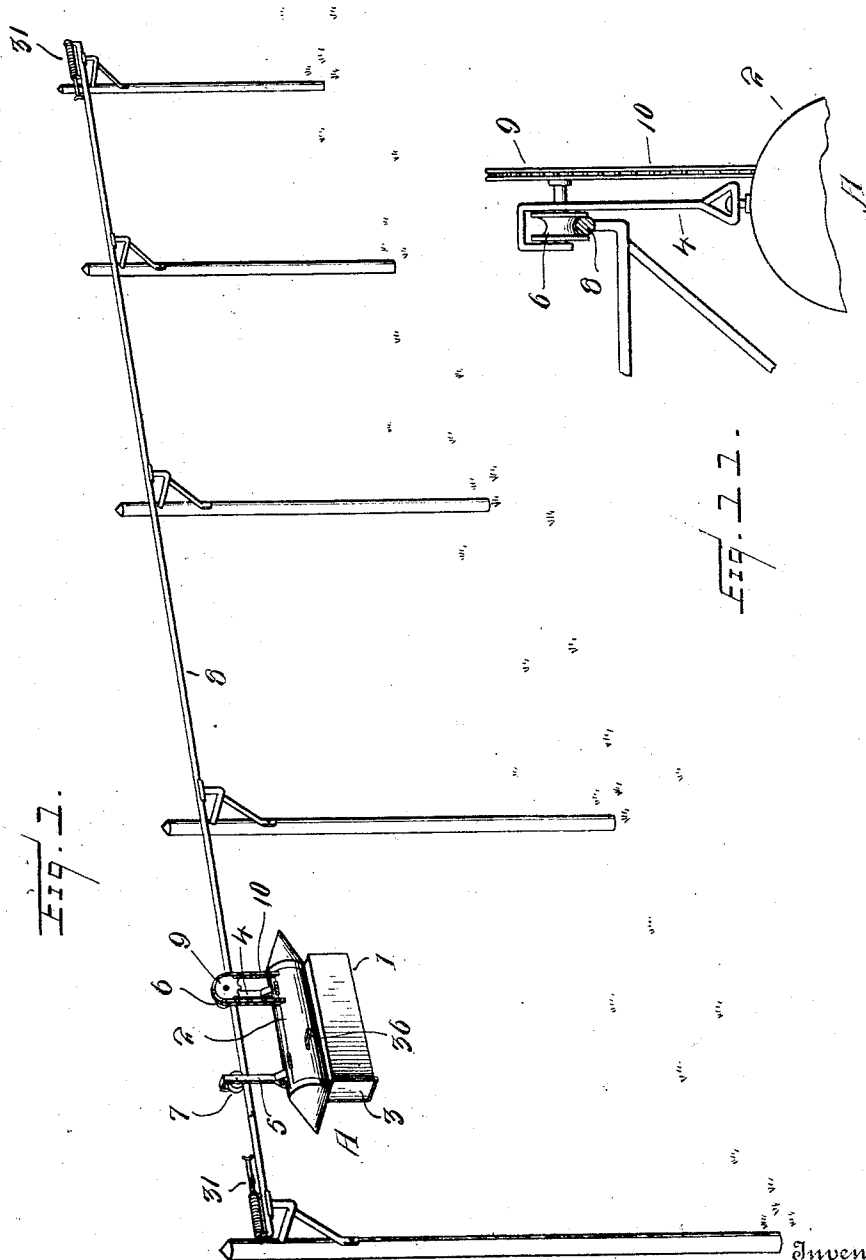


C. A. LOWE & J. C. ATKINSON.
 AUTOMATIC MAIL AND PACKAGE CARRIER.
 APPLICATION FILED DEC. 13, 1910.

1,035,368.

Patented Aug. 13, 1912.

4 SHEETS-SHEET 1.



Witnesses
 E. Q. Ruppert.
 V. B. Hillyard.

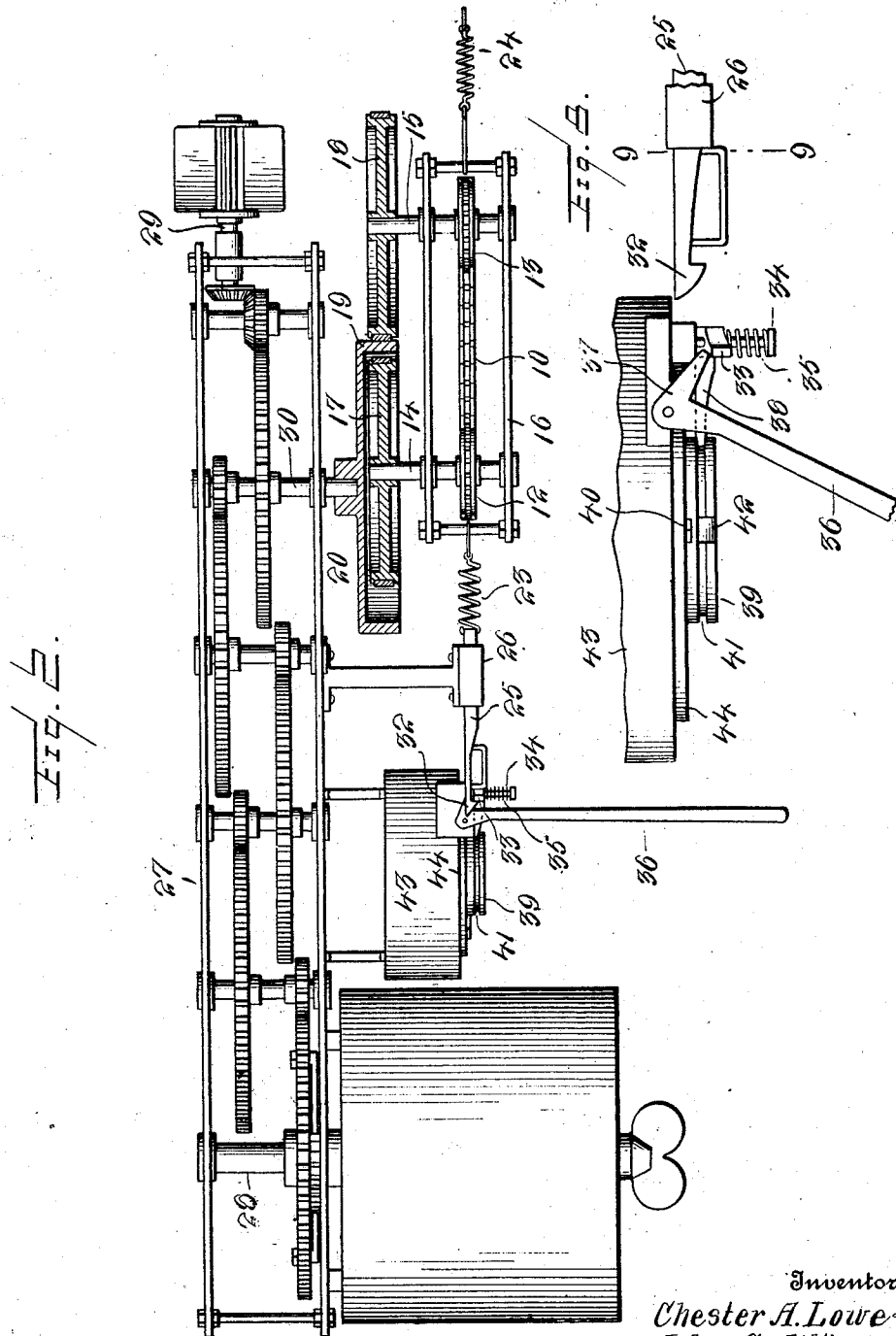
Inventors
 Chester A. Lowe &
 John C. Atkinson
 by Victor J. Evans
 Attorney

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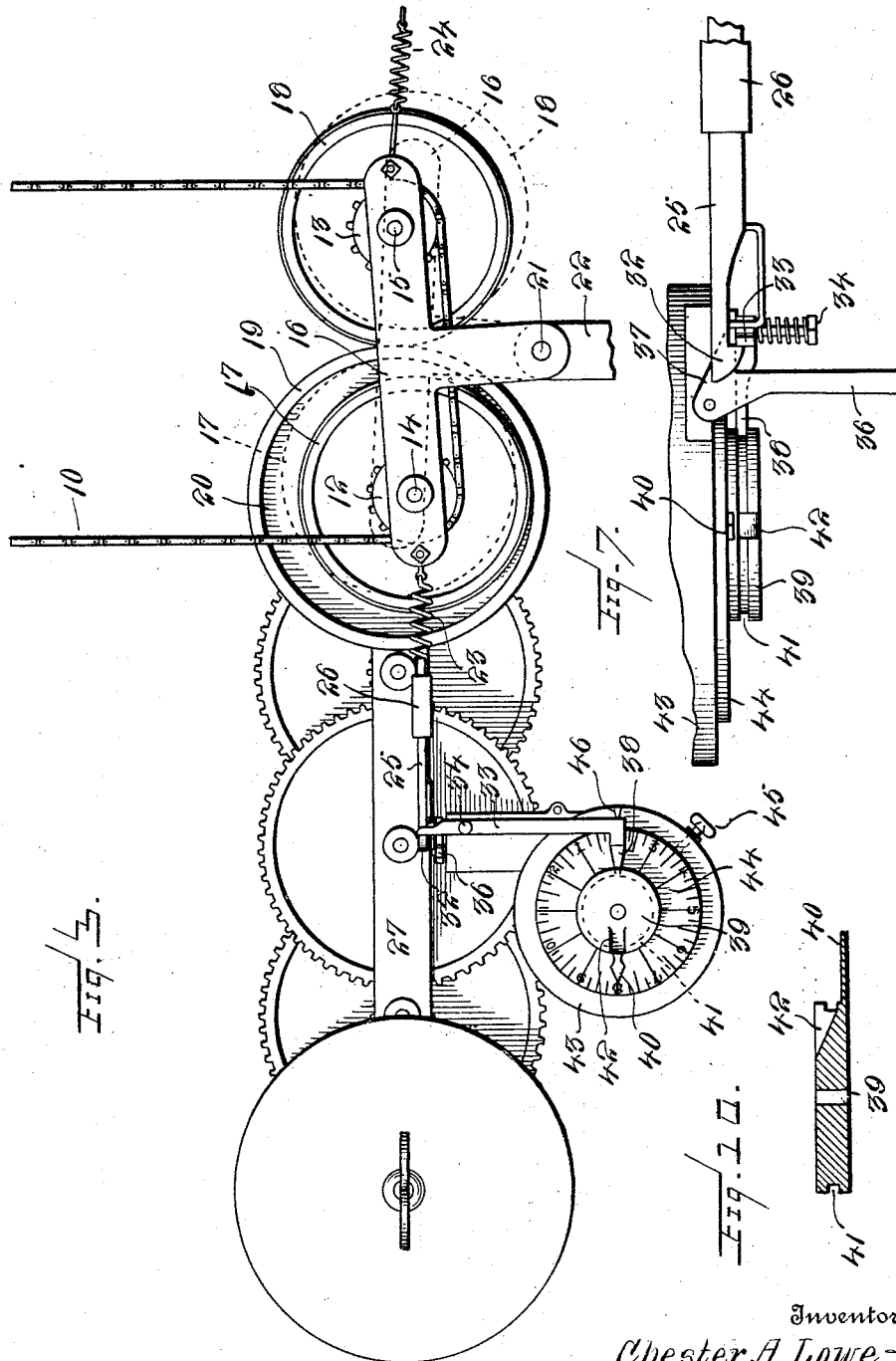
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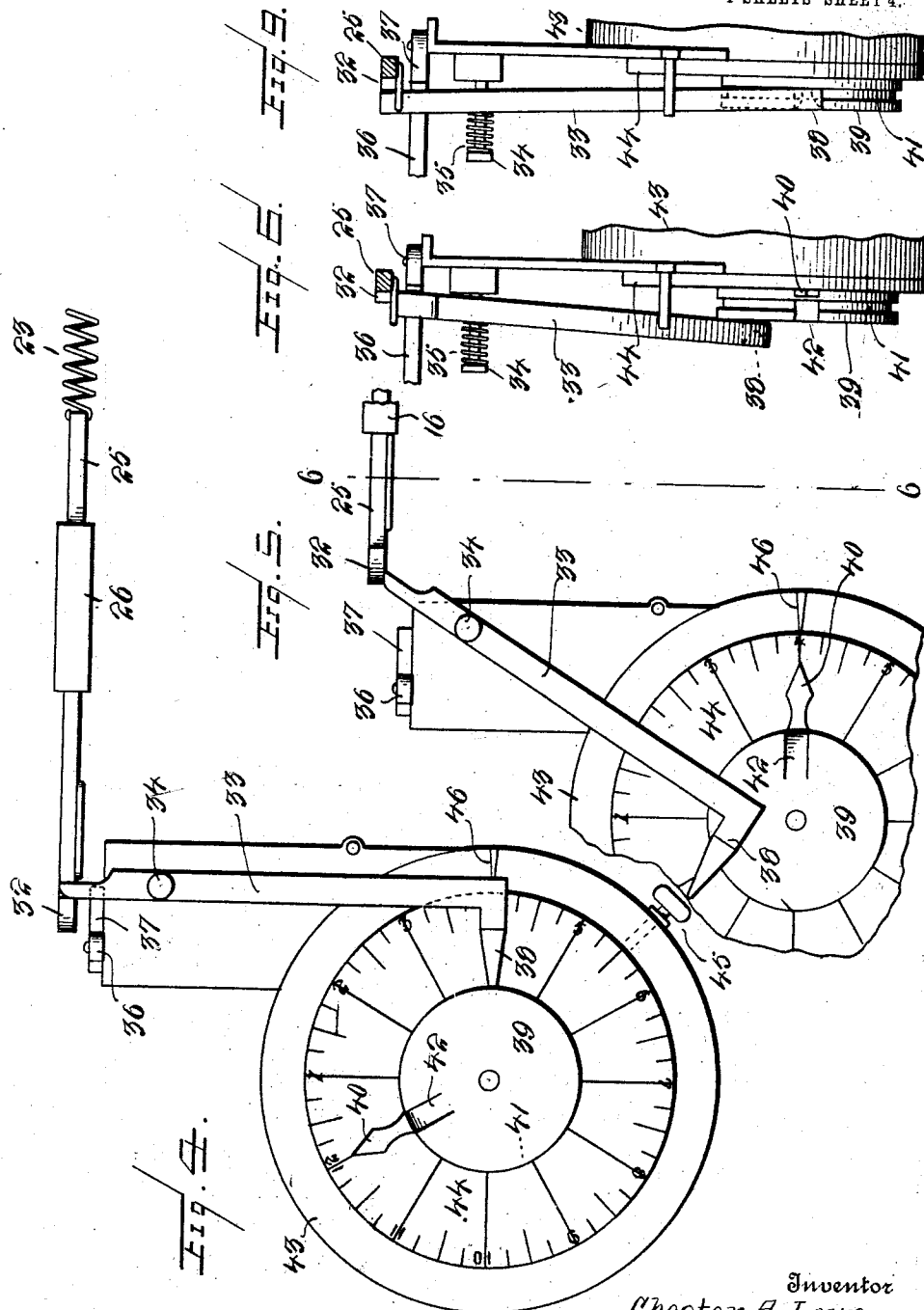
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4 SHEETS-SHEET 4.



Witnesses
 E. P. Ruppert.
 U. B. Hillyard.

Inventor
 Chester A. Lowe +
 John C. Atkinson
 By Victor J. Evans
 Attorney

UNITED STATES PATENT OFFICE.

CHESTER A. LOWE AND JOHN C. ATKINSON, OF CLARINGTON, OHIO.

AUTOMATIC MAIL AND PACKAGE CARRIER.

BEST AVAILABLE COPY

1,035,368.

Specification of Letters Patent.

Patented Aug. 13, 1912.

Application filed December 13, 1910. Serial No. 597,034.

To all whom it may concern:

Be it known that we, CHESTER A. LOWE and JOHN C. ATKINSON, citizens of the United States, residing at Clarington, in the county of Monroe and State of Ohio, have invented new and useful Improvements in Automatic Mail and Package Carriers, of which the following is a specification.

10 The present invention provides a carrier system particularly designed for use in rural districts for delivering mail, packages, or parcels.

15 In its specific adaptation the invention provides means for delivering mail to residents in sparsely settled districts or to transmit mail from a station to the post office or other point of distribution, said system embodying a carrier which is automatically propelled upon an elevated line and adapted to be returned to the point of starting at a predetermined time.

20 The invention contemplates a carrier provided with a spring motor and combining therewith a reversing mechanism adapted to be automatically actuated or manually operated according to the existing conditions, the motor having a time mechanism which may be set to trip the reversing mechanism so as to start the carrier on its return trip at a given time.

25 The invention consists of the novel features, details of construction and combination of parts, which hereinafter will be more particularly set forth, illustrated in the accompanying drawings, and pointed out in the appended claims.

30 Referring to the drawings, forming a part of the application, Figure 1 is a perspective view of a carrier system embodying the invention. Fig. 2 is a top plan view of the spring motor and time mechanism, showing the reversing mechanism in horizontal section. Fig. 3 is a side view of the spring motor. Fig. 4 is a front view of the time mechanism and the means cooperating therewith for automatically releasing the reversing mechanism from the stronger spring. Fig. 5 is a detail view of the parts illustrated in Fig. 4, showing the lever tripped. Fig. 6 is a sectional view on the line 6—6, looking to the left. Fig. 7 is a top plan view of the trip wheel, the lever cooperating therewith and the rod to which the stronger spring is attached. Fig. 8 is a top plan view of the parts shown in Fig. 7

having the rod released. Fig. 9 is a detail section on the line 9—9 of Fig. 8, looking to the left. Fig. 10 is a detail section of the trip wheel, showing the notch in the outer side thereof. Fig. 11 is a detail view in end elevation of the casing containing the motor and the parts associated therewith for driving the carrier.

Corresponding and like parts are referred to in the following description, and indicated in all the views of the drawings, by the same reference characters.

The carrier is indicated by the letter A and comprises a box 1, or like receptacle, for receiving the mail, parcels, or other matter to be transported, and a casing 2 containing the motor, the time and the reversing mechanisms. Access is had to the box or receptacle 1 by means of a suitably arranged door 3, which may be fastened in any manner. The operating mechanism is housed within the casing 2, which is located above the box or receptacle 1 for convenience, said casing being pointed at opposite ends so as to offer the smallest amount of resistance to the passage of the carrier through the air. Hangers 4 and 5 support the carrier and are provided with grooved wheels 6 and 7 at their upper ends arranged to travel upon an elevated track or line 8 consisting of a cable or wire. The lower ends of the hangers 4 and 5 are connected with the carrier by means of swivel joints, thereby avoiding strain. One of the supporting wheels is utilized as a driver to propel the carrier. A sprocket wheel 9 has connection with the wheel 6 selected as the driver and the force for propelling the carrier is applied to the sprocket wheel 9 by means of a sprocket chain 10, which passes around sprocket wheels 12 and 13 secured upon shafts 14 and 15, which are mounted in a frame 16 adapted to have a movement imparted thereto, whereby power may be applied directly to one or the other of the shafts 14 or 15. The shaft 14 has a friction wheel 17 secured thereto and the shaft 15 has a friction wheel 18 fastened thereto. The friction wheels 17 and 18 are located so as to aline and to engage with the rim 19 of a friction wheel 20. The rim 19 of the friction wheel 20 incloses the friction wheel 17 and a portion is arranged between the adjacent parts of the friction wheels 17 and 18. Movement of the frame 16 brings one or the other of the friction wheels 17 or 18

into engagement with the rim 19 of the friction wheel 20, thereby driving the sprocket chain 10 in one direction or the other according to the desired direction of travel of the carrier.

The frame 16 may be mounted in any manner and for simplicity it is shown pivoted at 21 to a bracket 22 or like part attached to the main frame or part of the casing 2. Springs 23 and 24 have connection with the frame 16, said springs being of different tension, the spring 23 being stronger than the spring 24. The springs 23 and 24 are preferably of the helical type and are adapted to be subjected to tension. When the spring 23 is under tension it overcomes the force of the spring 24 and moves the frame 16 so as to bring the friction wheel 18 into engagement with the rim of the friction wheel 20, thereby driving the carrier in one direction, but when the spring 23 is relieved of tension the spring 24 comes into play and moves the frame 16 in the opposite direction and brings the friction wheel 17 into engagement with the rim of the friction wheel 20, thereby reversing the carrier or driving the same in an opposite direction. The springs 23 and 24 may be connected to the frame 16 in any manner. A rod 25 is connected with the outer end of the spring 23 and is mounted in a suitable guide 26.

The motor embodies a frame 27 and a train of gearing mounted in the frame, said train of gearing embodying a spring driven shaft 28, a governor shaft 29 and a power shaft 30. Any variety of governor may be connected with the shaft 29. The power shaft 30 has the friction wheel 20 secured thereto. The power shaft 30 is driven in one direction only. The provision and arrangement of the friction wheels 17, 18 and 20 results in driving the axle positively in either direction upon the track or elevated line 8. When the carrier reaches the end of the line in one direction its movement is arrested by means of a stop 31, which is yieldable to prevent shock. Upon reversing the operating mechanism by moving the frame 16 the carrier is driven so as to return upon the line to the place of starting, its motion being arrested when the carrier reaches the end of the line and comes in contact with a stop or buffer arranged to arrest its movement.

The carrier may be reversed by hand or automatically by means of a time mechanism. The rod 25 has a hook or stop 32, which is adapted to engage one end of a lever 33, which is mounted upon a fulcrum pin 34. The lever 33 is mounted to turn and to move axially on the pin 34 and is pressed inward by means of a spring 35, which is mounted upon the fulcrum pin and confined between the lever 33 and a

head or shoulder formed on said fulcrum pin. A release lever 36 is pivoted at its inner end and has a short arm 37, which extends across the path of the short arm of the lever 33 to move the same laterally and disengage it from the hook or stop 32 of the lever 33 when it is required to release the rod 25 by hand, thereby relieving the spring 23 of all tension and admitting of the spring 24 coming into play to move the frame 16 to bring the friction wheel 17 into engagement with the friction wheel 20 to reverse the carrier. The lever 33 has a finger 38 projecting at a right angle therefrom and adapted to engage a trip wheel 39, which is mounted upon the part of the time mechanism carrying the hour hand 40 so as to rotate therewith. The trip wheel 39 has a groove 41 in its outer edge to receive the end of the finger 38 so as to prevent lateral displacement thereof when moving the lever 33 laterally by means of the lever 36 to effect disengagement of the rod 25 therefrom. A notch 42 is formed in a side of the trip wheel 39 and its inner wall inclines to form a cam for the finger 38 to ride upon so as to move the inner end of the lever 33 laterally to clear the trip wheel so that the time mechanism may continue to operate. The outer end of the notch 42 communicates with the groove 41 and when said notch registers with the finger 38 the latter enters said notch and at the same time is moved laterally to clear the walls of the notch. When the finger 38 enters the notch 42 the outer end of the lever 33 moves so as to release the rod 25, which is drawn toward the frame 16 by means of the spring 23, the latter being at the same time relieved of all tension. When the carrier is started from one end of the line the rod 25 is drawn away from the frame 16, thereby subjecting the spring 23 to tension and moving the frame 16 against the tension of the lighter spring 24, said rod 25 being held in the adjusted position by engaging the hook or stop 32 thereof with the outer end of the lever 33. Upon winding the motor spring the carrier is driven upon the line to the opposite end thereof by the means herein disclosed. When the carrier reaches the opposite end of the line its movement is arrested by means of the stop 31 and upon releasing the rod 25 either by hand or automatically by the mechanism the spring 23 is relieved of tension and the frame 16 is moved by the spring 24, thereby reversing the carrier which is returned to the place of starting.

The time mechanism comprises a frame 43, which supports the time movement. A dial 44 is movable and is adapted to be secured in the adjusted position by a set screw 45, or like fastening. An indicating point 46 is provided upon the frame 43, the same

being arranged opposite the finger 38 of the lever 33. The trip wheel 39 has the hour hand 40 connected thereto and is movable upon the shaft of the movement usually receiving the hands which cooperate with the dial to indicate the time. When the carrier is to be returned at a given time the dial 44 is set so that the required time comes opposite the indicator 46 and the trip wheel 39 is moved so that the hour hand 40 will point to the time upon the dial corresponding with that at which the carrier is started out on its trip. When the carrier reaches the end of the line its movement will be arrested and in the event of the reversing mechanism not being tripped by hand it will be automatically operated by the time mechanism when the hour hand reaches the hour indicated upon the dial. When the hour hand reaches a point opposite the indicator 46 the notch 42 of the trip wheel 39 is brought in register with the finger 38 and the latter entering the notch results in a reversing of the carrier in the manner stated. Should the party at the receiving end of the line desire to return the carrier earlier than the time set for its return it is only necessary to operate the lever 36, thereby releasing the rod 25 and admitting the spring 24 to come into play to actuate the reversing mechanism in the manner stated.

From the foregoing description, taken in connection with the accompanying drawings, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while we have described the principle of operation of the invention, together with the device which we now consider to be the embodiment thereof, we desire to have it understood that the device shown is merely illustrative, and that such changes may be made when desired as are within the scope of the claims appended hereto.

Having thus described the invention what is claimed as new, is:—

1. In combination a line, a carrier mounted upon the line, a spring motor mounted upon the carrier, power transmitting means between the spring motor and line, a reversing mechanism, and springs of different tension acting upon the reversing mechanism, the stronger spring when under tension overcoming the tension of the weaker spring to hold the reversing mechanism in position for applying the driving power for propelling the carrier in one direction and the weaker spring coming into play when the stronger spring is relieved of tension to operate the reversing mechanism to drive the carrier in an opposite direction to return the same to the place of starting.

2. In combination a carrier, a spring motor for driving the carrier mounted thereon,

said motor embodying a drive wheel, a movable frame, two wheels mounted upon the movable frame for transmitting power from the drive wheel, springs of different tension arranged to exert a force for moving the frame in opposite directions, the stronger spring when under tension overcoming the force of the weaker spring, and means for relieving the stronger spring of tension to permit the weaker spring to come into play to move the frame for reversing the motor to drive the carrier in the opposite direction.

3. In combination a carrier, operating mechanism mounted upon the carrier and including a drive wheel, a movable frame, a reversing mechanism mounted upon said movable frame and adapted to cooperate with said drive wheel, springs of different tension normally exerting a force to move said frame in opposite directions, means for holding the stronger of the springs under tension, and means for releasing the stronger spring to permit the weaker spring to come into play to shift the movable frame and reverse the movement of the carrier.

4. In combination a carrier, drive mechanism therefor including a drive wheel, a movable frame, reversing mechanism mounted upon the movable frame and adapted to cooperate with the said drive wheel, springs of different tension exerting a force upon the frame to move the same in opposite directions, means for holding the stronger spring under tension, a manually operable device for releasing the said spring tensioning means, and automatic means for releasing the spring tensioning means independently of the manually operable means.

5. In combination a carrier, drive mechanism therefor including a drive wheel, a movable frame, reversing mechanism mounted upon the movable frame and adapted to cooperate with the said drive wheel, springs of different tension exerting a force upon the frame to move the same in opposite directions, a rod connected with the stronger spring, a lever for engaging said rod to hold the spring connected therewith under tension, and a releasing lever for disengaging said rod from the holding lever.

6. In combination a carrier, drive mechanism therefor including a drive wheel, a movable frame, reversing mechanism mounted upon the movable frame and adapted to cooperate with the said drive wheel, springs of different tension exerting a force upon the frame to move the same in opposite directions, a rod connected with the stronger spring, a lever for engaging said rod to hold the spring connected therewith under tension, a movable trip wheel for holding the lever in operative position and having a cut-away portion to admit of the lever automatically releasing the said rod, and means

for automatically bringing the cutaway portion of the trip wheel into a definite position to effect release of the said rod to relieve the stronger spring of all tension.

7. In combination an elevated line, a carrier mounted to travel upon said line, a spring motor mounted upon the carrier, power transmitting means between the motor and line for propelling the carrier including a reversing mechanism, means exerting opposed forces of different strength upon the reversing mechanism, and means for automatically releasing the stronger of the forces to admit of the weaker force coming into play for throwing the reversing mechanism into active operation.

8. In combination a line, a carrier mounted to travel upon the line, a spring motor mounted upon the carrier and embodying a friction wheel having a laterally extending rim, a movable frame, two friction wheels mounted upon the movable frame and having a portion of the rim of the motor driven friction wheel coming between them, means for transmitting power from the two friction wheels mounted upon the movable frame through the drive wheel of the carrier mounted upon the line, springs of different tension each adapted to exert a force upon the movable frame to throw one of the two friction wheels into engagement with the rim of the friction drive wheel, a rod connected with the stronger spring, a lever for engaging said rod to hold the stronger spring under tension, and manually operable

and automatic means for releasing said rod to bring the reversing mechanism into operation to effect a return of the carrier to the place of starting.

9. In combination a carrier, driving mechanism therefor, power transmitting means including a reversing mechanism, a rod for holding the reversing mechanism in one position, a lever for engaging said rod mounted to have both a pivotal and a lateral movement, and means for moving the last mentioned lever laterally substantially as and for the purpose specified.

10. In combination a carrier, driving mechanism therefor, power transmitting means including a reversing mechanism, a rod for holding the reversing mechanism in one position, a lever for engaging said rod mounted to have both a pivotal and a lateral movement, said lever having a finger projecting therefrom about at a right angle, and a trip wheel to engage said finger and having a portion cut from one side having the inner wall of the cutaway portion inclined to effect a lateral movement of the lever simultaneously with its pivotal movement.

In testimony whereof we affix our signatures in presence of two witnesses.

CHESTER A. LOWE.
JOHN C. ATKINSON.

Witnesses:

C. M. MESSERLY,
E. MONAHAN.