No. 813,542. PATENTED FEB. 27, 1906.

J. M. CASE.

PACKAGE AND LETTER DELIVERING AND COLLECTING SYSTEM.

APPLICATION FILED SEPT. 5, 1905.

6 SHEETS—SHEET 1.

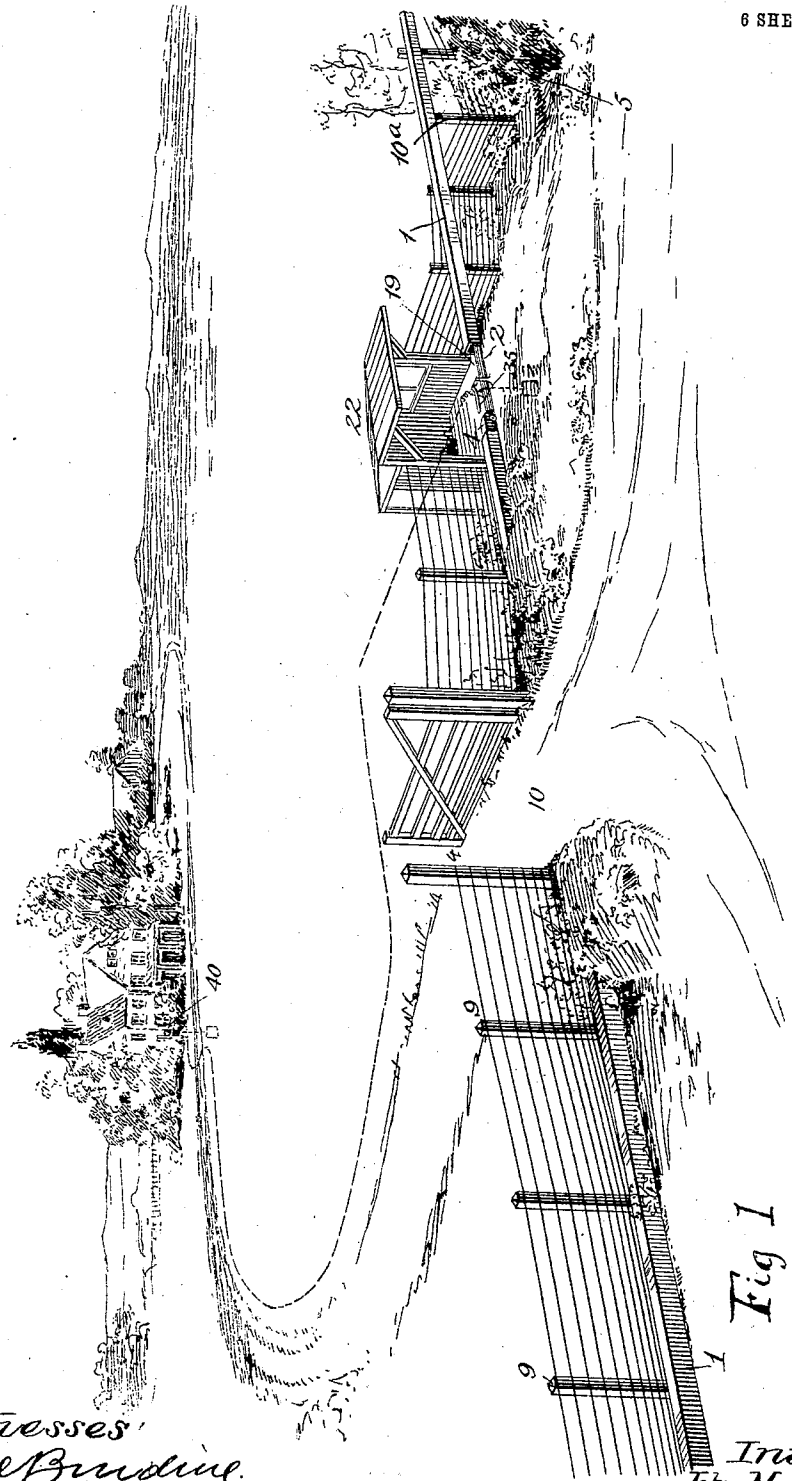


Fig 1

Witnesses:
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6 SHEETS—SHEET 2.

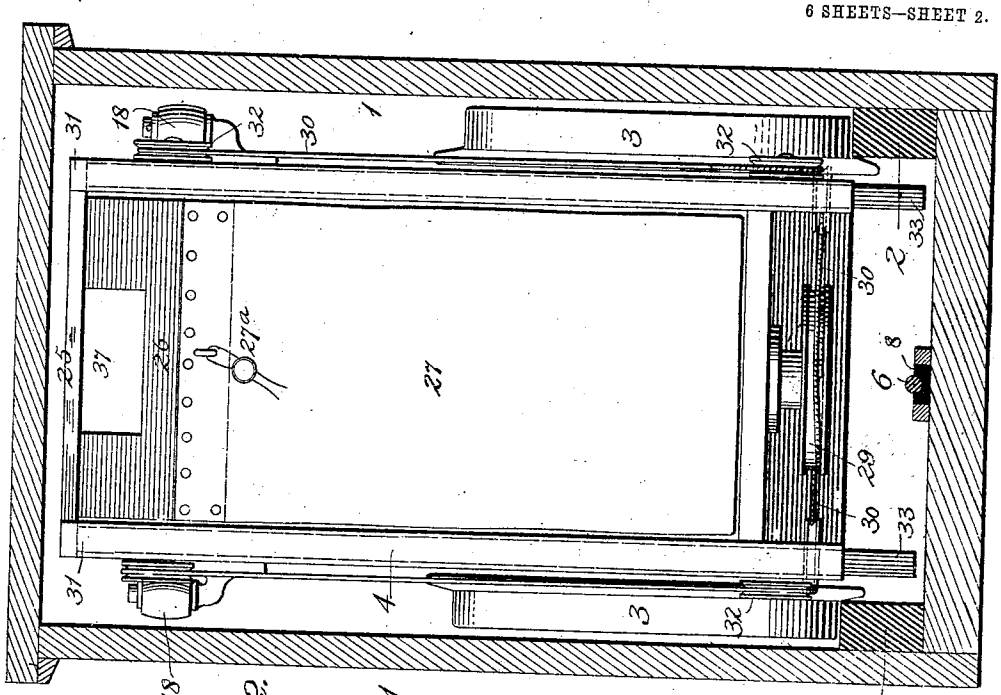


Fig. 2.

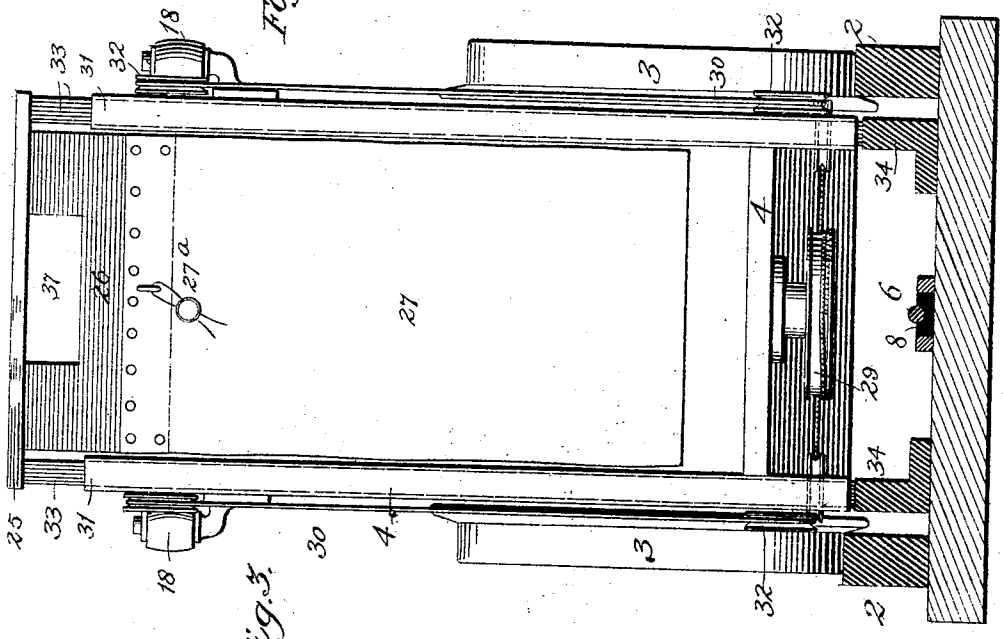


Fig. 3.

Witnesses:
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6 SHEETS—SHEET 3.

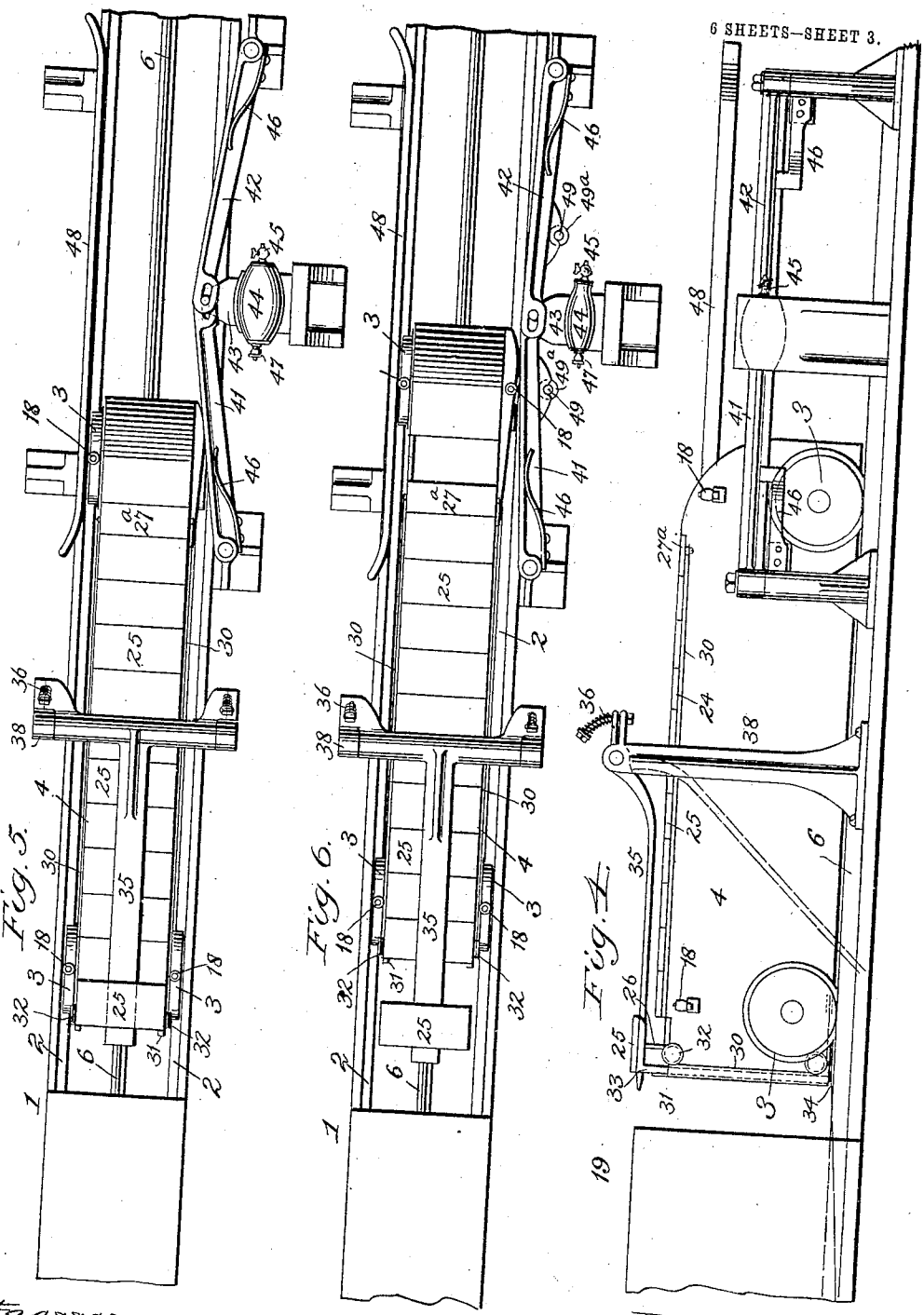


Fig. 5.

Fig. 6.

Fig. 4.

Witnesses;
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H. H. Simms

Inventor;
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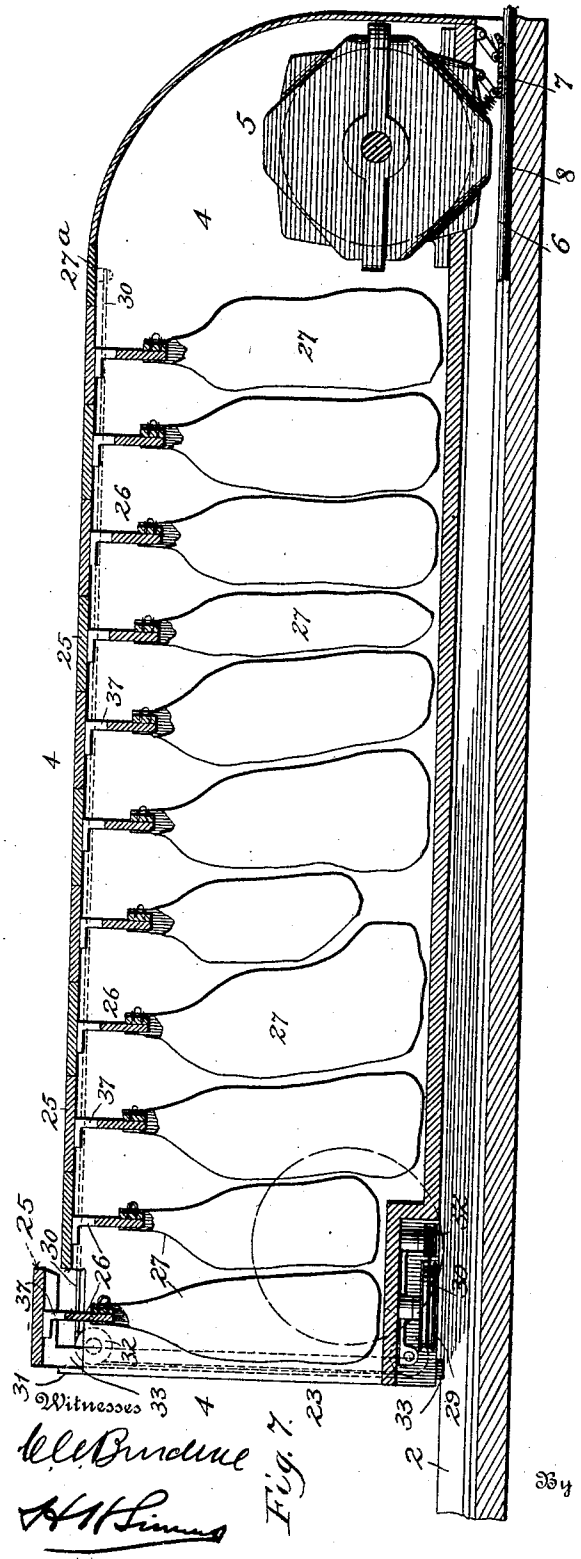
No. 813,542. PATENTED FEB. 27. 1906.

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PACKAGE AND LETTER DELIVERING AND COLLECTING SYSTEM.

APPLICATION FILED SEPT. 5, 1905.

6 SHEETS—SHEET 4.



Witnesses

W. L. Burdine

H. H. Simms

Fig. 7.

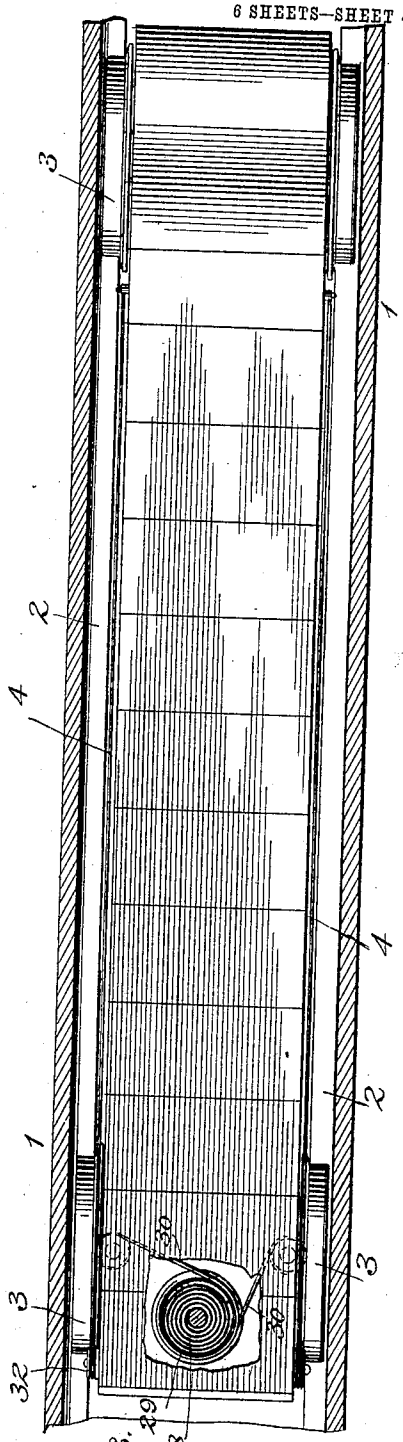


Fig. 8.

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No. 813,542.

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J. M. CASE.

PACKAGE AND LETTER DELIVERING AND COLLECTING SYSTEM.

APPLICATION FILED SEPT. 5, 1905.

6 SHEETS—SHEET 5.

Fig. 9.

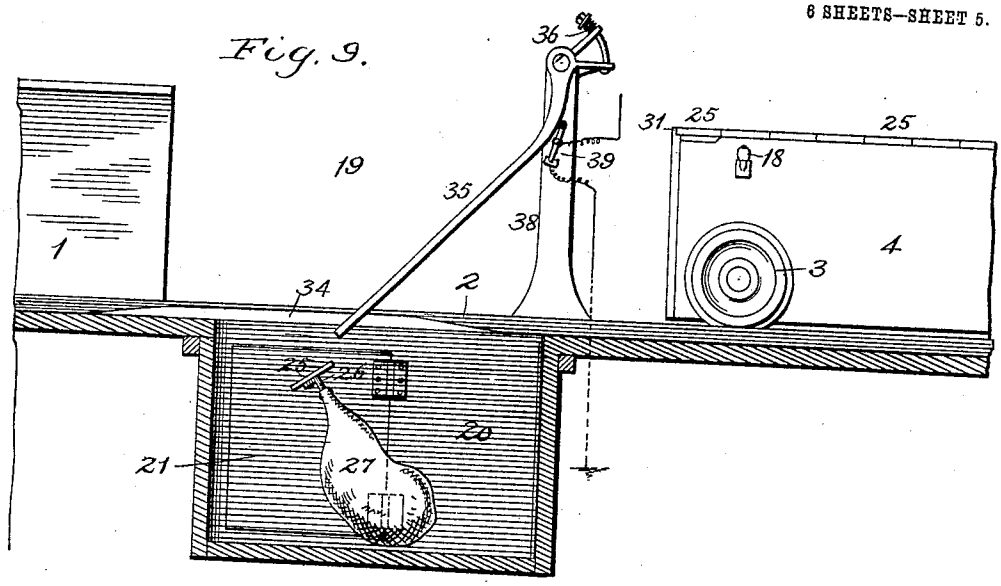
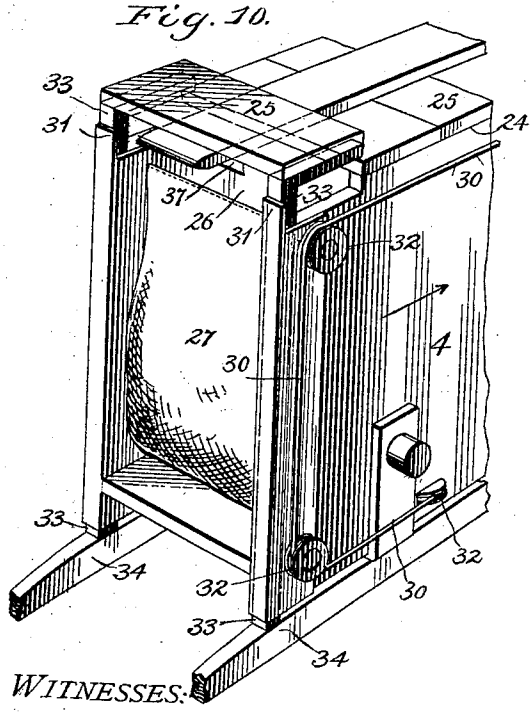


Fig. 10.



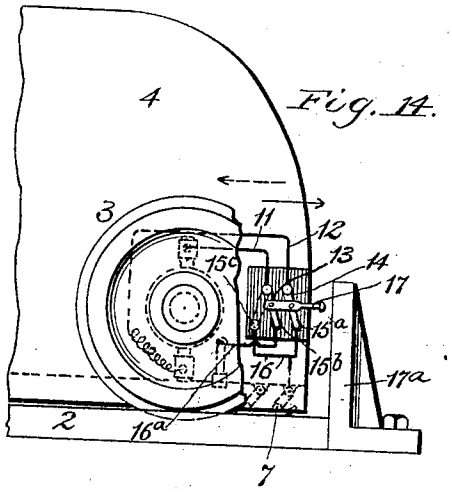


Fig. 14.

WITNESSES:

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No. 813,542. PATENTED FEB. 27, 1906.

J. M. CASE.

PACKAGE AND LETTER DELIVERING AND COLLECTING SYSTEM.

APPLICATION FILED SEPT. 6, 1905.

6 SHEETS—SHEET 6.

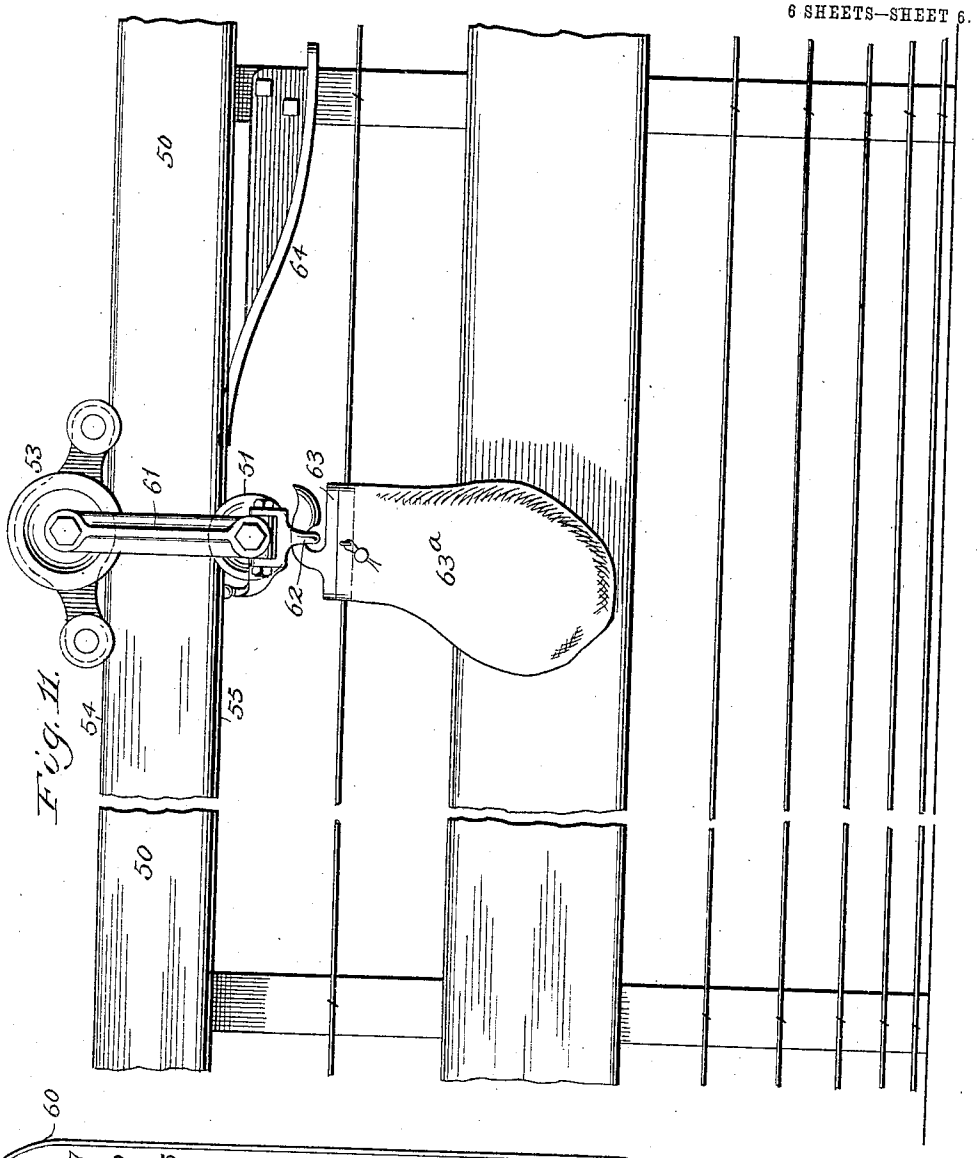


Fig. 11.

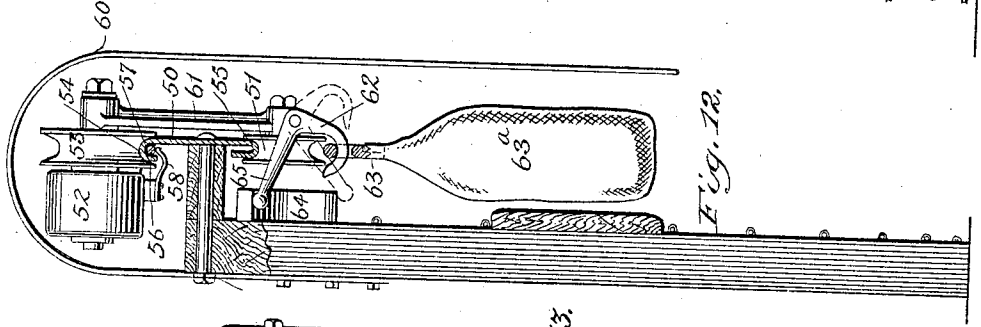


Fig. 12.

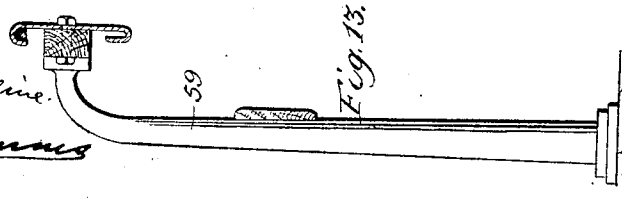


Fig. 13.

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UNITED STATES PATENT OFFICE.

JOHN MURRAY CASE, OF LOUISVILLE, KENTUCKY.

PACKAGE AND LETTER DELIVERING AND COLLECTING SYSTEM.

No. 813,542. Specification of Letters Patent. Patented Feb. 27, 1906.

Application filed September 5, 1905. Serial No. 277,078.

To all whom it may concern:

Be it known that I, JOHN MURRAY CASE, a citizen of the United States, residing in the city of Louisville, county of Jefferson, State of Kentucky, have invented certain new and useful Improvements in Package and Letter Delivering and Collecting Systems, of which the following is a specification.

My invention relates to package and letter delivering and collecting systems.

It has for its object to provide a system to automatically deliver mail or packages at various points, such as farm-houses, and collect articles, such as mail and farm products, and deliver them to a central station. In the development of such a system it will place those in the rural districts substantially upon the same footing as those in the city in relation to mail-matter and the delivery of packages at their own homes, thus making the farm life much more desirable and stimulating the moving from the cities to small farms surrounding, where greater comforts and health may be attained.

My system may be placed on all the public roadways throughout the rural districts and when thus employed is preferably connected directly to the road-fences, so that no valuable ground is occupied, and the apparatus or roadway may be made a part of the fence. This will make it easy to secure the right of way from the farmers, and it is believed in many instances in order to obtain the advantages from this system they would themselves construct the fence and the roadway, the company operating the same afterward keeping it in repair.

Other and further objects will appear in the following description, and will be more particularly pointed out in the appanded claims.

In the drawings, Figure 1 is a perspective or landscape view showing a portion of my system. Fig. 2 is an end view of the carrier, showing the position of the rear mail-bag when the carrier is in motion and a section of the conduit in which the carrier travels. Fig. 3 is an end view of the carrier at one of the stations with the rear bag elevated. Fig. 4 is a side representation of the carrier, showing a means for taking on the mail-bags and depositing the same. Fig. 5 represents the carrier as it is approaching a station and shows a special mechanism for stopping the same. Fig. 6 is substantially the same, except that it shows the mechanism for stopping the carrier compressed, at which time the carrier is supposed to be either completely stopped or retarded, according to the set of the valve regulating the exit of air from the resisting air-bag, the operation of which will be hereinafter fully explained. Fig. 7 is a side elevation of the carrier, showing the same loaded with mail-sacks or sacks filled with any material, one of said sacks having been raised preparatory to being delivered. Fig. 8 shows a spring attachment at the bottom of a carrier calculated to continuously draw upon the several independent mail-sacks and cause them to pass successively to the rear end of the carrier as fast as they are delivered at each successive station. Fig. 9 is an enlarged view showing the delivery of one of the sacks into a delivery-chamber arranged immediately below the track. Fig. 10 is an end view of the carrier, showing one of the bags at the end of the carrier elevated and engaged by the delivering-lever ready to be delivered into the package-receiving box below. Figs. 11 and 12 and 13 represent a modification of my electric delivery system. Fig. 14 is a view showing the means for reversing the motor.

Referring more particularly to the drawings, 1 is a conduit, which may be constructed of either metal, wood, or terra-cotta; but it is believed that ordinarily wood would answer for all practical purposes, as it will last a great many years and would be cheaper to construct and easier to introduce. Eventually, however, it is believed that metal conduits will be used, except for underground work, where terra-cotta will be used. The conduit is preferably rigidly connected to the farm fence-posts 9, and, being small, at all points where there are gate-openings or road-crossings the box may be deflected underground, as shown at 10, Fig. 1. In passing over irregularities in the ground or gulches, as shown at 5, Fig. 1, in order to keep it substantially level it may be placed upon longer posts, as at 10^a, and connected at the upper end instead of the base-posts. This conduit is provided with tracks 2, firmly connected to the inside of the conduit and on which are the wheels 3, on which carriers 4 run, the same as in ordinary railroad-tracks. At the points of delivery and collection of the articles the conduit is broken away at its top, as at 19, leaving only the tracks 2, thus permitting the loading of the carrier. At each of these stations a delivery-receptacle 20, Fig. 9, is

suspended or otherwise held below the tracks and closed by a door 21. A small shed or waiting-room 22, Fig. 1, may be built at this point, so that a few persons may be seated therein while awaiting the delivery of the articles, this shed or room also serving to protect the carrier from the weather at this point, the conduit protecting it at all other points. Of course the delivery and collecting stations may be at different points instead of together.

The carrier 4 carries an electric motor 5 at its front end to turn the front wheels of the carrier, the electricity for the motor being taken by a shoe or trolley 7, depending from the carrier, from a wire or conductor 6, supported on insulating material 8 between the tracks 2, except at the delivery-receptacles, where it is deflected about the said receptacles.

This system of delivering and collecting mail and packages may be made in one complete circuit going out one road and coming back another, or it may be made to pass to the end of the conduit and by an automatical arrangement for reversing the motor it may be made to return in the same conduit. This plan I prefer and think it decidedly the more practicable, since in going out it unloads everything that has been delivered to the car and leaves the car-box empty to be filled at the station on the return trip. For this purpose the conductors 11 and 12, Fig. 14, connected to the motor, are connected to the swinging blades 13 and 14 of a switch, said blades being movable over three contacts 15^a, 15^b, and 15^c, the first and last of which are connected by conductor 16 to the shoe 7 and the other one being connected by conductor 16^a to one of the front wheels of the carrier, so that one of the rails in the conduit may serve as the return conductor. When the carrier is moving in the direction to deliver packages, the switch is in the position shown in full lines, Fig. 14; but when the end of the conduit is reached the link 17, connecting the blades 13 and 14, is engaged by a stationary post 17^a and moved to the position shown in dotted lines, whereon the current through the motor is automatically reversed and the carrier starts on its return journey.

On the sides of the carrier are arranged friction-rollers 18, which prevent the carrier from tipping sidewise when passing around curves, these rollers never being in contact unless the carrier tips.

The carrier 4 is of a receptacle form and is constructed with an open rear end 23 to permit the articles to be easily discharged and inserted, and the upper edges of the side walls thereof form a guide-fall 24. Upon these guide-faces are adapted to travel a number of holders 25, from which depend attaching devices 26, to which the articles 27 are secured, the ones shown being ordinary mail-sacks. These holders are arranged on the guide-faces so that the one first to be delivered is at the rear of the carrier and the one next to be delivered next to it, and so on. Of course if nothing is to be delivered at any one station it will be necessary to place the holder for that station on the carrier, as at every station a holder is removed, and holders would not be delivered properly if blank holders were not provided. The holders are moved to the rear against shoulders 31 on the carrier by a follower 27^a, which is controlled by a spring 28, secured to a drum 29, the drum having a pair of cables 30 attached thereto and to the side of the follower 27^a, said cables being guided by the pulleys 32 and wound about the drum by the spring every time that one of the holders is discharged. To throw the holders perpendicularly relatively to the line of holders, and thus in a position to be discharged or delivered, those portions of the guide-faces 24 at the rear of the carrier 4 are elevated, thus carrying the rear holder above the shoulders 31 and above the other holders. This elevation is caused by means of two vertical slide-bars 33, which are guided at the rear of the carrier, one on each side thereof, and depend from the carrier, so that they may be engaged by inclined planes 34 at each station, and thus cause the elevation of the rear holders.

At each station is located a delivering mechanism comprising standards 38, carrying a swinging arm 35, which in normal position is held by a spring 36 just above the holders on the carrier, so that it may pass through an opening 37 in the rear holder as the carrier passes it. When the holder is engaged by the arm 35, the arm is depressed by the weight of the holder and the holder slides off into the receptacle 20 below, to be removed at any suitable time by a person holding a key to the said receptacle. After the rear holder 25 has been removed the rear movable portion of the guide-faces 24 drop and permit another holder under the action of spring 28 to be moved to the rear. To notify persons in the adjacent farm-house or other place that the carrier has arrived, the arm 35 when depressed closes an electrical switch 39, which causes the alarm or signal 40 to operate. This signal may operate for a certain period or until it is manually stopped.

In Figs. 4, 5, and 6 I show a means of retarding the carrier or stopping it entirely both on the outgoing and the incoming transit. This mechanism consists of two hinged friction-bars 41 and 42, which are preferably connected by a sliding link, as shown as 43, Fig. 5. In the rear of this compound link I place any suitable cylinder or bag 44, that is air-tight and when filled with air will produce a resistance to the carrier and cause it to stop gradually. This bag or

cylinder is provided with an air-exhaust cock 45, Fig. 5, which may be closed up a sufficient amount to cause the carrier to stop entirely by the severe compression of the air, or it may be set or opened sufficient to simply retard the carrier until it almost stops and then permit it to pass on. It will be seen that if the exhaust-cock is set so as to cause a complete stoppage of the carrier, the escape of the air will gradually go on until the pressure has been relieved sufficiently to permit the carrier to start of its own accord. After the carrier has been passed, the levers 41 and 42 are forced back to their former position by springs 46 and caused by the opening of a suitable inlet-valve 47 in the air-cushion bag to admit the air as the springs force the levers over the trackway. On the opposite side of the track I position a spring-resisting bar 48, which receives the pressure from the opposite side and assists in producing the necessary friction to stop the carrier. This mechanism may be set so that the carrier may pass without being retarded, this position being particularly for all small packages or for mail-matter; but as in my system I propose to deliver all kinds of groceries and other goods from the city to the country and also to return the articles that the country people may have to sell to the city it is important that this automatic stopping machine may be used. In some cases it will not be practical to load the carrier except when it is standing still, as it will be adapted to deliver milk-cans, butter and eggs, all kinds of vegetables and fruits into the city, and in order to take on such articles it becomes necessary that the carrier on its trip should be stopped at the station where such material is taken up. I have shown a stopping-pin 49, which may be dropped down into a bearing-hole 49^a, thus stopping the lever from compressing at a point just before it is opened sufficiently to permit the carrier to pass. This will make a dead stop and hold the carrier until it is loaded, and by simply pulling out the pins the carrier will at once pass forward. In order to automatically receive packages on the return trip while the carrier is in motion, I hang the packages by the holders 25 on the swinging arms 35, which receive the packages on the outgoing trip, and as on the return trip the back end of the carrier is first and open it simply backs in onto holders and delivers them into the carrier by sliding them off the swinging arms. The package-receptacles are each locked and sealed at 27^a to the holders 25, and by this means no one can ascertain the contents of his neighbor's receptacle.

I have in the foregoing specification described only one form of carrying out this principle of delivering and collecting mails and small packages; but there are other forms that may be made practical, and I herewith submit drawings of one modification as shown in Figs. 11, 12, and 13. This modification consists in bolting the rail 50 directly to the top of the fence and constructing a motor 52, having one wheel 53 riding on top of the rail and propelling the package-carrier. A friction-roller 51 is provided for riding on the bottom of the rail to hold the carrier in position. One of the chief features of this construction is the forming of the track of one piece of sheet metal which is turned over at the top, as at 54, and also at the bottom, as shown at 55, Fig. 12. The top bearing of this sheet-metal rail is formed with a circle, so as to give a larger bearing for the wheel, and also to form a cavity below for the admission of the electric wire 56. This electric wire is placed on non-conducting material 57, and the trolley or slide 58 of the motor 52 is in contact with the wire.

In the introduction of this system the posts will unquestionably be made of wood; but when the system is once demonstrated to be a success and practical in every respect there will be an effort to make the system permanent and ornamental without regard to the first cost, and to do this I herein show an iron post 59, Fig. 13, which may hold the sheet-metal rail, or this sheet-metal rail may be removed and the first-described embodiment supported thereon. Instead of using conduit covering the mechanism and rail-bed, as shown in my first embodiment, I may place a sheet-metal hood over the track, as shown at 60, and this would not only be durable, but it would be extremely ornamental. On the body of these posts 59, extending downward to the ground, might be arranged, except at the points of crossing, ornamental fence-wires.

The carrier 61 has a swinging hook 62, from which is suspended the package-receptacle 63^a. The swinging hook normally hangs in a direction to secure the holder 63; but at a station an inclined surface 64 is provided to engage the arm 65 of the swinging hook and cause it to release the holder 63 and the package-receptacle 63^a. The carrier is provided with any number of these hooks, which are successively operated to release successive holders.

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

1. The combination of a conduit broken away at points, a track in said conduit, a shed covering the track where the conduit is broken away, said shed being of a size to admit a person, a carrier traveling on said tracks, and a receptacle arranged below the track.

2. The combination with a track having receiving-stations at points throughout its length, of a carrier having a plurality of removable package-holders, arranged in order corresponding to the stations, and automatic means for successively removing the pack-

age-holders on the outgoing trip of the carrier, and delivering said holders to the carrier on the return trip of the carrier.

3. The combination with a track, of a carrier, means for propelling the carrier on the track, automatic means for discharging packages from the carrier on the outgoing trip and placing packages on the carrier on the return trip while the carrier is in motion, and means automatically reversing the direction of the carrier.

4. The combination of a conduit having receiving-stations at points throughout its length, a carrier traveling in said conduit, and having package-holders arranged thereon in order corresponding to the stations, means for automatically discharging a package at its station from the carrier, and means for automatically collecting the packages on the return trip.

5. The combination of a carrier, of a plurality of package-holders arranged in a line on said carrier and means for separately and automatically feeding said holders perpendicularly with relation to the line of holders whereby the perpendicularly-fed holder may be engaged and removed from the carrier.

6. The combination with the carrier, having package-holders arranged thereon, in a line, of means feeding said holders perpendicularly with relation to the line, and means feeding the holders to the perpendicular feeding means.

7. The combination with the track, of a carrier for travel on the track, having package-holders arranged in a line on said carrier and means for separately and automatically feeding said holders perpendicularly with relation to said line; and means arranged along the track for removing the holders from the carrier after they have been fed perpendicularly.

8. A carrier for delivery systems comprising a series of package-holders, means for elevating one of the package-holders at a time and means for moving the package-holders to the elevating means.

9. A carrier for delivery systems comprising guide-faces, holders slidable on the guide-faces, a spring-pressed follower for the holders, and means for slightly moving a holder above the remaining holders.

10. The combination with the track, of inclined planes located at a plurality of points along the track, a carrier traveling along the track and carrying a plurality of package-holders, means carried by the carrier, engaging the inclined track and causing one of the package-holders to be moved to a position to be engaged, and means along the track for engaging the holder thus moved.

11. The combination with a track, of a carrier traveling on the track and carrying a plurality of package-holders, means for singly moving the package-holders to a position to be engaged, and a swinging arm adapted to engage the moved package-holder and remove it from the carrier when the carrier is traveling in one direction, and to support a holder and deposit it on the carrier when the carrier is traveling in the other direction.

12. The combination of a traveling carrier carrying package-holders, and automatic means successively removing package-holders from the carrier when the carrier is traveling in one direction, and depositing them on the carrier when the carrier is traveling backward.

13. The combination with a track, of a carrier traveling thereon in both directions, means for automatically reversing the direction of the carrier, and means for automatically removing packages from the carrier when it travels in one direction and automatically depositing packages on the carrier when it travels in the other direction.

14. The combination with the track, of a carrier adapted for traveling in both directions thereon, an electrical conductor along the track, an electrical motor carried by the carrier and receiving current from the conductor, a switch carried by the carrier, and means automatically reversing the switch to cause a reversal of the motor.

15. The combination with the track, of a carrier adapted for travel in both directions on the track, a motor carried by the carrier, a controller for the motor carried by the carrier, and means automatically moving said controller to cause a reversal of the motor.

16. The combination with a track and a carrier, of means for automatically removing packages from the carrier, located along the track and normally positioned to remove the packages but moving under the weight of the package to discharge said package and then returning to its normal position.

17. The combination with the track and the carrier, of a spring-pressed swinging arm normally held in a position to remove a package from the carrier and moving under the weight of the package to discharge the package and then return to its normal position.

18. The combination with the track and the carrier, of means on the carrier for feeding package-holders to a position to be engaged, receptacles located at various points along the track and means adjacent the receptacles normally positioned to remove a package-holder and cause it to be deposited in the receptacle.

19. The combination with the track and the carrier, of means for removing packages from the carrier, arranged along the track, and a signal operated by the package-removing means when a package is removed.

20. The combination with the track and the carrier, of means for propelling the carrier along the track, and means arranged along the track for stopping the carrier, said

means embodying an air-chamber and means permitting the air to gradually escape and permit the carrier to proceed.

21. The combination with the carrier and a track on which it travels, of a stopping or retarding means for the carrier arranged along the track and embodying means for engaging the carrier, an air-chamber acting on said means to hold it in an engaging position and means gradually permitting the escape of air from the chamber to permit the carrier to proceed.

22. The combination with the carrier and a track on which it travels, of a stopping or retarding means for the carrier arranged along the track and embodying means for engaging the carrier, an air-chamber acting on said means to hold it in an engaging position, means gradually permitting the escape of air from the chamber to permit the carrier to proceed, and a spring moving the air-chamber-engaging means in a direction to cause the air to enter the air-chamber and cause the engaging means to be projected into the path of the carrier.

23. The combination with the track, of a carrier, means for propelling the carrier along the track, and means arranged along the track for stopping the carrier, and means automatically reversing the carrier.

24. The combination with a track, of a carrier open at one end, and means for automatically removing packages from the carrier through the open end when the carrier is traveling in one direction and automatically depositing packages in the carrier through the open end when the carrier is traveling in the other direction.

25. The combination with the carrier, of holders sliding on the carrier and adapted to have packages suspended therefrom, and means for moving the holders to the rear of the carrier.

26. The combination with a track, of a carrier for travel thereon, carrying a plurality of package-holders, means along the track for causing a package-holder to be moved to a position to be engaged, and means along the track for engaging and removing a package-holder thus moved.

27. The combination with a track and a carrier movable on the track of package-holders successively arranged on said carrier, sacks suspended from the holders, and automatic means for removing from the carrier while it is in motion, a holder and a sack at various points along the track.

The foregoing specification signed at Washington, District of Columbia, this 14th day of July, 1905.

JOHN MURRAY CASE.

In presence of—

HERVEY S. KNIGHT,

EDWIN S. CLARKSON.