

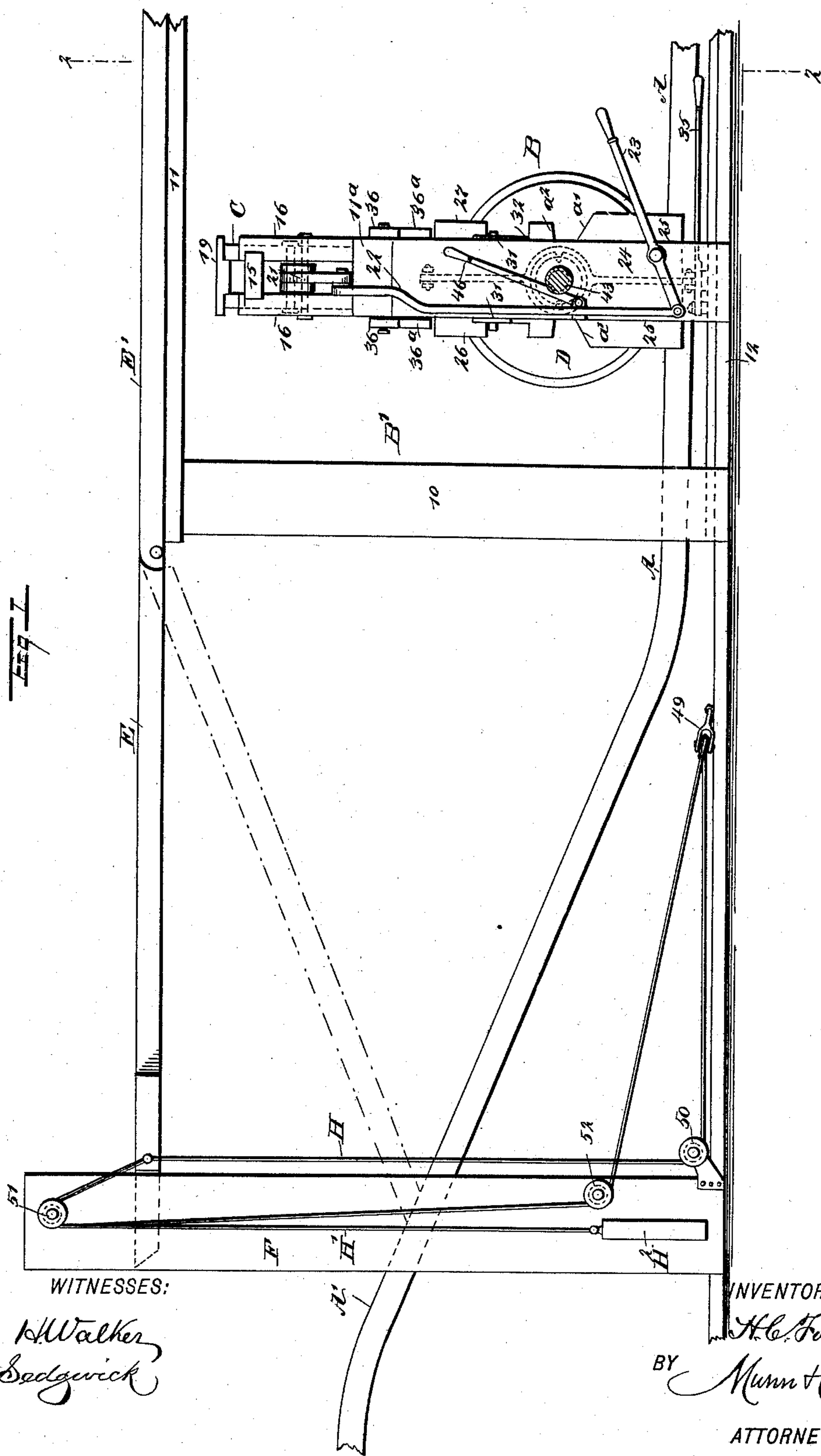
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2 Sheets—Sheet 1.

H. C. FORNEY.
FREIGHT OR PARCEL CARRIER.

No. 505,705.

Patented Sept. 26, 1893.



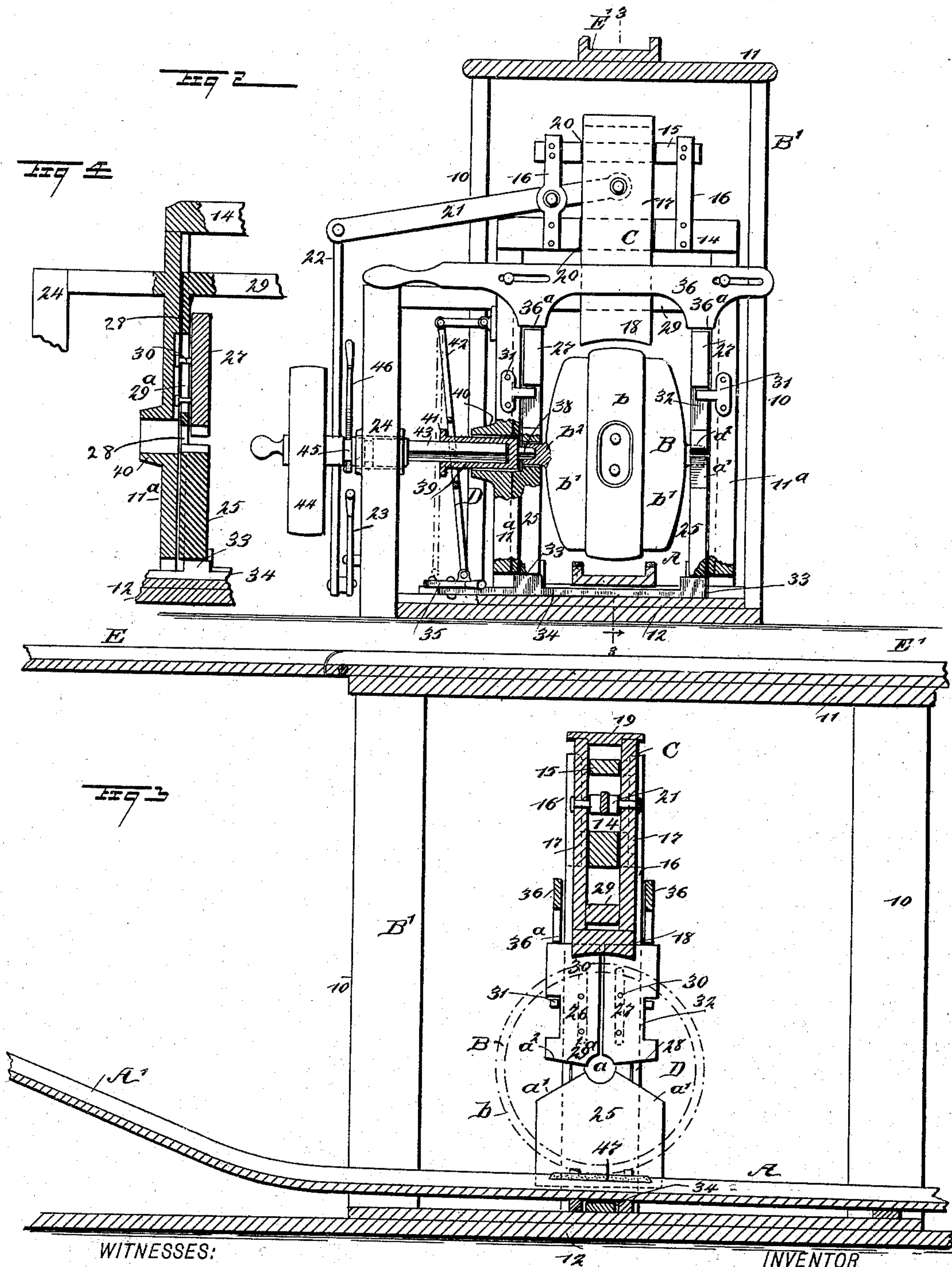
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FREIGHT OR PARCEL CARRIER.

SPECIFICATION forming part of Letters Patent No. 505,705, dated September 26, 1893.

Application filed February 18, 1893. Serial No. 462,875. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. FORNEY, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Freight or Parcel Carriers, of which the following is a full, clear, and exact description.

My invention relates to an improvement in freight or parcel carriers, and it has for its object to provide a car adapted for the transportation of the mails, packages, merchandise, products, &c., and to provide also a track upon which the car is to travel, which track is to be so laid as to enable the car to obtain momentum and travel a long distance by gravitation; and further to provide relay stations constructed to receive the car, and in which stations the car may be revolved, the stations being also provided with a brake capable of being expeditiously and conveniently applied, which brakes will act to stop the revolving movement of the car; and furthermore to provide the relay stations with levers whereby the cars may be released when in practice it is found desirable.

It is a further feature of the invention to maintain the car in the relay station when its power is practically spent, and impart to it a rapid rotary motion, and in connection with the power mechanism to provide a means whereby the car, after having been rapidly revolved, may be released and delivered to the track in order that it may travel on its own stored power a predetermined distance or until another relay station is reached.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of a portion of the track, and likewise a side elevation of a relay and power station located over the track. Fig. 2 is a section taken practically on the line 2—2 of Fig. 1, the relay and power station being shown partially in front eleva-

tion and partly in section. Fig. 3 is a central vertical section through the relay and power station, the section being taken on the line 3—3 of Fig. 2; and Fig. 4 is a detail view, illustrating the arrangement of the bearings in a power and relay station, adapted to receive the trunnions of the car.

In carrying out the invention the track A, upon which the car B is to travel is given an inclination at given points in its length, as shown at A' in Figs. 1 and 3, in order that the car in traveling down the incline will receive a momentum sufficient to carry it some distance along a straight track. The track is preferably covered by housing B', the said housing consisting practically of uprights 10 and a roof 11 of any desired shape; and the sides of the housing may be left open or may be closed as in practice is found desirable. The housing is employed in order that such forces as wind, rain, sleet and snow shall not act upon the car while it is under motion to retard its progress. At various intervals along the length of the track combined relay and power stations are located; and these stations are constructed in the following manner: The frame of the station consists of two standards 11^a, which are secured in any suitable or approved manner to the foundation 12 upon which the track A is laid, the track being centrally located between the standards; and the standards at their upper ends are united by a cross beam 14.

A cross head 15, is supported upon the cross beam 14 of the frame of the relay station by means of braces 16, said braces comprising vertical bars or beams as shown in Fig. 2, and the cross head is adapted in conjunction with the cross bar 14 to serve as a vertical guide for a brake C. This brake comprises side pieces 17, between which at their lower ends the brake shoe 18, is located, the brake shoe being concaved upon its under face. The side pieces 17 of the brake C, are connected at their upper ends by a cap 19, and the said side pieces of the brake have vertical movement in the slide-ways 20, produced in the cross head 15 and cross bar 14. The brake shoe 18, is located some distance below the cross bar 14 of the frame when the

cap of the brake rests upon the cross head 15, and the brake is raised and lowered through the medium of a lever 21, which is attached at one end to the side pieces of the brake between the cross bar 14 of the frame and the cross head 15, the lever being fulcrumed, as shown in Fig. 2, upon one of the supports 16 of the cross head. The lever extends outward beyond the housing or shed, and by means of a link 22, is connected with a lever 23, which lever is fulcrumed upon a post 24, or equivalent support placed at one side of the housing or shed. The brake may be held in an elevated position by means of frictional contact with its bearings, or any approved form of locking device may be employed in connection with the lever 23.

Each upright 11^a of the frame of a relay station is adapted to carry a journal box D, one of the boxes being shown in side elevation in Fig. 3. The boxes are made in three sections preferably, a lower section 25 and two upper sections 26 and 27, the two upper sections being so located that their opposing edges will be over the central portion of the lower section. The lower section of each box is provided with a central concavity *a* in its upper face, and at each side of this concavity the upper wall of the lower box section is beveled, as illustrated at *a'*. Each lower section of the box is firmly attached to a plate 28, and these plates have sliding movement in suitable ways produced in the inner faces of the standards 11^a; and the sliding plates 28 are connected at their upper ends by a cross bar 29, the cross bar passing through the brake between its brake shoe and the guide beam 14 connecting the standards 11^a, and when the brake is in its lowest position and the sliding plates 28 are in corresponding position, the cross or tie bar 29 of the plates will be immediately above the brake shoe. Thus if the brake is carried upward the slides 28 will be carried in the same direction. The upper sections 26 and 27 of the boxes have their inner lower corners somewhat circularly formed, so that the semi-circular formation of the upper box sections, taken in connection with the semicircular formation *a* in the lower box section form a circular bearing, as shown in Fig. 3. The upper box sections 26 and 27, are provided with upwardly inclined lower edges *a*², and the upper box sections are capable of action independent of each other and independent of the lower sections of the box. To that end vertical slots 29^a, are made in the plates 28, and pins 30, studs, or their equivalents secured to the rear faces of the upper box sections pass loosely through these slots. The upward and downward movement of the upper box sections are limited by securing upon the standards 11^a stop pins 31, as shown in Figs. 2 and 3, which stop pins enter recesses 32 in the outer edges of the said box sections. When an object is journaled within the boxes D and it is desired

to release that object, the lower section 25 of the boxes is dropped, and this is accomplished by removing from engagement therewith elevations 33, formed upon a slide 34, which slide has movement in or upon the base 12 beneath the track, transversely of the latter, and one end of the slide extends beyond the outer face of the housing, and preferably in direction of the outer post 24, the said slide being operated by a lever 35, fulcrumed upon any convenient support, preferably upon the base or platform 12 upon which the slide has movement; and the lever 35, may therefore be operated by the foot. When the extensions 33 of the slide 34, are beneath the lower section of the boxes, as shown in Fig. 2, the boxes will be in position to receive and hold the journal of the object; but when the slide is drawn outward so as to carry its extensions 33 from out of engagement with the lower box section, the said section will drop, and the object carried by the boxes will be rolled out therefrom. The upper box sections may be held firmly in their lower positions by means of check slides 36, having sliding movement upon the standards 11^a, one at each side of the standards; and these check slides are provided with an outwardly extending handle by means of which they are operated, and feet 36^a, adapted to be located over the upper ends of the upper sections of the boxes.

The car B, is preferably of cylindrical or circular shape, and it is provided with a central annular rib *b*, adapted to fit between the rails of the track, and a flattened bearing surface *b'* at each side of the flange, which flattened surfaces engage with the treads of the rails when the car is placed upon the track. The car may be filled with the material it is designed to carry, through an opening made in its side or in the rib section *b*, as shown in Fig. 2, which opening may be closed by a door or plate having a suitable lock. The car is provided with trunnions *b*², one located at each side, and the trunnions are provided at their outer ends preferably with a clutch face of any approved construction. The clutch faces of the trunnions are adapted at times to receive a clutch section 38 of a sleeve 39, which sleeve is held to slide in a suitable bearing 40, produced in one of the standards 11^a, as shown also in Fig. 2. This sleeve is provided with a collar 41, which collar is encircled by a lever 42, the lever being connected at its lower end with the shifting lever 35 of the slide 34, and at its upper end it is fulcrumed upon the standard 11^a in which the sleeve has movement.

A drive shaft 43, is journaled in a suitable box located in the outer post 24, the outer end of the drive shaft being provided with a suitable driving pulley 44. The inner end of the drive shaft 43 is made polygonal in cross section, and the inner surface of the sleeve 39, which is adapted to receive the inner end of the shaft, is given a similar shape. An

annular groove 45, is ordinarily made in the outer portion of the shaft, adapted to receive a lever 46, pivoted upon one side of the post 24. Thus in operation, when the parts are in the position shown in Figs. 2 and 3, and a car traveling upon the track A approaches a relay station, upon reaching the station the trunnions of the car will engage with the inclined face a' of the lower box section of the station, and will run up the inclined surface and drop into the semi-circular recess a , and the upper box section, on the side of the station approached by the car, rises automatically upward to permit the trunnions to enter the recessed surfaces of the lower box section and immediately drop as soon as such entrance is effected, it being understood that at this time the check slides 36^a are out of engagement with the upper box sections.

If it is desired to stop the rotation of the car, this may be effected by simply manipulating the lever 23 in a manner to carry the brake shoe 18 downward to an engagement with the periphery of the car, and its movement will be almost instantly stopped. The car may now be removed from its bearings and again placed upon the track to be shifted to another track, or for other purposes. By manipulating the lever 35 in a manner to withdraw the slide 34 from engagement with the lower box section 25, thereupon that section will drop and the car may be readily rolled from its bearing. That portion of the track between the boxes D, is provided with an elastic or cushioned face 47, shown in Fig. 3. If it is intended to send the car farther on, after the car is seated in its bearings, the shaft 43 which is capable of end movement is forced inward, by pressure upon the knob at the end of the shaft or in any other approved manner, until the clutch surface of the sleeve or collar 41 is in engagement with the clutch surface of the car, and next the hand lever 46 is thrown in the slot 45, to prevent the shaft from shifting. As the shaft 43 is intended to be constantly revolved if in practice it is found desirable, a rotary motion will be imparted to the car, and the rotary movement of the shaft is intended to be an exceedingly rapid one. When it is thought that the car has received sufficient power to enable it to travel to the next relay station, the lever 35 is carried outward, the slide 34 being at the same time withdrawn from the lower box section, and the clutch of the drive shaft is removed from engagement with the car, by the lever 42 acting on the sleeve 41, and as soon as the lower box section drops, the car will leave its bearings and will proceed on its way. It will be understood that when a rotary movement is being imparted to the car the check slides are carried over the upper box sections to prevent their rising upward. When it is desired to place the boxes in condition to receive another car, the lever 23, is manipulated to raise the brake C, and the brake shoe com-

ing in contact with the tie bar 29 of the slides 28 will raise said slides, and when the slides have been elevated to a proper extent the lever 35 is manipulated to carry the supporting slide 34 beneath the lower section of the box.

In Fig. 1, I have illustrated a means of shifting or switching the car from a point above the main track A; for example, from a store house located over the first power station, to the incline A' in front of that station. This switching is preferably accomplished by pivoting an extension rail E to the end of a switch rail E', the extension rail E being free at its outer end and beveled at its free extremity, the said free end being held to slide between supports F, located one at each side of the inclined track section A'. A chain or cable H, is connected with the free end of the extension switch rail E, the chain or cable being endless; and it passes over a pulley 49, located at any desired point below the inclined rail section, over a second pulley 50, preferably connected with one of the guide supports F, thence upward to a connection with the branch switch rail, then over a third pulley 51, located at the upper portion of the said guide support, and finally over a pulley 52, located above the pulley 50; and from the pulley 52 the cable reaches the pulley 49, where the chain or cable H, connects with the extension of the switch rail, a second chain or cable H', is attached, and this second chain or cable is passed over the upper pulley 51, which is a double pulley and downward therefrom, the lower end of the second chain or cable being provided with a weight H², sufficiently heavy to balance the switch rail section. Thus when a car is to be switched from the main switch rail E' to the inclined track A', by drawing downward upon the chain or cable H the extension of the switch rail will be carried downward and made to connect with the inclined track A', as shown in dotted lines in Fig. 1.

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

1. In a freight or parcel carrier, a car of essentially circular shape and provided with an annular rib, a door located on the said rib, and side trunnions, substantially as described.

2. In a freight or parcel carrier, a car of essentially circular shape and provided with trunnions having clutch faces, substantially as described.

3. In a freight or parcel carrier, a car of essentially circular shape, provided with an annular rib a cylindrical surface at each side of the rib, and trunnions having clutch faces substantially as and for the purpose specified.

4. In a freight or parcel carrier, the combination, with a station comprising a frame and boxes located oppositely in the frame, each box being divided into an upper and a lower section, the upper section being vertically

movable and both upper and lower sections having their opposing faces oppositely beveled from their bearing surface outward, of a car provided with trunnions adapted to enter
5 between the sections of the boxes, as and for the purpose specified.

5. In a freight or parcel carrier, the combination, with a station comprising a frame, boxes oppositely located in the frame, the
10 said boxes being divided into upper and lower sections and the upper section sub-divided into two sections, and means for loosely hanging the upper section of the box, and a shifting device for carrying the lower box section
15 to and from the upper sections, the opposing faces of the sections being beveled in opposite directions from the center bearing outward, of a car of essentially circular construction and adapted to travel bodily upon a
20 track, the said car being provided with trunnions to be received between the box sections, as and for the purpose set forth.

6. In a freight or parcel carrier, the combination, with a station comprising a frame, boxes oppositely located in the frame, the
25 said boxes being divided into upper and lower sections, and the upper section sub-divided into two sections, and means for loosely hanging the upper sections of the box, and a shifting device for carrying the lower box section
30 to and from the upper sections, the opposing faces of the sections being beveled in opposite directions from the center bearing outward, of a car of essentially circular construction provided with trunnions adapted to be
35 received between the box sections, the trunnions having clutch faces, a drive shaft, and a shifting mechanism connecting the drive shaft with the trunnions of the car, as and
40 for the purpose set forth.

7. In a freight or parcel carrier, the combination, with a frame, boxes oppositely located in the frame and constructed in upper and lower sections, the upper section being
45 sub-divided into two sections, each sub-section being capable of free vertical movement, a shifting mechanism connected with the lower section of the boxes, and a locking device adapted for shifting engagement with
50 the upper sections of the boxes, of a car provided with trunnions, the trunnions being adapted to enter between the sections of the boxes, and find bearings therein, and a power mechanism for shifting engagement with the
55 trunnions of the car, as and for the purpose specified.

8. In a freight or parcel carrier, the combination, with a frame, boxes oppositely located within the frame, the boxes being made
60 in upper and lower sections and the upper section sub-divided into two independent sections, each having free vertical movement, and a shifting mechanism engaging with the lower box section, whereby it may be raised
65 and lowered, of a track located in the frame between the boxes, and a shifting device con-

nected with the track, whereby it may be raised and lowered, as and for the purpose specified.

9. In a freight or parcel carrier, the combination, with a frame, and boxes oppositely
70 located within the frame and constructed in two sections, the upper section being sub-divided into two independent sections having free vertical movement, the opposing faces of
75 the upper and lower box sections being beveled in opposite directions from a center bearing, of plates sliding in the frame and connected with the lower sections of the boxes, a tie bar connecting the upper ends of the
80 plates, a shifting mechanism engaging with the lower portions of the lower box sections whereby they may be raised and lowered, a brake having movement upon the frame between the boxes and adapted for lifting en-
85 gagement with the tie bar of the box slides, and a lever mechanism connected with the brake and with the shifting device of the boxes, as and for the purpose specified.

10. In a freight or parcel carrier, the combination, with a frame, boxes located within
90 the frame, constructed in upper and lower sections, the upper section being subdivided into two independent sections having free vertical movement, the opposing lower sections of the upper and lower box sections being
95 beveled in opposite directions, means for raising and lowering the lower sections, and a locking mechanism for shifting connection with the upper box sections, of a car constructed to roll upon a track and provided
100 with trunnions adapted to enter between the sections of the boxes, and a brake mechanism adapted for engagement with the periphery of the car, substantially as shown and described.
105

11. In a freight or parcel carrier, the combination, with a frame, boxes located within
110 the frame constructed in upper and lower sections, the upper sections being subdivided into two independent sections having free vertical movement, the opposing lower faces of the upper and lower box sections being
115 beveled in opposite directions, means for raising and lowering the lower sections, and a locking mechanism for shifting connection with the upper box sections, of a car constructed to roll upon a track and provided
120 with trunnions adapted to enter between the sections of the boxes, a brake mechanism adapted for engagement with the periphery of the car, a power mechanism for shifting engagement with the trunnions of the car, and means substantially as described for locking
125 the box sections substantially in engagement, as and for the purpose specified.

12. In a freight or parcel carrier, the combination, with a track, of a car of essentially
130 circular construction, the said car being provided with an annular rib adapted to extend between the rails of the track, flattened surfaces adjacent to the rib and adapted to en-

gage with the rails of the track, and trunnions having clutch faces as and for the purpose set forth.

13. In a freight or parcel carrier, the combination, with a track having an inclined section, and a car constructed to roll upon the track, of a combined power and relay station located over the track, the station being provided with adjustable boxes constructed
10 in sections and automatically operated and

adapted to journal the car, and a brake and a power mechanism, the brake being adapted for engagement with the periphery of the car and the power mechanism adapted for engagement with the axis of the car, as and for
15 the purpose specified.

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Witnesses:

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SAMUEL CUMMINS.