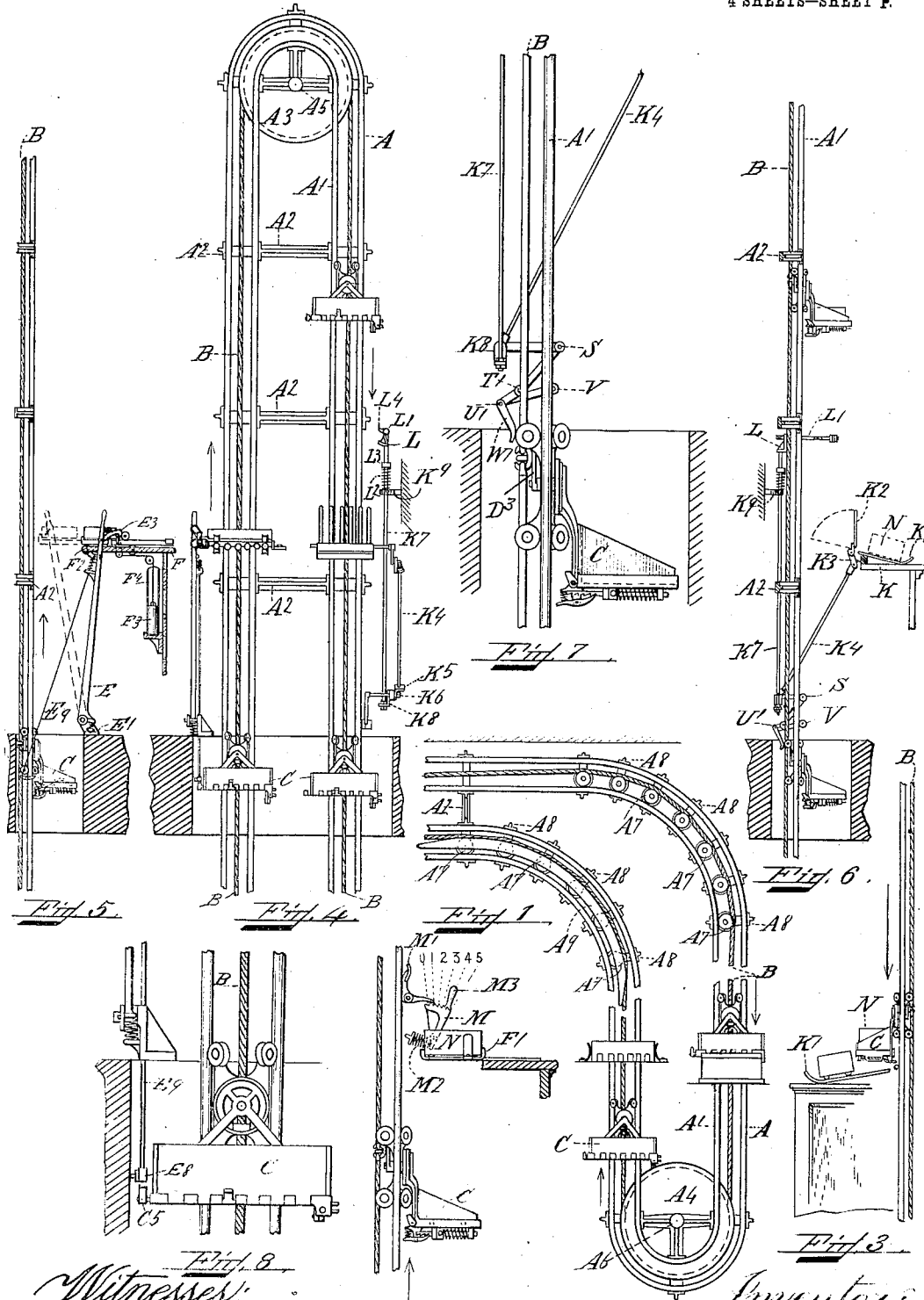


No. 869,295.

PATENTED OCT. 29, 1907.

J. T. COWLEY.
CONVEYING APPARATUS.
APPLICATION FILED JUNE 15, 1905.

4 SHEETS—SHEET P.



Witnesses:
L. E. Bartlett
H. Messer

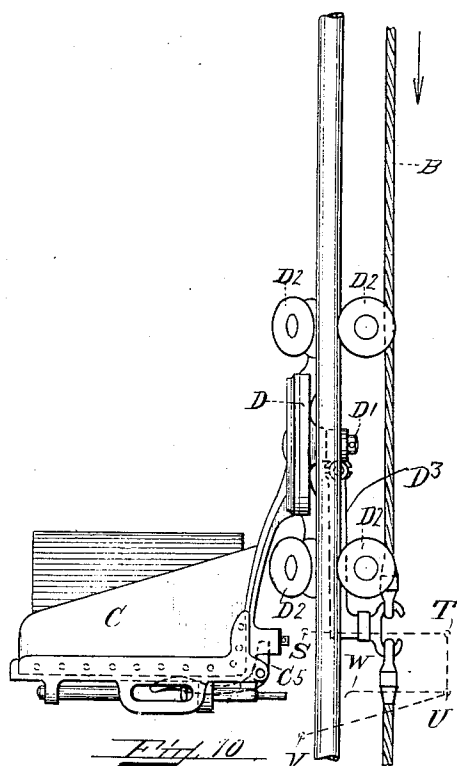
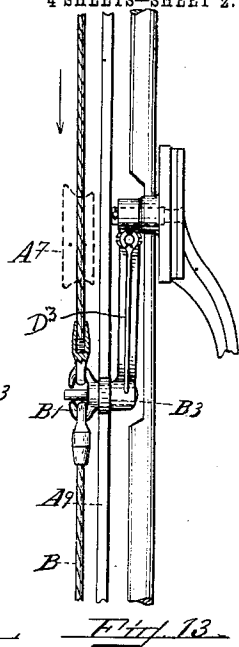
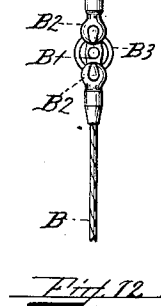
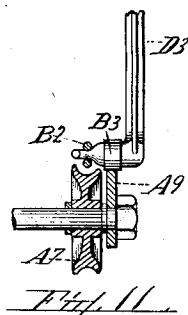
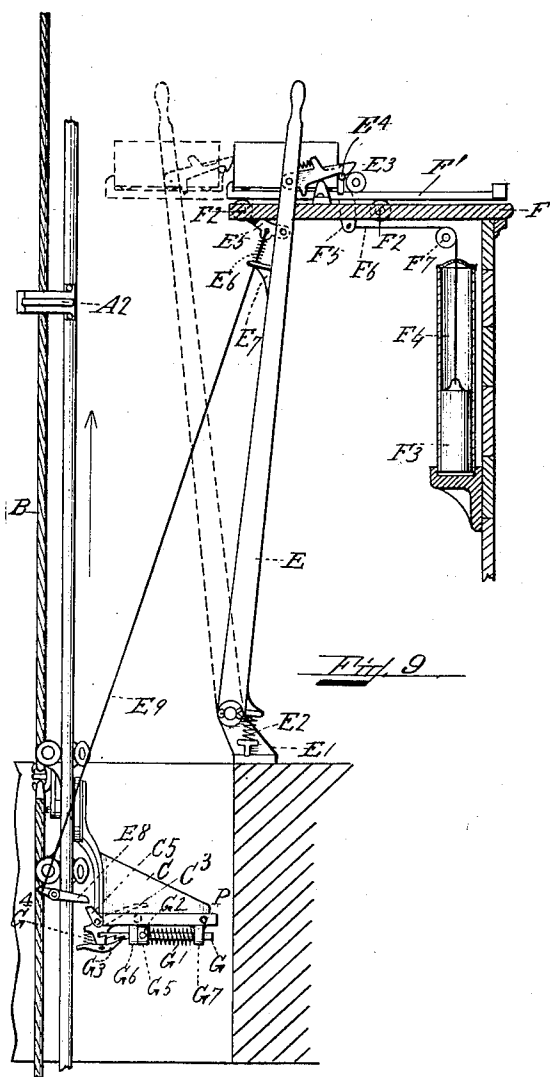
Inventor:
James T. Cowley
By E. C. Harcourt
Attorney

No. 869,295.

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APPLICATION FILED JUNE 15, 1905.

4 SHEETS—SHEET 2.



Witnesses:
L. G. Bartlett
A. H. Warner

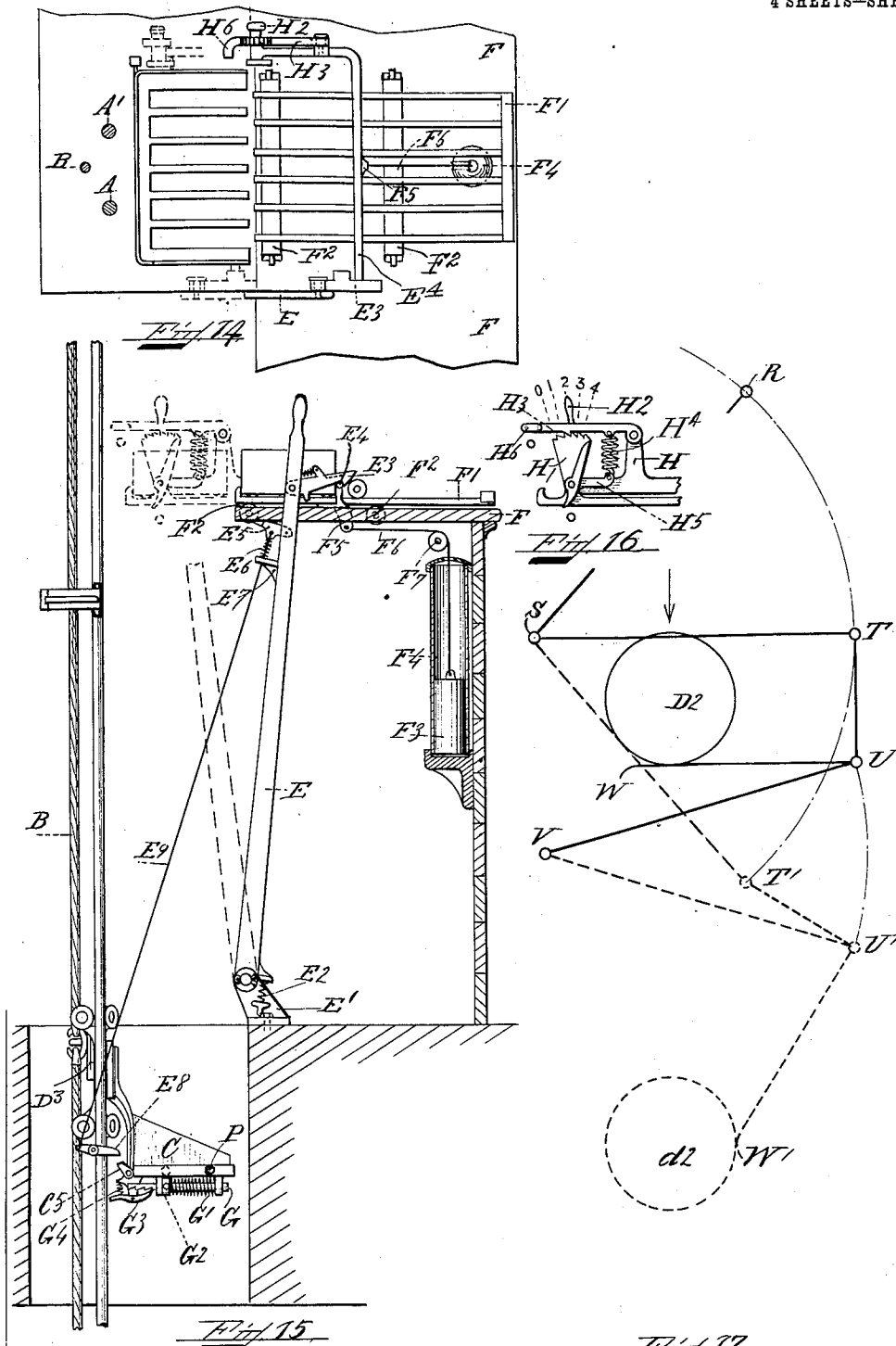
James T. Cowley
By E. C. Gilman
Attorney

No. 869,295.

PATENTED OCT. 29, 1907.

J. T. COWLEY.
CONVEYING APPARATUS.
APPLICATION FILED JUNE 15, 1905.

4 SHEETS—SHEET 3.



Witnesses:
L. G. Bartlett
H. J. Munn

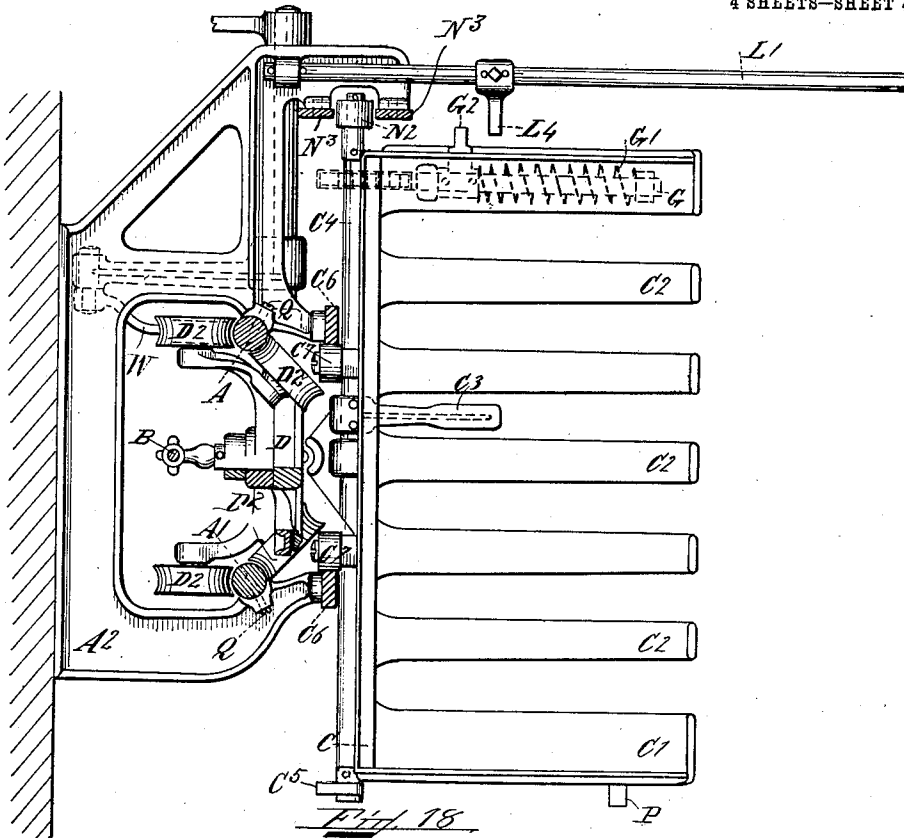
Inventor:
James T. Cowley
By E. C. Libman
Attorney

No. 869,295.

PATENTED OCT. 29, 1907.

J. T. COWLEY.
CONVEYING APPARATUS.
APPLICATION FILED JUNE 15, 1906.

4 SHEETS—SHEET 4.



Witnesses:
L. G. Bartlett
H. L. Munn

Inventor:
James T. Cowley
By E. C. Sullivan
J. O. Kusk, atty.

UNITED STATES PATENT OFFICE.

JAMES T. COWLEY, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO LAMSON CONSOLIDATED STORE SERVICE COMPANY, OF NEWARK, NEW JERSEY, A CORPORATION OF NEW JERSEY.

CONVEYING APPARATUS.

No. 869,295.

Specification of Letters Patent.

Patented Oct. 29, 1907.

Application filed June 15, 1905. Serial No. 285,316.

To all whom it may concern:

Be it known that I, JAMES T. COWLEY, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Con-

veying Apparatus, of which the following is a specification.

My invention relates to that class of endless cable conveyers in which a carrier traveling on tracks therein is utilized for lifting or lowering boxes or cases. This device is so constructed, combined and operated as to enable the said carrier to automatically pick up a load from a central or exchange despatching station located on the ground floor and deliver the said load without injury or shock thereto, to any one of a series of department receiving stations or floors located on said system. It also enables the said carrier to automatically pick up a load from any of a series of department despatching stations or floors and deliver the said load to any of said series of department receiving stations or to the central receiving station located on the ground floor.

My invention also provides means whereby a carrier conveying a load will pass a load waiting at any floor or despatching station, which load will be picked up by the next empty carrier.

In the accompanying drawings which illustrate a construction embodying my invention, Figure 1 is a front elevation of the central or exchange despatching and receiving stations. Fig. 2 is a side elevation of the central despatching station. Fig. 3 is a side elevation of the central receiving station. Fig. 4 is a front elevation of a department despatching and receiving station. Fig. 5 is a side elevation of a department despatching station. Fig. 6 is a side elevation of a department receiving station. Fig. 7 is an enlarged view of part of Fig. 6 showing the resetting mechanism. Fig. 8 is an enlarged view of part of Fig. 4. Fig. 9 is an enlarged view of the side elevation of department despatching station, Fig. 10 is an enlarged view of carrier with load. Fig. 11 shows a section of the cable guide wheels and a portion of the carrier rounding a corner. Figs. 12 and 13 show cable connections and method of holding same. Fig. 14 shows a modification of a department despatching station to make an intercommunicating system. Fig. 15 is a side elevation of the parts shown in Fig. 14. Fig. 16 is an enlarged view of the setting mechanism at each department despatching station. Fig. 17 is a diagrammatic view of the resetting mechanism at the department receiving stations for resetting the shelf. Fig. 18 is a plan view of the carrier.

Like letters of reference refer to like parts throughout the several views:

The tracks or guide rails A A' (Figs. 1 and 4) are held in position by the cross brackets A² and are fas-

tened thereto by the bolts Q. The grooved pulleys A³ A⁴ are journaled in the end-supporting brackets A⁵ A⁶ respectively and carry the endless cable B centrally between the tracks or guide rails A A', and at the turns the cable B is supported by the grooved idle pulleys A⁷ journaled in the brackets A⁸. The said cable B travels in the direction indicated by the arrows and is connected with and actuates the truck D to which is pivoted the carrier C by the rod D' (Fig. 10). This allows the carrier C to maintain an upright position regardless of the position of the truck D. The grooved guiding and supporting wheels D² are journaled in the truck D and cooperate with the tracks or guide rails A A' holding said truck D thereto regardless of the plane of travel of said truck. The arm D³ of the truck D is connected with the cable B by the swivel hook B' which is hooked to the eyes B². The roll B³ Fig. 11, 12 and 13 mounted between the swivel hook B' and the arm D³ is adapted to engage the rail A⁹ in rounding the corners, thereby holding the swivel connection from contact with the grooved cable supporting pulleys A⁷. The guide rails C⁶ (Fig. 18) are fixed to the brackets A² at all the stations and engage the rolls C⁷ on the carrier C holding said carrier steady in a central position. Guide rails N³ are also located at stations and adapted to steady the carrier by engaging the roll N².

The carrier C consists of the rack C' which carries the interspersed fingers C² and supports the load carried therein. The finger C³ fixed to the rod C⁴ pivoted in bearings extending from the carrier C projects above the top of the fingers C² except when the said carrier is loaded at which time the finger C³ is held flush with the rack C'. In this position of said finger C³ (Fig. 10) the cog C⁵ fixed to the rod C⁴ is thrown into a vertical position and will not operate upon the lever E⁸ which is pivoted to the framework at the department despatching stations.

The rod G is longitudinally movable in the bosses G⁶ G⁷ under the carrier C and is notched at one end. The pawl G³ is pivoted to the carrier C and is held in said notches by the spring G⁴. The pin G² is mounted in the collar G⁵ fixed to the rod G and the spring G' is mounted between the collar G⁵ and the boss G⁷.

The department despatching stations located on each floor consist each of the platform F (Fig. 9) carrying the rack F' mounted on the rolls F². The counterweight F³ mounted in the cylinder F⁴ is connected with the projection F⁵ fixed to the rack F' by the cord F⁶ carried over the pulley F⁷. The hand lever E is pivoted to the floor plate E' and is acted upon by the spring E². Near the top of said hand lever E is the spring-actuated pawl E³ adapted to engage the finger E⁴ fixed to the rack F'. The pawl E⁵ pivoted to the hand lever E is

held in a notch of the under side of the platform F by the spring E⁶ backed by the extension E⁷. The pawl E⁵ is connected with the lever E⁸ by the wire E⁹.

In the modification (Figs. 14, 15 and 16) of the department despatching stations, the setting mechanism shown in dotted lines Fig. 15 consists of the frame H fixed to the side of the rack F'. Pivoted to said frame H is the notched cam H' carrying the handle H², each notch thereon representing by number a department receiving station. The pawl H³ is pivoted to the frame H and held in engagement with the notches by means of the spring H⁴ connecting the said pawl H³ with the finger H⁵ of the notched cam H'. The projection H⁶ on the end of pawl H³ is adapted to be engaged by roll N² releasing the cam H'. The pin G² is adapted to cooperate with the cam H' when the rack F' is in the forward position. Each department receiving station (Fig. 6) consists of the platform K and inclined shelf K' mounted thereon and adapted to receive the load discharged from the rack K² fixed to the lever K³, which lever is pivoted to extensions on the platform K. The free end of said lever K³ is pivoted to the rod K⁴. The lower end of the rod K⁴ is fixed to the swivel K⁵ which is pivoted on the bolt K⁶. The lower end of the rod K⁷ is bolted to the swivel K⁸ which swivel is also pivoted on the bolt K⁶. The upper end of the rod K⁷ is movable in the support K⁹ fixed to the wall and engages the latch L which is fixed to the rod L' pivoted in the framework. The spring L² mounted between the support K⁹ and the collar L³ fixed to the rod K⁷ holds the end of said rod against the latch L. The finger L⁴ is fixed to the rod L' and at each station occupies a different position thereon.

The bolt K⁶ forms the pivot R of the combination of resetting levers R S T U V W (Fig. 17). The lever R S T is positionally pivoted on the framework at s. The lever T U W is connected thereto and works on the two movable pivots T and U and the lever V U is connected thereto by the movable pivot U and positionally fixed at the other end to the framework by the pivot V. D² is the grooved guide-wheel of the truck D which engages the lever W. The dotted lines show the position of the wheel D² at the rest or normal position of the levers T S T' U' V and W'.

The system consists of a main or central despatching station (Fig. 2) and a main or central receiving station (Fig. 3) both located on the ground floor. On each of the other floors are located a department despatching (Fig. 9) and a department receiving station (Fig. 6). All packages or boxes sent from any of the despatching stations and not discharged at any of the department receiving stations must discharge at the main or central receiving station in order to have the carrier empty to pick up any load awaiting at the central despatching station. All loads are picked up on the upward travel of the carrier C and all loads discharged on the downward travel of said carrier.

The operator desiring to send a load from the said central despatching station places the box or package N on the rack F' (Fig. 2). The setting cam M is then pulled out by the handle M³ until the pawl M' engages a notch in said cam M representing the department receiving station to which the box N is consigned. The carrier C traveling in the direction indicated by the arrow engages the rack F' at the central despatch-

ing station and picks up the box N. The said box N now presses the finger C³ (Fig. 18) down throwing the cog C⁵ into a position not cooperating with the lever E⁸ as heretofore described. The carrier continuing its travel passes the setting cam M; the pin G² riding upon the edge of said cam forces the rod G over until the pawl G³ (Fig. 9) engages a notch corresponding to the notch on the setting cam M. The roll N² on the end of rod C⁴ now engages the pawl M' releasing the setting cam M which is thrown into normal position by the spring M² and is ready for another consignment. The carrier is now set for the station designated, and on arriving above that station, the pin G² engages the finger L⁴, which finger L⁴ is fixed at that station to engage with the corresponding set position of the pin G² and trips the latch L (Fig. 6) releasing the rod K⁷ which throws up the rod K⁴ throwing the rack K² into the position shown by the dotted lines in said Fig. 6. The carrier C now engages the rack K² leaving the load thereon. When the roll D² of the said carrier reaches the lever W, it engages the said lever carrying it down and throwing the lever S down with the rods K⁴ and K⁷ into the position shown in dotted lines Fig. 17. The movement of the lever W being of greater velocity than the movement of the lever S the rod K⁴ slowly lifts the rack K² into a vertical position allowing the box N to gradually slide onto the shelf K'. The latch L now holds the rod K⁹ down and the mechanism is re-set awaiting another consignment to that station.

If the operator at one of the department despatching stations desires to send a load to the central receiving station, he places the box N on the rack F' (Fig. 9) and pulls the hand lever E back from its normal position shown in dotted lines until the latch E³ locks over the pin E⁴ on the rack F' and the pawl E⁵ engages a notch in the platform F. The cog C⁵ of the first empty carrier coming engages the lever E⁸ releasing the pawl E⁵ by means of the wire E⁹. The spring E² now acts upon the hand lever E forcing the rack F' forward into the position shown by the dotted lines (Fig. 15). Any jar or sudden forward movement of the rack is checked by the counterweight F³ which also acts as an air cushion. In this position, the carrier C in passing engages the rack F' lifting the load therefrom. The pin P on the carrier C then engages the end of the latch E³ releasing the rack F' which is pulled into normal position by the counterweight F³. As the pin G² has not been set by any cam and is in its normal position, the carrier C passes all department receiving stations and engages the rack K' at the central receiving station depositing the box N thereon.

If an intercommunicating system is desired and a load required to be sent from any one of the department despatching stations to any one of the department receiving stations, the operator at the department despatching station places the box N on the rack F' (see modification Fig. 15) and the hand lever E is pulled back as heretofore described until the latch E³ locks over the pin E⁴ and the pawl E⁵ engages a notch in the platform F. The setting cam H' is then pulled out until the latch H³ engages a notch representing the desired department receiving station. The next empty carrier trips the lever E⁸ throwing the rack F' forward as heretofore described, the box N is picked

up, the pin G² set to engage the finger L⁴ at the designated station by riding on the said setting cam H', the setting cam M returned to normal position by the roll N² engaging the projection H⁶ releasing the latch H³, and the pin P lifting the latch E³ allows the counterweight F³ to throw the platform and setting cam H' into initial position. The carrier C continues until it discharges the box N into the designated station as hereinbefore described.

10 Having thus described the nature of my invention and set forth a construction embodying the same, what I claim as new and desire to secure by Letters Patent of the United States is:

15 1. In a conveying apparatus, a framework, tracks mounted on said framework, a carrier adapted to travel on said tracks, means on said carrier for maintaining its load-supporting portion in an upright position, a cable mounted on said framework and adapted to actuate said carrier, despatching stations located along the upward path of travel of said carrier, receiving stations located along the downward path of travel of said carrier, adjustable means on said carrier and at said despatching stations for automatically picking up a load from any one of said despatching stations, and adjustable means on said carrier and at said receiving stations for automatically discharging said load into a predetermined receiving station.

2. In a conveying apparatus, a framework, tracks mounted on said framework, a carrier adapted to travel on said tracks, means on said carrier for maintaining its load-supporting portion in an upright position, a cable mounted on said framework and adapted to actuate said carrier, a central despatching station located on the upward path of travel of said carrier, department receiving stations located along the downward path of travel of said carrier, adjustable means on said carrier for co-operating with and picking up a load from said central despatching station, and adjustable means on said carrier for co-operating with mechanism upon said receiving stations for discharging said load upon a predetermined department receiving station.

3. In a conveying apparatus, a framework, tracks mounted on said framework, a carrier adapted to travel on said tracks, means on said carrier for maintaining its load-supporting portion in an upright position, a cable mounted on said framework and adapted to actuate said carrier, department despatching stations located along the upward path of travel of said carrier, a central receiving station located on the downward path of travel of said carrier, adjustable means on said carrier for co-operating with and picking up a load from any one of said department-despatching stations, and means on said carrier for co-operating with mechanism upon said central receiving station for discharging said load thereon.

4. In a conveying apparatus, a framework, tracks mounted on said framework, carriers adapted to travel on said tracks, means on said carriers for maintaining its load-supporting portion in an upright position, a cable mounted on said framework and adapted to actuate said carriers, despatching stations located along the upward path of travel of said carriers, receiving stations located along the downward path of travel of said carriers, means at any one of said despatching stations for holding a load and for engaging and moving said load-holding means into coöperation with the first empty carrier, means on said carrier for picking up said load, and means on said carrier for coöperating with mechanism upon said receiving stations for discharging said load upon a predetermined receiving station.

5. In a conveying apparatus, a framework, tracks mounted on said framework, carriers adapted to travel on said tracks, means on said carriers for maintaining its load-supporting portion in an upright position, a cable mounted on said framework and adapted to actuate said carriers, despatching stations located along the upward path of travel of said carriers, receiving stations located along the downward path of travel of said carriers,

means at any one of said despatching stations for holding a load and for engaging and moving said load-holding means into coöperation with the first empty carrier, means on said carrier for picking up said load, means for resetting said despatching station to normal position after said carrier has picked up the load, and means on said carrier for coöperating with mechanism upon said receiving stations for discharging said load upon a predetermined receiving station.

6. In a conveying apparatus, a framework, tracks mounted on said framework, carriers adapted to travel on said tracks, means on said carriers for maintaining the load-supporting portion in an upright position, a cable mounted on said framework and adapted to actuate said carriers, despatching stations located along the upward path of travel of said carriers, receiving stations located along the downward path of travel of said carriers, means at any one of said despatching stations for holding a load and for engaging and moving the load-holding means at said despatching station into coöperation with the first empty carrier, means on said carrier for picking up said load, adjustable means located on said carrier, selective means located at said despatching station for predetermining the receiving station which receives said load, said selective means engaging and setting said adjustable means, means for resetting the apparatus at said despatching station to normal position after said carrier has picked up the load, and means located at said predetermined receiving station for receiving said load and for engaging said adjustable means for moving said load-receiving means into coöperation with said carrier.

7. In a conveying apparatus, a framework, tracks mounted on said framework, carriers adapted to travel on said tracks, means on said carriers for maintaining the load-supporting portion in an upright position, a cable mounted on said framework and adapted to actuate said carriers, despatching stations located along the upward path of travel of said carriers, receiving stations located along the downward path of travel of said carriers, means at any one of said despatching stations for holding a load and for engaging and moving the load-holding means at said despatching station into coöperation with the first empty carrier, means located on said carrier for picking up said load, adjustable means located on said carrier, selective means located at said despatching station for predetermining the receiving station which receives said load, said selective means engaging and setting said adjustable means, means for resetting the apparatus at said despatching station to normal position after said carrier has picked up the load, means located on said carrier and operated upon by said load to enable said carrier to pass all other despatching stations without engaging same until said load has been discharged, and means located at said predetermined receiving station for receiving said load and for engaging said adjustable means for moving said load-receiving means into coöperation with said carrier.

8. In a conveying apparatus, a framework, tracks mounted on said framework, carriers adapted to travel on said tracks, means on said carriers for maintaining the load-supporting portion in an upright position, a cable mounted on said framework and adapted to actuate said carriers, despatching stations located along the upward path of travel of said carriers, receiving stations located along the downward path of travel of said carriers, means at any one of said despatching stations for holding a load and for engaging and moving the load-holding means at said despatching station into coöperation with the first empty carrier, means on said carrier for picking up said load, adjustable means located on said carrier, selective means located on said despatching station for predetermining the receiving station which receives said load, said selective means engaging and setting said adjustable means, means for resetting the apparatus at said despatching station to normal position after said carrier has picked up the load, means located on said carrier and operated upon by said load to enable said carrier to pass all other despatching stations without engaging same until said load has been discharged, means located at said predetermined receiving station for receiving

ing said load and for engaging said adjustable means for moving said load-receiving means into coöperation with said carrier, and means for resetting said receiving station to normal position after receiving said load.

5 9. In a conveying apparatus, a framework, tracks
mounted on said framework, carriers adapted to travel
on said tracks, means for maintaining the load-supporting
portion of said carriers in an upright position, a cable
10 mounted on said framework and adapted to actuate said
carriers, despatching stations located along the upward
path of travel of said carriers, receiving stations located
along the downward path of travel of said carriers, means
at any one of said despatching stations for holding a load
and for engaging and moving the load-holding means at
15 said despatching station into coöperation with the first
empty carrier, means on said carrier for picking up said
load, adjustable means located on said carrier, selective
means located at said despatching station for predeter-
mining the receiving station which receives said load, said
20 selective means engaging and setting said adjustable
means, means for resetting the apparatus at said despatch-
ing station to normal position after said carrier has picked
up said load, means located on said carrier and operated
upon by said load to enable said carrier to pass all other
25 despatching stations, without engaging same until said
load has been discharged, means located on said prede-
termined receiving station for receiving said load and for
engaging said adjustable means for moving said load-
receiving means into coöperation with said carrier, and
30 pivoted means for resetting the apparatus at said receiv-
ing station to normal position after receiving said load.

10. In a conveying apparatus, a framework, tracks
mounted on said framework, carriers adapted to travel on
said tracks, means for maintaining the load-supporting
35 portion of said carriers in an upright position, a cable
mounted on said framework and adapted to actuate said
carriers, despatching stations located along the upward
path of travel of said carriers, receiving stations located
along the downward path of travel of said carriers, means
40 at any one of said despatching stations for holding a load
and for engaging and moving the load-holding means at
said despatching station into coöperation with the first
empty carrier, means on said carrier for picking up said
load, adjustable means located on said carrier, selective
45 means located at said despatching station for predeter-
mining the receiving station which receives said load,
said selective means engaging and setting said adjustable
means, means for resetting the apparatus at said despatch-
ing station to normal position after said carrier has picked
50 up the load, means for resetting said selective means,
means located on said carrier and operated upon by said
load to enable said carrier to pass all other despatching
stations without engaging same until said load has been
discharged, means located at said predetermined receiving
55 station for receiving said load and for engaging said ad-
justable means for moving said load-receiving means into
coöperation with said carrier, and pivoted means for re-
setting the apparatus at said receiving station to normal
position after receiving said load.

60 11. In a conveying apparatus, a framework, tracks
mounted on said framework, carriers adapted to travel on
said tracks, means for maintaining the load-supporting
portion of said carriers in an upright position, a cable
65 mounted on said framework and adapted to actuate said
carriers, despatching stations located along the upward
path of travel of said carriers, receiving stations located
along the downward path of travel of said carriers, means
at any one of said despatching stations for holding a
load and for engaging and moving the load-holding means
70 at said despatching station into coöperation with the first
empty carrier, means on said carrier for picking up said

load, adjustable means located on said carrier, selective
means located on said despatching station for determin-
ing the receiving station which receives said load, said
selective means engaging and setting said adjustable means,
75 means for resetting the apparatus at said despatching
station to normal position after said carrier has picked
up the load, means located on said carrier and operated
upon by said load to enable said carrier to pass all other
despatching stations without engaging same until said
80 load has been discharged, means located at said prede-
termined receiving station for receiving said load and for
engaging said adjustable means for moving said load-
receiving means into coöperation with said carrier, and
pivoted means operated upon by said carrier for resetting,
85 the apparatus at said receiving station and transferring
said load therefrom.

12. In a conveying apparatus, a framework, tracks
mounted on said framework, carriers adapted to travel
on said tracks, means for maintaining the load-supporting
90 portion of said carriers in an upright position, a cable
mounted on said framework and adapted to actuate said
carriers, despatching stations located along the upward
path of travel of said carriers, receiving stations located
along the downward path of travel of said carriers, means
95 at any one of said despatching stations for holding a load
and for engaging and moving the load-holding means at
said despatching station into coöperation with the first
empty carrier, means on said carrier for picking up said
load, adjustable means located on said carrier, selective
100 means located at said despatching station for predeter-
mining the receiving station which receives said load,
said selective means engaging and setting said adjustable
means, means for resetting the apparatus at said despatch-
ing station to normal position after said carrier has picked
105 up the load, means located on said carrier and operated
upon by said load to enable said carrier to pass all other
despatching stations without engaging same until said
load has been discharged, means located at said prede-
termined receiving station for receiving said load and for
engaging said adjustable means for moving said load-
110 receiving means into coöperation with said carrier, and
pivoted reducing means operated upon by said carrier for
resetting the apparatus at said receiving station and for
transferring said load therefrom at a relatively lower
115 speed than the speed of travel of said carrier.

13. In a conveying apparatus, a track or way, a carrier
adapted to travel on said way, despatching stations lo-
cated along the path of travel of said carrier, receiving
stations located along the path of travel of said carrier,
120 adjustable means on said carrier and at said despatching
stations for picking up a load from any one of said
despatching stations, and means on said carrier and at
said receiving stations for discharging said load into any
one of said receiving stations.

14. In a conveying apparatus, a track or way, a carrier
adapted to travel on said way, despatching stations located
along the path of travel of said carrier, receiving sta-
tions located along the path of travel of said carrier,
130 adjustable means on said carrier and at said despatching
stations for automatically picking up a load from any
one of said despatching stations, and adjustable means on
said carrier and at said receiving stations for automatic-
ally discharging said load into any one of said receiving
stations.

In testimony whereof, I have signed my name to this
specification in the presence of two subscribing witnesses.

JAMES T. COWLEY.

Witnesses:

WM. WILCOX,
WILLARD A. MARCY.