

E. A. MORSE.
 APPARATUS FOR COLLECTING AND DELIVERING MAIL.
 APPLICATION FILED DEC. 29, 1908.

934,619.

Patented Sept. 21, 1909.
 3 SHEETS—SHEET 1.

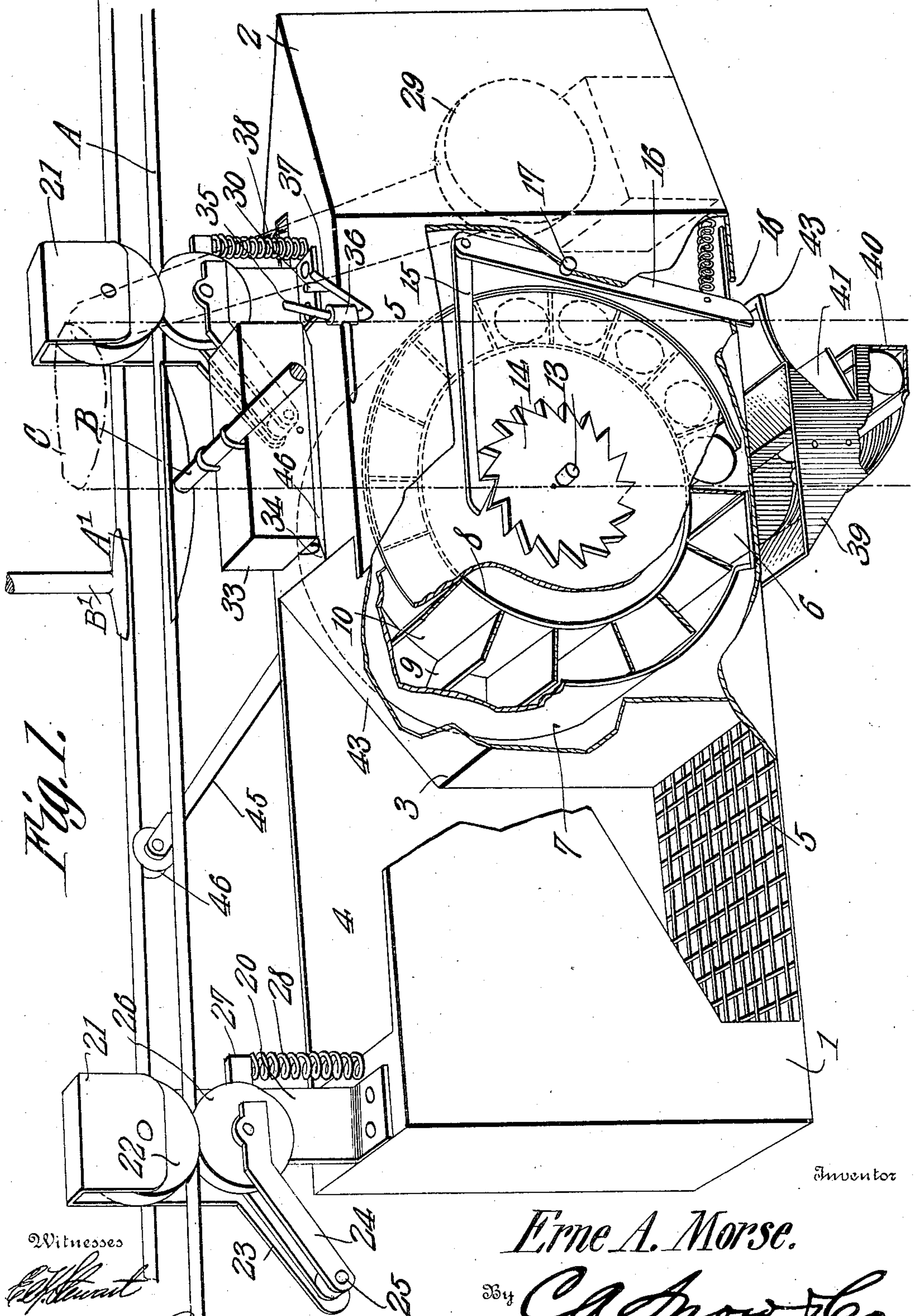


Fig. 1.

Witnesses
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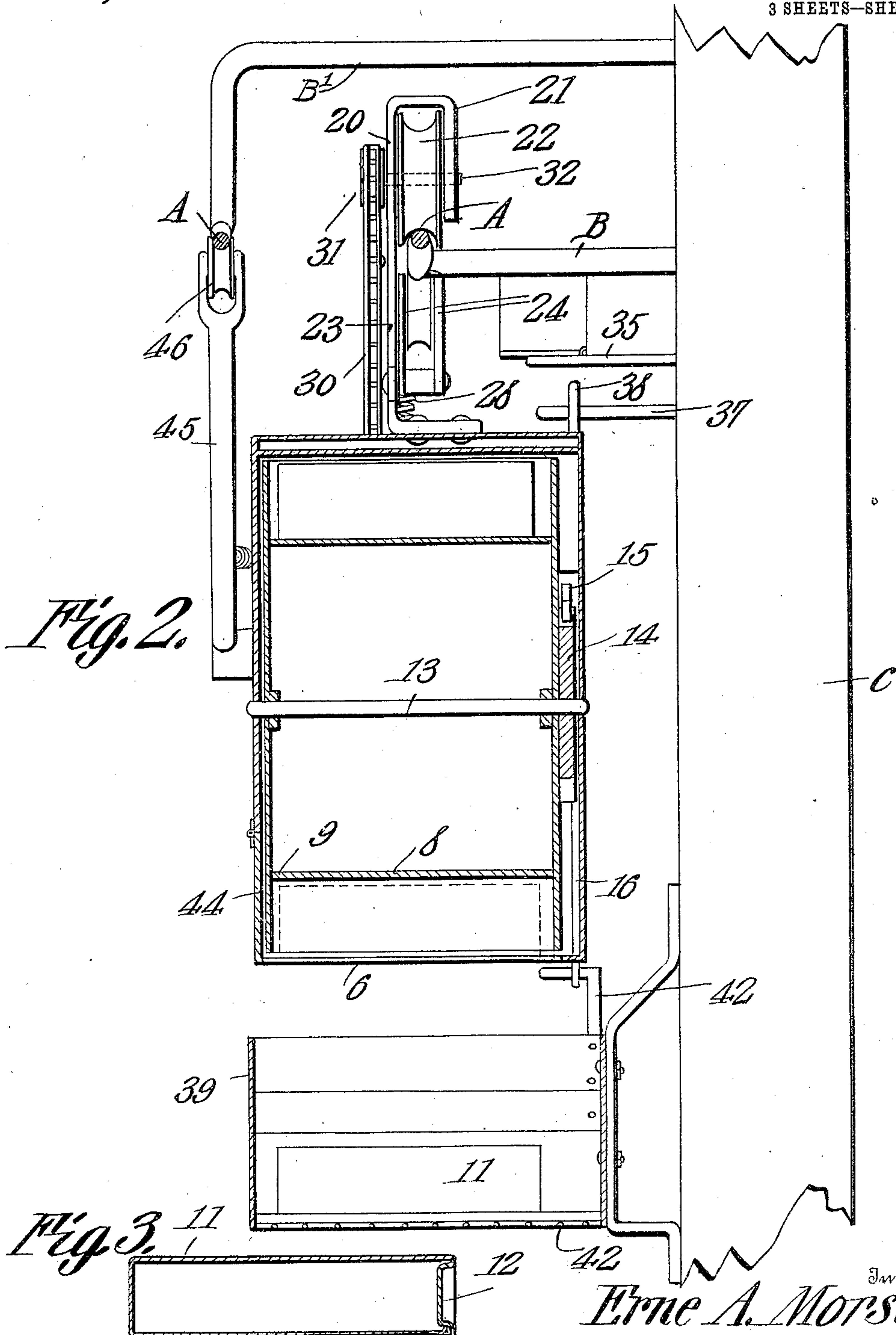


Fig. 3.

Witnesses

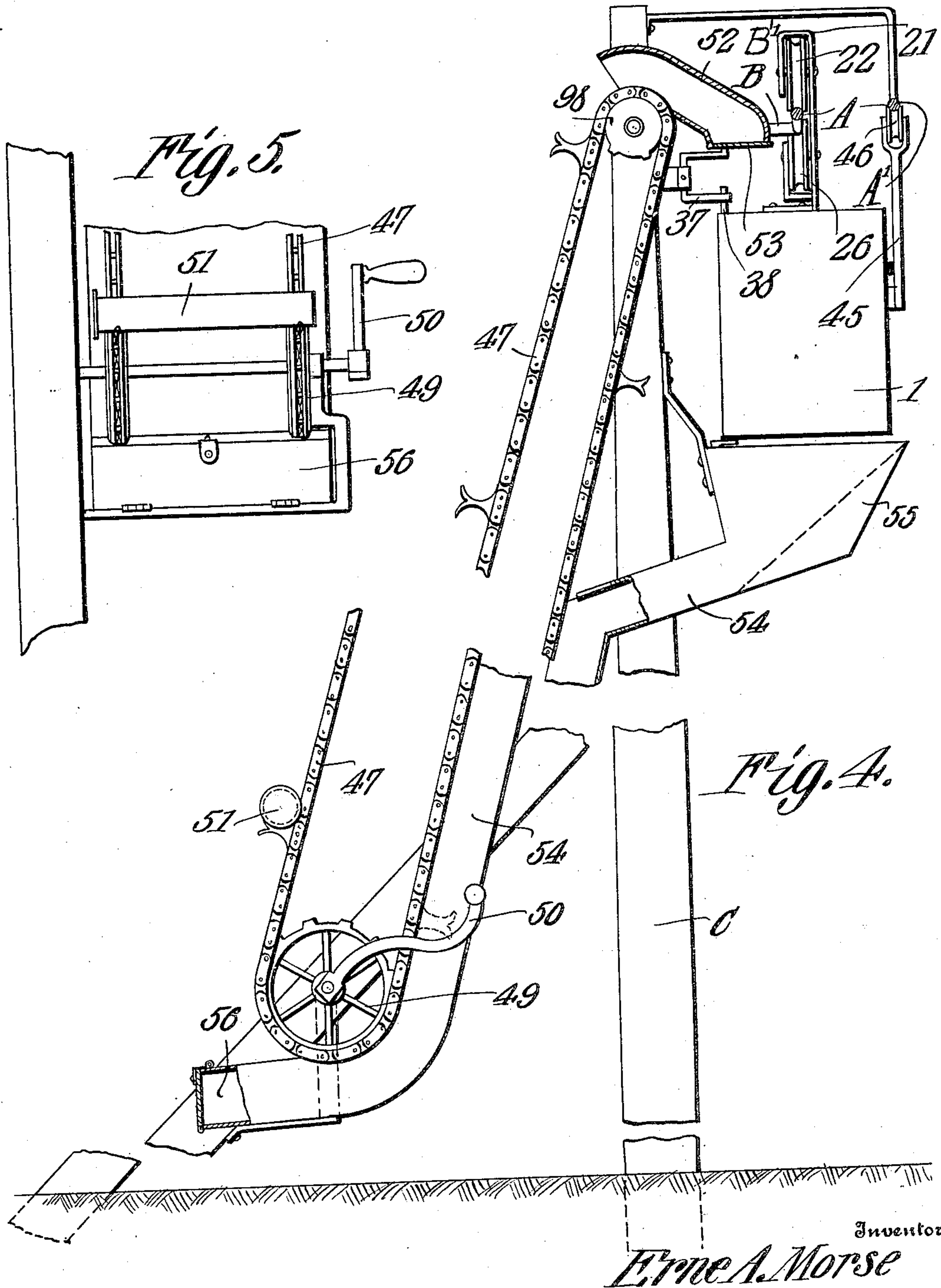
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UNITED STATES PATENT OFFICE.

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APPARATUS FOR COLLECTING AND DELIVERING MAIL.

934,619.

Specification of Letters Patent. Patented Sept. 21, 1909.

Application filed December 29, 1908. Serial No. 469,748.

To all whom it may concern:

Be it known that I, ERNE A. MORSE, a citizen of the United States, residing at Liberty, in the county of Gage and State of Nebraska, have invented a new and useful Apparatus for Collecting and Delivering Mail, of which the following is a specification.

This invention relates to apparatus for collecting and delivering mail, the same being of that type particularly designed for use in rural districts.

The object of the invention is to provide a motor-propelled carriage designed to be loaded at a distributing point and then directed along a predetermined route, said carriage being provided with mechanism for automatically delivering and collecting mail at predetermined points along the route.

A further object is to provide a carrier designed to be loaded with a series of receptacles in which the mail to be delivered is carried, said receptacles being designed to be automatically discharged successively as the various points of delivery are passed by the carrier.

A further object is to provide simple and efficient means for automatically opening the delivery boxes along the route as the carrier passes them so as to cause the contents of the boxes to drop into the receiving compartment of the carrier.

With these and other objects in view the invention consists of certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claims.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings:—Figure 1 is a perspective view of the complete apparatus, the post supporting the delivery and receiving boxes being indicated by dotted lines and the carrier and the receiving box having parts broken away, the various portions of the apparatus being shown in the positions assumed thereby while the interchange of mail is being effected. Fig. 2 is a vertical transverse section through the apparatus and showing the post and delivering box in elevation prior to the interchange of mail. Fig. 3 is an enlarged section through one of the mail holders used in connection with the apparatus. Fig. 4 is a view partly in elevation and partly in section of mechanism which may be utilized for elevating holders to the

delivering boxes and for conveying them from the receiving boxes to points adjacent the ground. Fig. 5 is a front elevation of the lower portion of said apparatus.

Referring to the figures by characters of reference A designates the supporting wire on which the carrier is designed to travel, said wire being also utilized in connection with a wire A' for conducting the current used for driving the motor of the carrier. The wire A is designed to be supported by means of arms B and the wire A' by means of arms B' extending from posts C.

The carrier constituting the present invention consists of a casing 1, preferably pointed at its front end, as indicated at 2, so as to more readily overcome the resistance of the air during the rapid movement of the carrier along the route. The casing 1 is separated by a transverse partition 3 into a receiving compartment 4 and a delivering compartment 5, said receiving compartment being preferably located at the rear end of the casing and having its top constantly open while the bottom thereof is formed of wire fabric 5, perforated metal, or any other material which will permit moisture to promptly drain from the compartment.

An outlet opening 6 extends transversely within the bottom of the delivery compartment 5 and arranged within this compartment is a substantially cylindrical guard or retainer 7 opening at the bottom into the outlet 6. A carrier is mounted to rotate within this retainer 7 and consists of a drum 8 having wings or blades 9 radiating therefrom and terminating close to the retainer 7, said wings or blades forming cells 10 therebetween, each of which is designed to receive a holder such, for example, as illustrated in Fig. 3. This holder is preferably in the form of a cylindrical can 11, there being any suitable form of closure 12 for the purpose of holding articles of mail within the device and at the same time preventing the admission of moisture to the holder. The distance between every two adjoining wings 9 is substantially equal to the width of the outlet opening 6, and it is of course understood that this opening is sufficiently large to permit a holder 11 to readily pass therethrough.

The drum 8 is mounted on a shaft 13 journaled in the casing 1, said shaft being provided at one side of the drum with a ratchet wheel 14 designed to be engaged by a pawl

15, which, as indicated in Fig. 1, is pivotally connected to the upper end of a lever 16 journaled within the casing 1 as indicated at 17. The lower end of lever 16 projects below the bottom of the casing 1 through a slot 18 formed within said bottom and a spring 19 is connected to the casing and also to the lever for holding the pawl 15 normally in a predetermined position.

Standards 20 extend upwardly from the front and rear portions of the casing 1, and each standard has a bracket 21 at its upper end in which is journaled a grooved wheel 22 designed to travel upon the supporting wire or cable A. An arm 23 extends from each standard 20 and a bracket 24 is pivotally mounted on this arm as indicated at 25, there being a grooved wheel 26 journaled within this bracket 24 and arranged directly below the wire or cable A. Bracket 24 has an arm 27 extending therebeyond and a spring 28 is arranged upon and bears upwardly against this arm so as to hold the wheel 26 yieldingly in contact with a wire or cable A. Any suitable means (not shown) may be utilized for conveying a current of electricity from one of the wheels 22 to a motor 29, preferably located within the front portion of the casing, as shown by dotted lines in Fig. 1. A trolley pole 45 is mounted on one side of the carrier and the wheel 46 thereon bears upwardly against wire A' so that the current may pass from the motor to said wire. A chain 30, or other suitable device, is driven by the motor for actuating one of the wheels 22. As shown in Fig. 2 this chain extends over a sprocket 31 mounted on the shaft 32 of wheel 22, it being understood of course that if preferred any other suitable means may be utilized for transmitting motion to the wheels.

The carrier hereindescribed is designed to be used in connection with delivering and receiving boxes located along the route traveled by the carrier. It is designed to arrange these boxes in pairs, the delivering box being located above the receiving box and both preferably connected to one of the poles C. As shown in Figs. 1 and 2, the delivering box 33 may be suspended from the arm B extending from pole C, said box being sufficiently large to receive at least one of the holders 11. The box has a hinged bottom 34 designed to be normally held yieldingly closed in any preferred manner as by means of a spring 47, a supporting finger 35 being pivotally mounted within a bracket 36 connected to the pole C to lock the bottom closed. An arm 37 moves with this finger 35 and extends beyond the pole and into the path of a tripping stud 38 extending upwardly from the front portion of the casing 1.

The lower or receiving box on the pole C is in the form of a hopper 39, the bottom

of which is curved to direct the contents of the box or hopper into the body 40 of the receiving box, said body having a suitable closure 41 which, when opened, permits the contents of the body to be conveniently removed. The bottom portion of the hopper 39 is preferably formed of spaced rods 42, or of wire fabric or any other suitable material permitting moisture to quickly drain from the hopper. An angular tripping arm 43 extends beyond one edge of the hopper and into the path of the lower end of lever 16.

The upper portion of the partition 3 is preferably inclined as shown at 43, so as to direct into the compartment 4 a holder discharged from the box 33 and a suitable door 44 preferably arranged at one side of the casing 1 so as to permit the cells 10 to be easily filled with holders while the machine is being loaded.

In using the apparatus hereindescribed the door 44 is opened and the holders 11 are placed within the cells 10, the drum 8 being rotated in any suitable manner until all of the cells, with the exception of the one directly over opening 6, has been filled. It is to be understood that each holder is designed to contain mail intended for one delivery station and the holders are to be located within the cells in the order in which they are to be delivered. The persons along the route desiring to deliver mail to the carrier place holders 11 containing the mail within the boxes 33 and close the bottoms 34, said bottoms being held closed by the fingers 35. While these fingers are in locking positions, their arms 37 project outwardly into the path of the stud 38 carried by the carrier 1. After the carrier has been properly loaded a current is directed from the wires to the motor 29 and said motor will operate to drive the wheels and cause the carrier to travel along the wire or cable A. When said carrier reaches the first point where interchange of mail is to be effected the lower end of its lever 16 strikes the angular tripping arm 43 just as the opening 6 assumes a position above the hopper 39. The lever is thus actuated so as to shift pawl 15 and turn the ratchet wheel 14 one tooth, this movement being sufficient to bring the first cell 10 in position above the opening 6. The holder 11 contained within said cell will thus drop through the opening and into the hopper, by which it will be directed into the body 40. At the same time the stud 38 will strike the arm 37 and swing it laterally, thus removing the finger 35 from under the box 33 and permitting the hinged bottom 34 to swing downwardly under the weight of the holder 11 and discharge the holder from the box and into the compartment 4. This operation is repeated at each point along the route where interchange of mail

is to be effected. By providing the bottoms of the compartment 4 and the hopper 39 of wire fabric or the like it is unnecessary to utilize closures for said compartment and hopper, because any moisture entering the same will promptly pass outward through the bottom. Moreover, inasmuch as the mail is contained within sealed cans or the like, no injury will result thereto from rain, etc.

It is of course to be understood that some means must be provided, such, for example, as a stair or a ladder, to enable persons to reach the boxes 33 and 40, to enable them to place holders 11 in position and remove them. If desired, however, and as indicated in Figs. 4 and 5, means may be employed for elevating holders to the delivering box and for conveying them downward from the receiving box to points close to the ground and where they can be easily reached. By referring to these figures it will be noted that the pole C supports an endless conveyer 47 preferably formed of chains mounted on upper and lower sprockets 48 and 49 respectively, any suitable means, such as a crank 50, being utilized for actuating the conveyer. This conveyer has trough-like supports outstanding therefrom as indicated at 51, so proportioned as to readily hold and support holders 11, such as used in connection with the apparatus. The upper portion of the conveyer is designed to direct one or more holders into the upper or delivering box 52 of the apparatus, said box being mounted above the path of the carrier and being in the form of a chute, the bottom of which is normally closed by means of a spring-supported closure 53. This closure is designed to be opened in the same manner as the closure 34 heretofore referred to. Mounted on the post C and extending downwardly therefrom is a chute 54 the upper end of which is designed to receive holders 11 from a hopper-like receiver 55 similar to the one disclosed at 39 in Fig. 1, the lower end of this chute opening into a box 56 supported close to the ground and where it can be conveniently opened to remove the holder therefrom. With this construction a holder to be delivered to the carrier may be placed in one of the troughs 51 and elevated to the box 52 by means of the conveyer 47 and this holder will be delivered to the carrier in the manner hereinbefore described and a holder discharged from said carrier will drop into the hopper 55 and move by gravity through the chute 54 to the box 56. As shown in Fig. 4 the supporting devices 51 may be arranged to travel within the chute 54 so as to stop the downward movement of the holder within said chute and thus require the actuation of the conveyer for the purpose of lowering the holder into the box 56. This construction however is not necessarily utilized. It is of course to be understood that vari-

ous changes may be made in the construction and arrangement of parts without departing from the spirit or sacrificing the advantages of the invention.

What is claimed is:—

1. In apparatus of the class described a carrier comprising a wheel-supported structure having an outlet opening, a cylindrical discharging device mounted to rotate within said structure and having marginal cells, trip-actuated means upon the carrier for imparting an intermittent movement to said discharging device to expose the cells one at a time above the outlet opening, and a trip in the path of said means for automatically operating the same.

2. In apparatus of the class described a carrier comprising a movably supported structure having an outlet opening, a cylindrical discharging device mounted for rotation within said structure and having radial wings forming cells there-between, and means for automatically shifting said discharging device during the movement of the carrier for exposing the cells one at a time above the outlet opening.

3. In apparatus of the class described a movably supported structure having an outlet, a discharging device mounted for rotation within said structure and having radial blades forming cells there-between, mechanism for shifting said device to bring the cells one at a time above the outlet, and a tripping device for automatically actuating said mechanism.

4. In apparatus of the class described a carrier comprising a movably supported structure having an outlet, a discharging device mounted for rotation within said structure and having marginal cells, actuating means carried by said structure for automatically intermittently rotating said discharging device to bring the cells one at a time in register with the outlet, and relatively fixed retaining means for holding articles in the cells removed from the outlet.

5. In apparatus of the class described a carrier comprising a movably supported structure having an outlet opening, a discharging device mounted for rotation within said structure and having radial wings forming cells there-between, means upon said structure for imparting an intermittent rotation to the discharging device during the movement of the carrier, means for automatically actuating said means, said movement exposing the cells one at a time in register with the outlet, and a relatively fixed retaining device partly inclosing the discharging device.

6. In apparatus of the class described a carrier comprising a movably supported structure having an outlet, a cylinder mounted for rotation within said structure, wings radiating therefrom and forming cells there-

between, means carried by said structure for coöperating with relatively fixed means to automatically intermittently rotate the cylinder and wings, said movement of the wings bringing the cells one at a time into register with the outlet.

7. In apparatus of the class described a carrier comprising a movably supported structure having an outlet, a cylinder mounted for rotation within said structure, wings radiating therefrom and forming cells therebetween, a retaining device extending around the wings and cylinder for retaining objects within the cells until brought into register with the outlet, mechanism carried by the structure for intermittently rotating the cylinder, and relatively fixed means for actuating said mechanism at predetermined points during the movement of the carrier.

8. Apparatus of the class described comprising a fixed receiving box, a structure movable relative to the box and having an outlet, a discharging device mounted for rotation within said structure and having marginal cells, mechanism for intermittently rotating said device to position said cells successively in register with the outlet, and means for actuating the mechanism upon the arrival of the outlet above the box.

9. Apparatus of the class described comprising a fixed receiving box, a movably supported structure movable thereover, a discharging device mounted for rotation within said structure and having peripheral cells, there being an outlet within the structure, means extending around the discharging device for retaining objects within the cells during the rotation of said discharging device, said means having an outlet, mechanism upon said structure for intermittently rotating the discharging device to bring the cells successively into register with the outlets, and means fixed relative to the box for tripping said mechanism to shift a cell into register with the outlet simultaneously with the arrival of said outlet above the box.

10. In apparatus of the class described a movably supported structure having an outlet, discharging means therein having marginal cells, mechanism upon said structure for intermittently actuating said discharging means to bring the cells successively into

position above the outlet, a receiving box disposed below the path of the supporting structure, said box having an enlarged inlet, and means fixed relative to said inlet for tripping the actuating mechanism to shift the discharging means simultaneously with the arrival of the outlet above the receiving box.

11. In apparatus of the class described a wheel-supported structure having a receiving compartment therein at one end and a distributing compartment at the other end, there being an outlet from the distributing compartment, a cylindrical discharging device mounted for rotation within the distributing compartment, said device having marginal cells, mechanism for intermittently rotating the discharging device to bring the cells successively into register with the outlet, a delivering box above the path of the structure, a receiving box below the path of said structure, means upon said structure for automatically opening the delivering box to discharge the contents thereof into the receiving compartment, and means fixed relative to the receiving box for actuating the mechanism upon the supporting structure simultaneously with the arrival of the outlet above the receiving box.

12. In apparatus of the class described a carrier comprising a wheel-supported casing, a revoluble cylindrical discharging device carried thereby and having peripheral cells, separate holding devices loosely and removably mounted within the cells, there being an outlet with which the cells are disposed to successively register, mechanism for intermittently rotating the discharging device, a receiving box disposed below the path of the carrier, and means fixed relative to said box for actuating the mechanism to shift the discharging device and discharge a holder through the outlet simultaneously with the arrival of said outlet above the box.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ERNE A. MORSE.

Witnesses:

KATE F. MICHAEL,
WM. J. CULLEY.