

(No Model.)

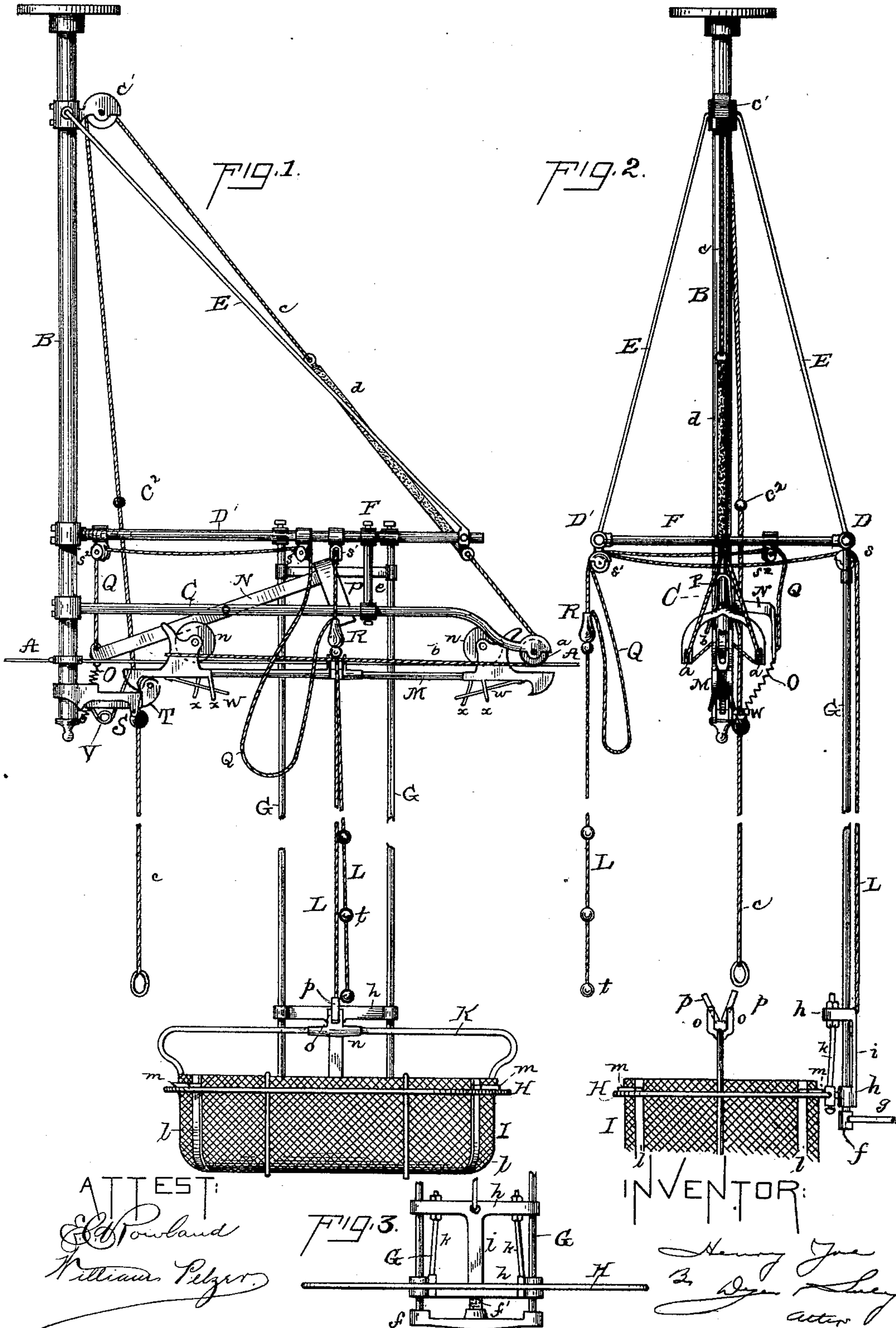
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H. YOE.

STORE SERVICE APPARATUS.

No. 413,996.

Patented Oct. 29, 1889.



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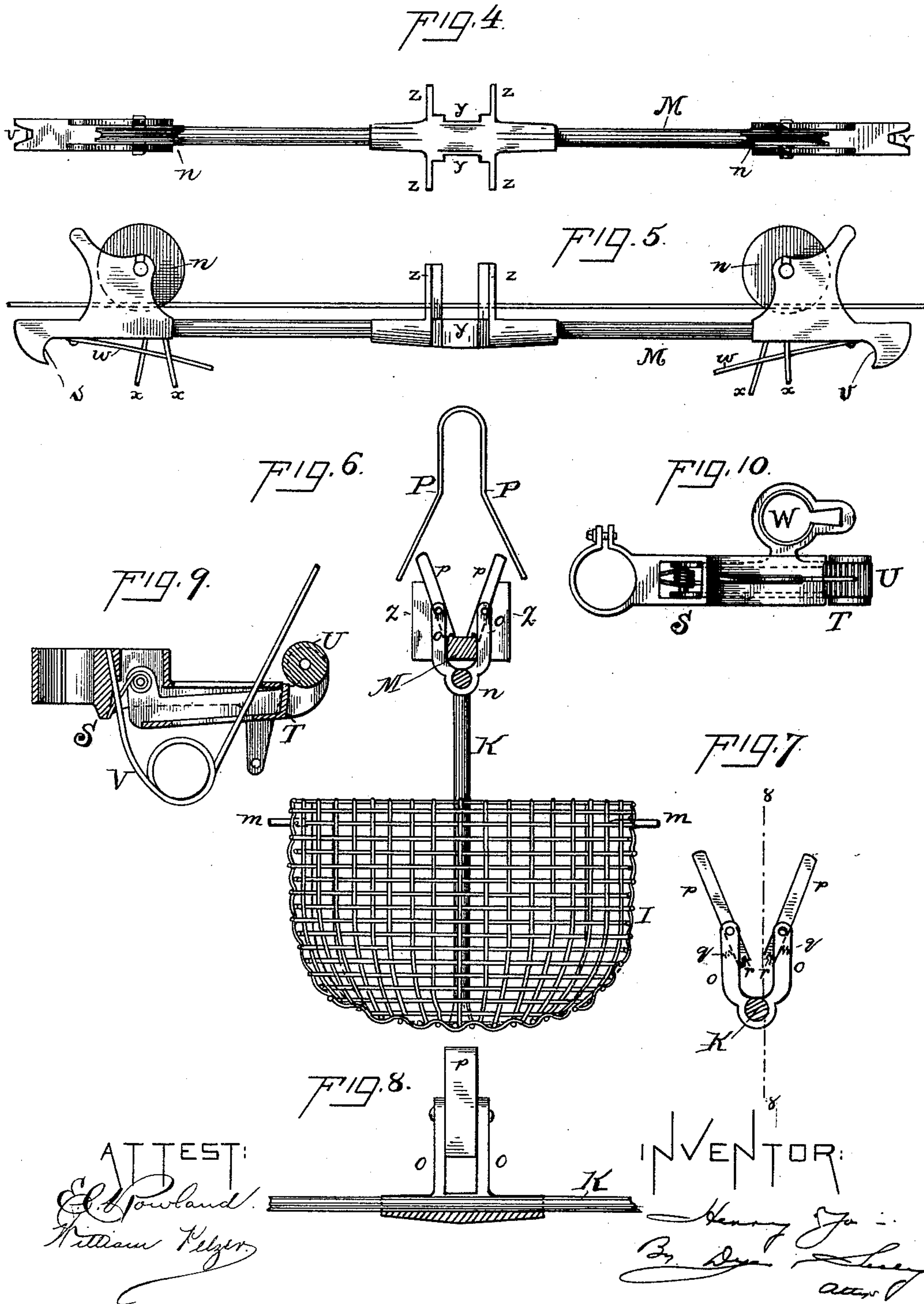
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UNITED STATES PATENT OFFICE.

HENRY YOE, OF DETROIT, MICHIGAN, ASSIGNOR TO THE RAPID SERVICE
STORE RAILWAY COMPANY, OF SAME PLACE.

STORE-SERVICE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 413,996, dated October 29, 1889.

Application filed May 16, 1887. Serial No. 238,316. (No model.)

To all whom it may concern:

Be it known that I, HENRY YOE, of Detroit, in the county of Wayne and State of Michigan, have invented a certain new and useful
5 Improvement in Store-Service Apparatus, of which the following is a specification.

My invention relates mainly to store-service apparatus for transporting articles from one point in a store to another, in which a car runs
10 upon an elevated wire way carrying a detachable basket or parcel-receptacle suspended beneath it, and especially to store-service apparatus in which the car is propelled by a spring-impulse from one end of the wire way
15 to the other.

The main object of my invention is to provide simple and efficient devices for raising and lowering the parcel-receptacle to and from the car and for attaching it to the car and releasing it therefrom, and also to provide means
20 for steadying the receptacle or preventing it from swinging while attached to the car, and to provide an efficient catch and buffer for stopping and holding the heavily-loaded car
25 at the end of the way.

My invention consists in the novel devices and combinations of devices employed by me in accomplishing the above-named objects, as hereinafter set forth and claimed.

30 My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the carrier and the devices at one end of the way; Fig. 2, a front view of the same; Fig. 3, a side view
35 of a portion of the elevator for raising and lowering the receptacle; Fig. 4, a top view of the middle portion of the car; Fig. 5, a side elevation of the car; Fig. 6, a section of the receptacle attached to the car, the car being
40 also in section and the catches and releasing device being in elevation; Fig. 7, an enlarged view of the catch, which forms part of the receptacle; Fig. 8, a section on line 8 8 of Fig. 7; Fig. 9, a longitudinal section of the catch
45 and buffer-plate, and Fig. 10 a top view of the same.

A is a portion of the wire way. At the end of such way, supported suitably from the ceiling or wall, is the vertical standard B. This
50 standard has a horizontally-extending arm C,

having a forked end carrying two rollers *a a*, over which rollers the loop *b* of cord *c* passes, which cord extends up over the roller *c'* on the standard B and hangs down within reach of the operator. The cord *c* has interpolated in it the rubber spring *d*, and the loop *b* lies upon the wire A, so that it is caught by the car, and the spring may be stretched against the car by drawing down on the cord *c*, so that when such spring is released it will propel the car upon the way. This is the ordinary construction in store-service apparatus of the character referred to. Above the arm C the curved branching arms D D' extend out horizontally from the standard B, being supported, also, by braces E, extending from the ends of said arms to near the top of the standard. A cross-rod F extends across the arms D D', and from the middle of this arm a standard *e* extends down to the arm C, whereby a strong and firm support for the elevator is provided. Two vertical standards or rods G G extend down from the arm D, on which rods the elevator slides up and down. These rods are joined at their lower ends by a cross-bar *f*, and preferably are also braced by a brace *g*, attached to the wall or elsewhere. The cross-bar *f* has upon it a rubber cushion or buffer *f'*. This elevator consists of two bars *h h*, each having an eye at each end, through which the rods G G pass, such bars being joined by the vertical bar *i* and the brace-rods *k k*. From the lower end of the sliding frame thus formed extends out the curved loop or holder H, made of heavy wire or of a curved metal bar. This is the holder for the parcel-receptacle, which consists of a wire basket I, having straps *l* on its sides, from which extend the lugs or fingers *m*, which rest upon the holder H when the basket is in the elevator. The basket has a bail K, upon the middle of which is fixed a sleeve *n*, from which extends upwardly a forked piece *o*, on which are pivoted the two arms or catches *p p*, held normally by springs *q* in the position shown in Fig. 7, and having notches *r* at their lower ends. A cord L is attached to the upper cross-bar of the elevator and extends up and over the two pulleys *s s'* on the upper sup-
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porting-frame, hanging down on the other side and being provided with buttons *t* for holding it.

The carrier consists of a body *M*, suspended
5 from grooved rollers *n n*, which ride on the wire *A*. The carrier has downwardly-extending hooked ends, and each end has a notch *v*. Near each end, on the bottom of the car, is a flat spring *w*, which is placed between the
10 two fingers *x x*. The body *M* has an enlarged middle portion, with a recess *y* at each side, and guide-plates *z z* extending outwardly and upwardly at each side of the recess.

Mounted upon the arm *C* is a releasing device for the receptacle, (shown as consisting of the pivoted bar *N*,) normally held in the position shown in Fig. 1 by the spring *O*, extending from one end of said bar to a stationary part of the apparatus, and having at
20 its other end the downwardly - extending forked head *P P*. To the other end of bar *N* is attached the cord or connection *Q*, passing over the pulleys *s² s²* and terminating in a perforated knob *R*, placed upon the cord *L*.
25 The cord *Q* may, however, hang down independently of cord *L*.

Attached to the standard *B* is the plate *S*. This has within it the hinged spring-catch *T*, which has at its outer end the friction-roller
30 *U*, having a surface of corrugated rubber. A stiff wire spring *V* is held at the inner end of the catch-plate, being made into a spiral below the same, and extends up through slots in the plate *S* and catch *T* behind the roller
35 *U* and in the path of the carrier. This spring acts as a buffer for the carrier. The hinged catch *T* is provided with an eye *W* at one side, through which the cord *c* passes, such cord having a button *c²* for engaging with the
40 hinged catch to trip it.

The operation of these devices is as follows: Suppose the elevator to be lowered and the basket *I* placed upon it, the lugs *m* resting upon the holder *H*, and said basket being
45 filled with the articles to be transported. Then by drawing down the cord *L* the elevator and basket are raised, sliding upon the standards *G G* until they reach the car. The spring-catches *p p* enter the recesses *y y*, and are
50 forced apart against their springs, being guided by the plates *z z* until their lower ends are above the body of the carrier, when they come together again above said body, their notches *r* engaging with the corners of said
55 body, so that the basket becomes suspended from the car. Then by releasing the pull on the cord *L* the elevator is allowed to descend by its own weight. The bail *K* enters between the two parts of fingers *x*, and the
60 springs *w* bear on said bail, so as to steady the basket at each end and keep it from swinging. It is also held firmly at its center. The carrier is then propelled upon the way by drawing down upon the cord *c* and dis-
65 tending the spring until the button *c²* meets the pivoted catch *T*. When such catch is

drawn down, the roller *U* is disengaged from the hooked end of the carrier, and the force of the spring propels the carrier to the other end of the way, where a similar apparatus is
70 usually provided. When the carrier returns to the station, it catches up the loop *b* in its movement, and its hooked end then rides over the roller *U*, so that the carrier is caught and strikes the stiff spring *V*, said spring
75 entering the notch *v*, so as to be stopped easily and without excessive shock. This forms a very efficient buffer for use with a heavily-loaded carrier. The roller *U*, being allowed to turn as the carrier strikes
80 it, also assists in gradually stopping the car and receives itself but little shock or strain. The operator now raises the elevator by drawing the cord *L* down to near the basket, and he then pulls down on the cord *Q*, the knob
85 *R* of which is brought within his reach by the downward movement of cord *L*, and this brings the elevator close to the carrier, and at the same time moves the bar *N*, so that the
90 forked head *P* moves down on either side of the catches *p p* and presses their upper ends together, thereby releasing their lower ends from engagement with the carrier and per-
95 mitting the basket to enter the elevator, which is directly below it. The elevator is then allowed to descend with the basket.

What I claim is—

1. In store-service apparatus, the combination of a way, a carrier placed thereon, a receptacle, devices for detachably securing the
100 receptacle to said carrier, an elevator for raising and lowering said receptacle, a cord for raising the elevator, a releasing device, and a separate cord for operating the releasing device, substantially as set forth. 105

2. In store-service apparatus, the combination, with the way and the carrier thereon having a detachable receptacle, of the vertical standard at the end of the way, an arm
110 extending from said standard, rods extending downwardly from said arm, a frame sliding on said rods, and the holder attached to said frame for the parcel-receptacle, substantially as set forth.

3. In store-service apparatus, the combination, with the way and the carrier thereon, of the vertical standard at the end of the way, the propelling device in front of the stand-
115 ard, the branching arms extending out from said standard, the vertical rods extending down from one of said arms at the side of the way, the frame sliding on said rods, and the
120 holder projecting from said frame under the way for holding the parcel-receptacle, substantially as set forth. 125

4. In store-service apparatus, the combination, with the way and the carrier thereon, of the elevator consisting of a sliding frame and a laterally-extending holder consisting of a
130 continuous loop attached to said frame, and the parcel-receptacle fitting within the holder and having lugs or projections adapted to

rest thereon, said receptacle being adapted to detachably engage said carrier, substantially as set forth.

5 In store-service apparatus, the combination, with the way and the carrier thereon, of the parcel-receptacle, two arms pivotally mounted above the receptacle, connected thereto, and held together at their lower ends by springs, and adapted to engage said
10 carrier when they pass above it by the upward movement of the receptacle, substantially as set forth.

6 In store-service apparatus, the combination, with the way and the carrier thereon, of
15 the receptacle detachably engaging with said carrier at its middle part, and a spring near each end of the carrier contacting with said receptacle to steady it, substantially as set forth.

20 7. In store-service apparatus, the combination, with the way and the carrier thereon, of the parcel-receptacle having attached above it the two pivoted arms held together at their lower ends by springs and adapted to engage
25 said carrier when they pass above it by the upward movement of the receptacle, a releasing device for forcing said arms apart, and a connection extending within reach of the operator for moving said device, substan-
30 tially as set forth.

8. In store-service apparatus, the combination, with the way and the carrier thereon, of the parcel-receptacle having attached above
35 it the two pivoted arms held together at their lower ends by springs and adapted to engage said carrier when they pass above it by the upward movement of the elevator, the pivoted spring-retracted bar provided with a forked head adapted to descend on each side

of said pivoted engaging-arms, and the cord 40 for moving said bar against its spring, substantially as set forth.

9. The combination of the way, the carrier thereon, and the receptacle adapted to detachably engage said carrier, said carrier be- 45 ing provided with the downwardly-extending fingers, and the flat spring at each end for steadying the receptacle, substantially as set forth.

10. In store-service apparatus, the combina- 50 tion of the way, the carrier thereon having a hooked end, and the hinged catch carrying a corrugated roller, with which said hooked end of the carrier engages, substantially as set forth. 55

11. In store-service apparatus, the combination of the way, the carrier thereon having a hooked end, the catch-plate, the hinged catch supported thereby, and the coiled spring at- 60 tached rigidly to said plate at one end and its other end projecting into the path of the carrier, substantially as set forth.

12. In a store-service apparatus, the combination, with a standard, a lateral arm on the standard, and a track beneath the arm, of a 65 car on the track, an automatic latching device carried by the receptacle for connecting the receptacle to the car, a guide supported by the lateral arm, and an elevator mounted on said guide and having a holder to engage 70 lugs on the receptacle, substantially as described.

This specification signed and witnessed this 11th day of May, 1887.

HENRY YOE.

Witnesses:

FRANK A. REILLY,
GEORGE MAITLAND.