS—SHEET 2.

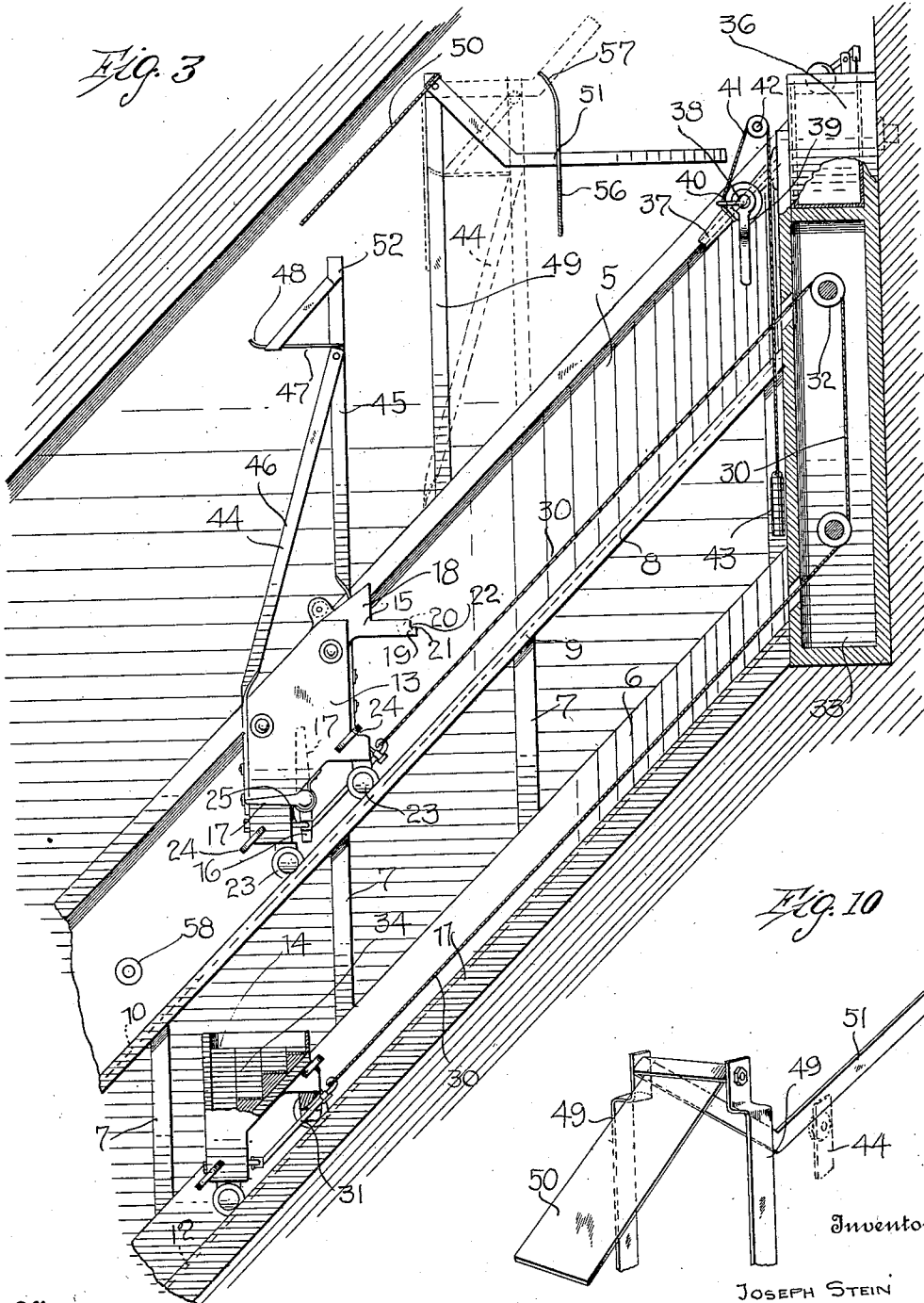


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5 SHEETS—SHEET 3.



Witnesses
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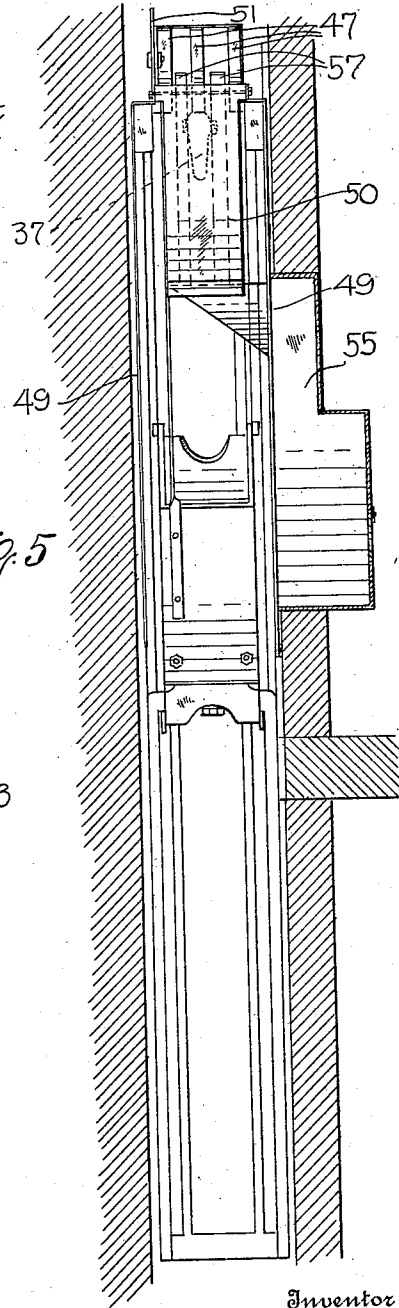
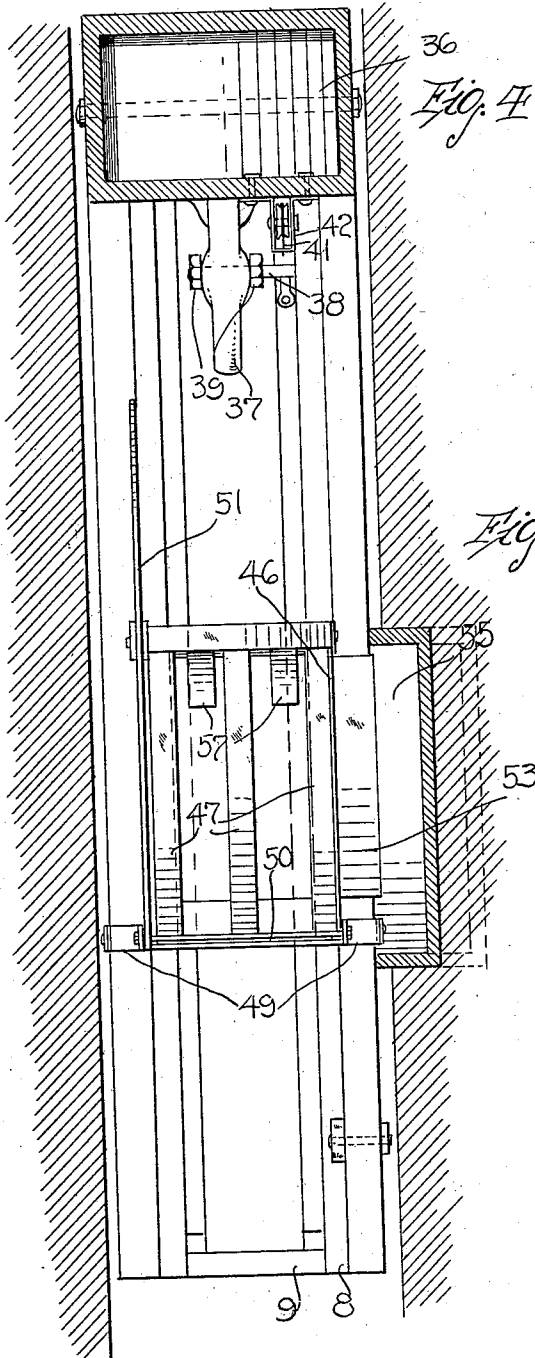
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5 SHEETS-SHEET 4.



Inventor

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5 SHEETS—SHEET 5.

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Fig. 7

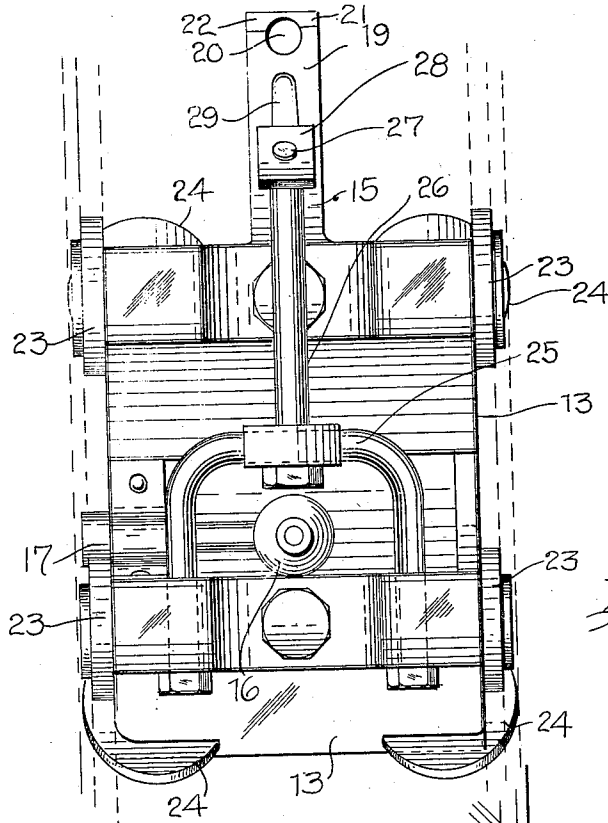


Fig. 6

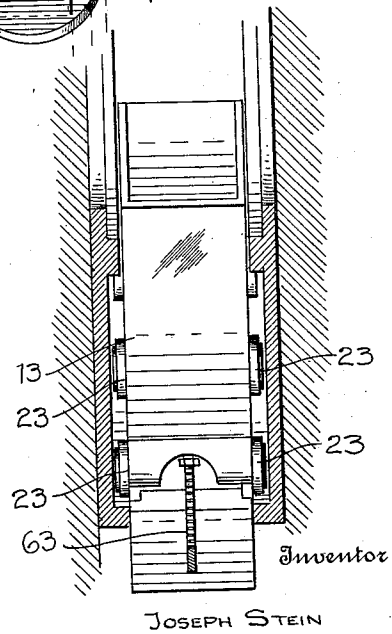
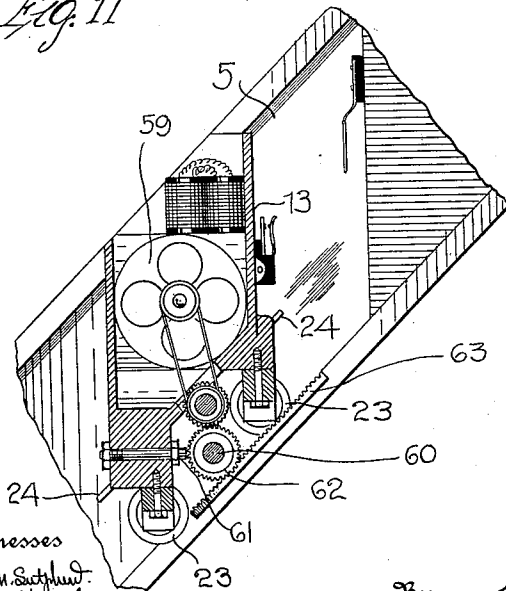


Fig. 11



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UNITED STATES PATENT OFFICE.

JOSEPH STEIN, OF WASHINGTON, DISTRICT OF COLUMBIA.

MAIL-DELIVERING APPARATUS.

1,065,630.

Specification of Letters Patent.

Patented June 24, 1913.

Application filed January 22, 1913. Serial No. 743,597.

To all whom it may concern:

Be it known that I, JOSEPH STEIN, a subject of the Czar of Russia, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Mail-Delivering Apparatus, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to an improved mail delivering apparatus for use in apartment houses and other buildings in the delivery of mail to boxes or other receptacles arranged on the several floors thereof.

The primary object of the invention resides in the provision of a simple and comparatively inexpensive apparatus of the above character which will relieve the carrier of considerable labor incident to the delivery of mail, and will also obviate the necessity of the occupants of the apartments descending to the main floor for the collection of their mail.

A more specific object of the invention is to provide means built into the wall of the building and embodying two cars mounted upon inclined track ways, and a flexible connection between the same, mail receiving means mounted upon one of the cars, said car having a water chamber provided with a valve outlet, the other of the cars being weighted so as to move by gravity down its incline when the water of the chamber of the first named car is released and move the mail carrying car up the incline, and means for automatically resupplying the water chamber, when the car reaches the top of its inclined track.

A further object of the invention resides in the provision of improved means for automatically removing the mail from the box or other receptacle.

Still a further object of the invention is to provide a simple and novel car or carrier for the mail provided with a removable water chamber, a valve for releasing the water for said chamber, and means mounted upon one of the walls of the inclined track way for the car to automatically close said valve when the car starts up the incline.

With the above and other objects in view as will become apparent as the description proceeds, the invention consists in certain constructions, combinations and arrangements of the parts that I shall hereinafter fully describe and claim.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawings, in which—

Figure 1 is a side elevation illustrating generally the mounting or arrangement of my improved apparatus in the wall of the building and showing the mail carrying car between main discharging stations. Fig. 2 is an enlarged side elevation of a portion of the apparatus; Fig. 3 is a longitudinal section; Fig. 4 is a top plan view; Fig. 5 is a front elevation; Fig. 6 is a transverse section taken on the line 6—6 of Fig. 3; Fig. 7 is a bottom plan view of the mail delivering car; Fig. 8 is an enlarged elevation, partly in section, showing the means carried by the mail delivery car for automatically opening the valve of the water supply tank to resupply the chamber of the car with water; Fig. 9 is a detail perspective view of the mail supporting means carried by the car. Fig. 10 is a similar view of the mail discharging means; Fig. 11 is a vertical section through the delivery car showing a slightly modified means for operating the same. Fig. 12 is a similar view illustrating a still further modification.

In putting the invention into practical operation, I embody in the wall of the building when the same is constructed, parallel inclined guide or track ways consisting of the upper and lower side walls 5 and 6 respectively, which are arranged in spaced relation and are connected by means of the vertical bars 7. The upper parallel side walls are connected at their lower edges by the longitudinal bars 8 suitably secured to the inner surfaces of said side walls. These longitudinal bars are integrally or otherwise connected by means of a series of blocks 9. The upper surfaces of the bars 8 at their inner edges are rabbeted as indicated at 10 so that the same constitute track rails upon which the mail carrying car to be later described is adapted to travel. The lower side walls 6 are connected at their lower edges by a base or bottom member 11, the opposite edges of which are also rabbeted as indicated at 12 to provide tracks for the reception of the wheels of a lower gravity movable car which will also be specifically described in the following disclosure of the construction of the apparatus.

The mail delivery car indicated by the numeral 13 is mounted for movement upon

the track rails 8 arranged between the upper side walls 5 while a second car 14 is arranged for movement in the guide or track rails provided in the base wall 11 between the lower side walls 6. The car 13 is of substantially rectangular form and has its upper and lower ends inclined in parallel relation. The body of this car is hollow and into the open end thereof, a water receiving chamber 15 is adapted to be inserted. This chamber is entirely closed and is provided at its lower end with an outlet nozzle 16 in which a valve is arranged. This valve is actuated by means of a lever 17 on the end of the valve stem whereby the contents of the chamber may be released. At its upper end, this water receiving chamber is provided with a tubular extension 18 which provides an inlet conduit through which water is supplied to the chamber. A laterally extending arm 19 is formed upon this tubular extension and is provided in its end with an opening indicated at 20. The extremity of the arm is reduced as clearly shown in Fig. 8 thereby forming a shoulder 21 which is recessed as indicated at 22. The wall of this recess is beveled or inclined and constitutes one edge of the opening 20. Upon the lower end of the car 13, the spaced pairs of wheels 23 are journaled upon suitable supporting trucks for movement upon the track rails 8. Guide wheels 24 are also mounted upon the bottom of the car 13 for engagement with the side walls 5 between which said car moves, said wheels preventing any transverse movement of the car and consequent binding of the same against said walls. To the lower end of the car, a laterally extending U-shaped bolt 25 is rigidly secured and to the intermediate portion of this bolt, a rod 26 is connected. This rod extends in parallel relation to the bottom of the car and adjacent its other end is provided with an opening to receive the shank of a bolt 27 depending from the body of the car, a suitable nut 28 being threaded upon the end of said bolt to retain the rod 26 in engagement with the same. This rod terminates at its upper end in a hook 29 to which one end of a cable 30 is connected. The lower car 14 is also provided with a longitudinally extending rod 31 arranged beneath the same which is similar in all respects and is mounted in the same manner as the rod 26 above referred to. To the upper end of this rod 31, the other end of the cable 30 is connected. This cable passes around spaced guide pulleys or sheaves 32 which are arranged in a suitable housing 33 disposed within the building wall at the upper end of the inclined track ways. The lower car 14 is adapted to contain suitable weights indicated at 34 to cause its gravity movement upon the inclined track on which the same is mounted.

The upper mail carrying car 13 is held against vertical movement by means of the stop ribs or flanges 35 which are secured to the side walls 5 upon their inner faces and at the opposite edges thereof.

At the upper end of the inclined track ways, a tank or reservoir indicated at 36 is suitably mounted. This reservoir contains water to be supplied to the water chamber of the car 13 when the same reaches the upper end of its inclined track way in the following manner. A discharge pipe 37 is connected to the reservoir 36 and is provided with a cut off valve indicated at 38. This valve is actuated through the medium of a yoke 39 the arms of which are connected thereto. This yoke extends downwardly between the side walls 5 and is adapted for engagement by the arm 19 formed upon the water receiving conduit 18 in the water chamber 15. It will thus be seen, that when the car 13 reaches the limit of its upward movement, the arm 19 will engage the yoke 39 and actuate the same to turn the valve 38 and release the water from the reservoir 36. Prior to this release of the water, the end of the discharge pipe 37 has been received in the mouth of the conduit 18 so that the water is directed therethrough into the tank 15. As soon as sufficient water has been supplied to the tank, to overcome the gravity action of the weighted car 14, the car 13 will move downwardly. The lower end of the yoke 39 which has been received in the opening 20 of the arms 19 will then be returned to its normal position and the valve 38 turned to cut off the discharge of water from the reservoir 36. In order to positively insure the closing of this valve and to normally hold the same in closed position, a lever 40 is connected to the valve stem and to this lever, one end of a rope or other flexible connection 41 is attached. This rope passes around a suitable guide pulley 42 and is provided upon its other end with a weight 43. This weight acts to move the lever upwardly and thereby hold the valve 38 closed.

Upon the car 13, a number of mail supports 44 are mounted. Each of these supports includes a vertical standard 45 which is suitably braced by means of a diagonal bar 46. The standard and brace bar are fixed at their lower ends to the opposite ends of the car 13 and said standard at its upper end is transversely extended and to the same, a plurality of spaced mail supporting arms 47 are secured. These arms are of angular form and have their vertical portions fixed to the transverse upper end of the standard. The extremities of the horizontal portions of said arms are slightly curved upwardly as indicated at 48 so as to properly retain the mail matter thereon.

Upon the upper side walls 5, at each floor of the building, the perpendicular bars or

standards 49 are secured. Between the upper ends of these standards, the plate 50 is pivotally mounted at one of its ends. To this plate, an arm 51 is secured, said arm at one of its ends being angularly bent so as to normally dispose the remaining end portion thereof in substantially a horizontal plane below the upper ends of said standards. This arm is adapted for engagement by a roller 52 which is mounted upon the upper end of the standard 45 of the mail carrying frame mounted upon the car 13. As the car moves up the inclined track, this arm 51 is swung upwardly so as to lower the plate 50 from the full line position shown in Fig. 3 to the dotted line position shown in said figure, and dispose the same against the curved extremities of the mail supporting plates or arms 47. Adjacent to the supporting standard 49, upon one of the side walls 5, a plate 53 is secured, the upper end of which is inclined inwardly and upwardly as indicated at 54 to provide a guide chute upon which the mail is deposited and from which the same is directed into a box or other receptacle 55 suitably mounted upon the building wall. This inclined upper end of the plate 53 is provided with side walls, to one of which the lower edge of a plate 56 is riveted or otherwise rigidly secured. The upper end of this plate is provided with parallel longitudinal slits to form spaced fingers 57 which are curved and are adapted to be received in the spaces between the supporting arms 47 in the upward movement of the car 13. It will thus be seen that as the car continues its upward movement, the mail will be forced from the arms 47 over the ends thereof and upon the inclined upper end of the plate 53 from which it is directed into the mail receiving box.

From the above description, the operation of the apparatus will be understood as follows: Assuming that the tank 15 carried by the car 13, is filled with water, the weight of this water overcomes the weight of the car 14 so that the mail delivery car is at the bottom of its incline while the car 14 is disposed at the upper end of its incline. The postman after placing the mail upon the proper supports 47 in accordance with the floors to which the same is to be delivered, releases the water from the chamber 15 by the manipulation of the lever 17 so that the weight of the car 14 will cause said car to move downwardly upon its inclined track, and thus pull the mail carrying car upwardly. Upon one of the upper side walls 5, a roller indicated at 58 is mounted, and this roller engages the lever 17 in the upward movement of the car 13 and closes the outlet valve of the chamber 15. The several mail supports mounted upon the car 13 are disposed at different heights as shown

in Fig. 1, and the delivery devices mounted upon the track walls at the several floors of the building are correspondingly arranged so that they will discharge the mail from the proper support upon the car. Thus the mail upon the lower support 44 will be discharged at the second floor while the remaining mail supports on the car which are disposed at a higher elevation will move above the delivery device in the upward movement of the car and the mail will not be removed therefrom. It will of course, be apparent that any desired number of these mail supports and delivery devices may be provided in accordance with the number of floors to the building.

In Fig. 11, I have illustrated a slightly modified construction, wherein the use of water is dispensed with, and the car 13 is provided with a motor 59 of any suitable construction, the shaft of which is operatively connected to a shaft 60 mounted upon the car in spaced bearings 61. Upon this shaft, a gear 62 is fixed, the teeth of which mesh with the teeth of a rack 63 which is secured in the spaced connecting blocks 9 between the track rails. The motor 59 is of course provided with a suitable reversing mechanism so that after the car reaches the top of the incline, the motor will be reversed and the car caused to descend.

In Fig. 12, a slightly modified arrangement of this last construction is shown wherein the lower end of the rack 63' is arranged horizontally, and the gear 62' which meshes therewith is disposed below the upper supporting wheels of the car 13. Either of these constructions may be employed without affecting the efficiency or reliability of the device in operation.

From the foregoing, it is believed that the construction and operation of my improved mail delivering apparatus will be fully understood. The same is comparatively simple, may be produced at small cost and provides means whereby the mail may be expeditiously delivered to the different floors of an apartment house or other building without requiring the tenants to descend to the main floor.

It will of course be apparent that the frame within which the cars are mounted to travel may be constructed of metal, wood or any other desired material.

The invention is also susceptible of a great many other minor modifications in the form, proportions and arrangements of the several parts without departing from the essential features or sacrificing any of the advantages thereof.

Having thus described the invention, what is claimed is:

1. In an apparatus of the character described, parallel inclined track ways, a weighted car to travel on one of said track

ways, a carrier to travel on the other track way, a flexible connection between the car and the carrier, and a counter weight carried by said carrier to normally hold the same at the lower end of its inclined track way against the gravity movement of said weighted car.

2. In an apparatus of the character described, parallel inclined track ways, a weighted car to travel on one of said track ways, a carrier to travel on the other track way, a flexible connection between the car and the carrier, a counter-weight carried by said carrier to normally hold the same at the lower end of its inclined track way against the gravity movement of said weighted car, and means on the carrier to release the counter-weight therefrom substantially as and for the purpose specified.

3. In an apparatus of the character described, parallel inclined track ways, a weighted car to travel on one of said track ways, a carrier to travel on the other track way, a flexible connection between the car and the carrier, a counter-weight carried by said carrier to normally hold the same at the lower end of its inclined track way against the gravity movement of said weighted car, means on the carrier to release the counter-weight therefrom, and means for automatically resupplying a counter-weight to the carrier when the same reaches the upper end of its inclined track way, substantially as and for the purpose specified.

4. In an apparatus of the character described, parallel inclined track ways, a car to travel upon one of the track ways, an article carrier to travel upon the other track way, a releasable counter-weighting medium carried by said carrier to normally hold the same at the lower end of its track against the gravity movement of said car, a flexible connection between the car and carrier, means on the carrier to release the counter-weighting medium whereby the gravity movement of the car causes the carrier to ascend, and means automatically actuated by the carrier when the same reaches the terminus of its ascent to resupply the counter-weighting medium thereto.

5. In an apparatus of the character described, a track, a car to travel upon said track, means for propelling said car, a mail support mounted upon the car, a receptacle to receive the mail arranged adjacent to the track, stationary means mounted above the track to automatically remove the mail from the support, a directing member mounted above the track to direct the mail into the receptacle, and an automatically actuated movable member arranged above said directing member to insure the discharge of the mail thereon.

6. In an apparatus of the character described, a track, a car to travel upon said

track, means for propelling said car, a mail support mounted upon the car, a receptacle to receive the mail arranged adjacent to the track, stationary means mounted above the track to automatically remove the mail from the support, a directing member mounted above the track to direct the mail into the receptacle, a pivotally mounted element arranged above said directing member, and means carried by the car to engage said element and position the same with relation to the mail support to insure the discharge of the mail upon said directing member.

7. In an apparatus of the character described, a track, a car to travel upon said track, means for propelling said car, a mail support mounted upon the car, a receptacle to receive the mail arranged adjacent to the track, stationary means mounted above the track to automatically remove the mail from the support, a directing member mounted above the track to direct the mail into the receptacle, a plate pivotally mounted above the directing member, an arm connected to said plate, and means mounted upon the mail support to engage said arm and move the plate into position for engagement by the mail to insure its delivery upon said directing member.

8. In an apparatus of the character described, a track, a car to travel upon said track, a mail support mounted upon the car including a plurality of spaced horizontal arms, a receptacle arranged adjacent to the track, a directing member to direct the mail into the receptacle, and spaced upwardly projecting fingers mounted upon said directing member to be received between the arms of the mail support and remove the mail therefrom and deposit the same upon said directing member.

9. In an apparatus of the character described, a track, a car to travel upon said track, means for propelling said car, a mail support mounted upon the car including a plurality of horizontally disposed spaced arms, a receptacle arranged adjacent to the track, a stop member pivotally mounted above the track, means carried by the mail support to automatically move said stop member into engagement with the ends of the mail supporting arms, and additional means mounted above the track to automatically remove the mail from said arms and direct the same into said receptacle.

10. In a mail delivering apparatus, a track, a car to travel upon said track, means for propelling said car, a mail support mounted upon the car including a plurality of horizontally disposed spaced arms, a receptacle arranged adjacent to the track, means for directing the mail into said receptacle, a plate pivotally mounted above the track, means mounted upon the mail support to move said plate into engagement

with the ends of the mail supporting arms, and additional means mounted above the track to be received into the spaces between the mail supporting arms to remove the mail therefrom and deliver the same upon said directing member.

11. In a mail delivering apparatus, an inclined track, a mail carrier to travel upon said track provided with a water chamber, gravity movable means normally overcome by the water in said chamber to maintain the carrier at the lower end of the incline, a manually operable valve to release the water from said chamber, and means for automatically replenishing the chamber when the carrier arrives at the terminus of its upward movement.

12. In a mail delivering apparatus, an inclined track, a mail carrier to travel upon said track provided with a water chamber, gravity movable means normally overcome by the water in said chamber to maintain the carrier at the lower end of the incline, a manually operable valve to release the water from said chamber, water supply means at the upper end of said inclined track including a pipe provided with a valve, and means carried by the mail carrier to automatically open said valve when the carrier reaches the terminus of its upward movement to replenish the water chamber.

13. In a mail delivering apparatus, an inclined track, a mail carrier to travel upon said track and provided with a water chamber having a valved outlet, a valve operating lever, gravity movable means connected to said mail carrier but normally overcome by the weight of water in the chamber to maintain the carrier at the lower end of the incline, said gravity movable means moving the carrier up the incline when the water is released from said chamber, means cooperating with said valve lever to automatically close the valve, and automatically actuated means to replenish said water chamber when the mail carrier reaches the upper terminus of its movement.

14. In a mail delivering apparatus, parallel inclined tracks, a mail carrier to travel upon one of said tracks, means movable by gravity upon the other track, a flexible connection between said latter means and the mail carrier, a water chamber mounted upon the mail carrier having a valved outlet, the weight of water in said chamber normally overcoming the gravity movable means to maintain the carrier at the lower end of its track, the release of water from said chamber causing the carrier to travel upwardly by the downward movement of said gravity movable means, means for automatically closing the outlet valve of the water chamber, a water supply pipe provided with a valve, and means carried by the carrier to

open said valve when the carrier reaches the upper terminus of its movement to replenish the water chamber.

15. In a mail delivering apparatus, parallel inclined tracks, a mail carrier to travel upon one of said tracks, gravity movable means mounted upon the other track, a flexible connection between said means and the mail carrier, a water chamber mounted upon said carrier provided with a valved outlet, the opening of said valve releasing the water from the chamber whereby said gravity movable means moves the mail carrier upwardly upon its track, means for automatically closing said valve, a water supply pipe arranged at the upper end of the carrier track, a valve therefore, said water chamber being provided with an entrance conduit adapted to receive the supply pipe when the carrier reaches the upper terminus of its movement, and means for automatically opening the valve of the water supply pipe to replenish the water chamber.

16. In a mail delivering apparatus, parallel inclined tracks, a mail carrier to travel upon one of said tracks, gravity movable means mounted upon the other track, a flexible connection between said means and the mail carrier, a water chamber mounted upon said carrier provided with a valved outlet the opening of said valve releasing the water from the chamber whereby said gravity movable means moves the mail carrier upwardly upon its track, means for automatically closing said valve, a water supply pipe arranged at the upper end of the carrier track, a valve therefore, said water chamber being provided with an entrance conduit adapted to receive the supply pipe when the carrier reaches the upper terminus of its movement, the valve of said supply pipe being provided with an operating lever, and an arm projecting from the end of the water chamber to engage said lever, and open the valve to replenish the water chamber.

17. In a mail delivering apparatus, parallel inclined tracks, a mail carrier to travel upon one of said tracks, gravity movable means mounted upon the other track, a flexible connection between said means and the mail carrier, a water chamber mounted upon said carrier provided with a valved outlet, the opening of said valve releasing the water from the chamber whereby said gravity movable means moves the mail carrier upwardly upon its track, means for automatically closing said valve, a water supply pipe arranged at the upper end of the carrier track, a valve therefore, said water chamber being provided with an entrance conduit adapted to receive the supply pipe when the carrier reaches the upper terminus of its movement, the valve of said

supply pipe being provided with an operating lever, means projecting from the upper end of the water chamber to engage said lever and open the valve to replenish the water chamber and cause the carrier to move downwardly upon its track, said means also operating to return the lever to its normal position and close said valve.

18. In a mail delivering apparatus, parallel inclined tracks, a mail carrier to travel upon one of said tracks, gravity movable means mounted upon the other track, a flexible connection between said means and the mail carrier, a water chamber mounted upon said carrier provided with a valved outlet the opening of said valve releasing the water from the chamber whereby said gravity movable means moves the mail carrier upwardly upon its track, means for automatically closing said valve, a water supply pipe arranged at the upper end of the carrier track, a valve therefor, said water chamber being provided with an entrance

conduit adapted to receive the supply pipe when the carrier reaches the upper terminus of its movement, the valve of said supply pipe being provided with an operating lever, a horizontally projecting arm upon the upper end of said water chamber provided with an opening in its end to receive the valve lever when the carrier reaches the upper terminus of its movement to open the valve and replenish the water chamber whereby the weight of the gravity movable means is overcome and the carrier caused to move upwardly upon its track, said arm in the downward movement of the carrier returning the valve lever to its normal position to close the valve.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

JOSEPH STEIN.

Witnesses:

M. C. LYDDANE,
E. L. WHITE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."