(No Model.)

R. N. DYER.

ELECTRICAL STORE SERVICE APPARATUS.

No. 395,961. Patented Jan. 8, 1889.

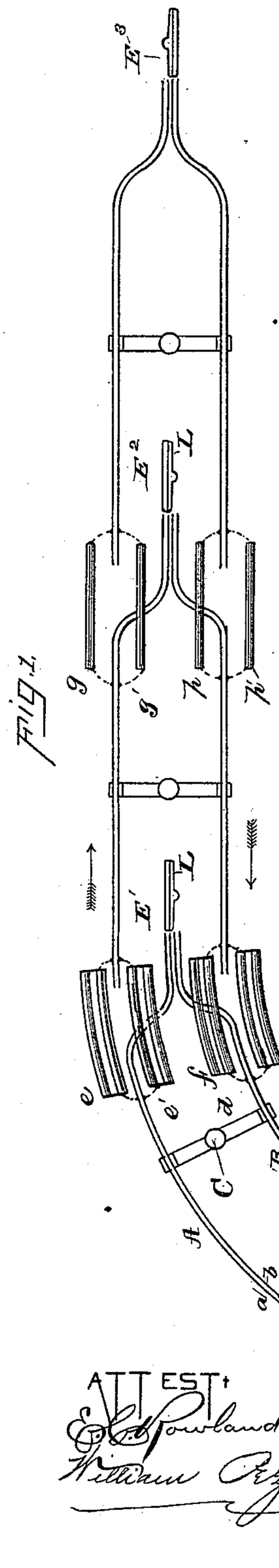

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 6.

Fig. 5.

Fig. 7.

ATTEST:

E. L. Rowland.

William Peter

INVENTOR:

Richard N. Dyer

By Dyer & Lacey

atty

UNITED STATES PATENT OFFICE.

RICHARD N. DYER, OF EAST ORANGE, NEW JERSEY.

ELECTRICAL STORE-SERVICE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 395,961, dated January 8, 1889.

Application filed July 1, 1887. Serial No. 243,115. (No model.)

To all whom it may concern:

Be it known that I, RICHARD N. DYER, of East Orange, in the county of Essex and State of New Jersey, have invented a certain new and useful Improvement in Electrical Store-Service Apparatus, of which the following is a specification.

The object I have in view is to produce a simple and efficient apparatus for carrying cash or parcels in stores, the traveling carriers of which will be operated by electrical energy, and which will have outgoing and returning ways.

The invention consists in the several novel features of construction and arrangement, and in the various novel combinations of parts, all as more fully hereinafter explained, and pointed out by the claims.

In the accompanying drawings, forming a part hereof, Figure 1 is a top view of the way and its electrical connections; Fig. 2, a cross-section through the way, showing a support therefor in elevation; Fig. 3, a vertical section through one of the station turn-tables; Fig. 4, a top view of one of such station turn-tables; Fig. 5, an end elevation of one of the carriers with its frame partly broken away, and Fig. 6 a view of the commutator and collecting-disks of the carrier.

The way of my apparatus is composed of two metal strips, *a b*, placed together and parallel and in the same horizontal plane. These strips are mounted at intervals in blocks *c*, of insulating material. The blocks for the outgoing and returning ways A B are supported on opposite ends of cross-arms *d*, which are hung at their centers on pendent rods or pipes C, or supported by standards. This character of support leaves the ways clear on their outer sides for the passage of the depending bails of the carriers. The dynamo-electric machine, battery, or other source of electrical energy (shown in diagram at D) is connected from one pole to the outer tracks, *a*, of both ways and from its other pole to the inner tracks, *b*, of both ways, so that the current passes in one direction through both outer tracks and in the other direction through both inner tracks. The function of these peculiar connections will appear hereinafter. The ways A B are supported by the arms *d* a suitable distance apart. At the cashier's station E the ways are preferably connected by a circular section of track, D′, which is not connected with the electric circuit, it being intended that the carriers as they come upon this disconnected section shall be arrested by suitable dampers or flaps of flexible material hanging in their path of travel, and that when ready for returning to the sales-station they will be pushed out upon the outgoing way A.

The system illustrated is one having three sales-stations, E′, E², and E³, although any suitable number can be provided for. For switching from the ways to the stations and vice versa, I prefer to break each way at each station and deflect it laterally to the station, the carriers for succeeding stations being bridged over the breaks by arched switching-plates, as described with respect to one way in other applications for patents, Serial Nos. 242,818 and 242,819. As shown in this case, the tracks of the ways A B as they approach each sales-station from the cashier's station are deflected toward each other into the space between the ways. These breaks are bridged at the sales-station E′ by parallel switching-plates *e e′* and *f f′* and at the sales-station E² by parallel switching-plates *g g′* and *h h′*, all of which switching-plates are electrically connected with the tracks *a b*, so as to form parts of the circuit, as shown by the dotted lines. The plates *e e′* and *f f′* are set closer together than the plates *g g′* and *h h′*, as will be understood from my applications referred to. The carriers F for stations E² and E³ have small switching-wheels *i i′* on their driving-shafts *k*, which are set farther apart on the carriers for station E³ than on the carriers for station E², the carriers for station E² running between the switching-plates *g g′* and *h h′* without catching. The carriers for station E′ have no switching-wheels, but in all other respects are like the carrier shown in Fig. 5. All the carriers have each two brass wheels, G G′, mounted on the shaft *k*, which is divided electrically by insulation between the wheels. The driving-wheels G G′ carry soft-iron armatures H H′, on which act electro-magnets I I′, supported by the frame K of the carrier. This frame is electrically divided by insulation at its top, and on one side hangs down below the

track, forming a bail, K′, for the receptacle K². This carrier is fully described in one of my applications before referred to. The driving-shaft *k* has a metal disk, *l*, on one side, on which bears a spring, *l′*, insulated from the frame and connected by wires with both magnets. On the other side the shaft *k* has a commutator-disk, *m*, provided with segments of insulation *m′ m²*, on which commutator-disk bear springs *n n′*, connected each with one of the magnets. The magnets being set at right angles to each other, they will be energized alternately and will attract the armatures alternately, thus producing a continuous rotation of the driving-wheels. Since, as will be explained further on, the carriers have the same relation to the electric circuit, whether on the outgoing way or on the returning way, it is not necessary to shift the commutator, as described in a former application of the electrical carrier designed to run back and forth on the same way, and hence the commutator-disk *m* is fixed directly to the shaft *k*.

At each sales-station I provide a turn-table, L, which is a platform mounted on a turning pipe, L′, extending down to the counter. This platform has parallel strips *a′ b′* to receive the carrier. In the normal position of the turn-table the strips *a′ b′* are in line with the outgoing track A, as shown at stations E′ and E². The carrier runs upon the turn-table from the track A and strikes a pivoted spring-stop, *o*, which is a latch pivoted on a sliding block, *o′*, backed up by a spring, *o²*. A cord, *p*, extends from the stop *o* down to within reach of the saleswoman. The spring-stop *o* arrests the movement of the carrier, the circuit through the motor on the carrier being broken as it leaves the way A. As the carrier strikes the stop *o* it rides over a spring-pawl, *q*. This is pivoted to a sliding block, *q′*, which is backed up by a spring, *q²*, extending to another sliding block, *q³*. A stationary shaft, M, projects up through the turning pipe L′ and carries a grooved wheel, *r*, on its upper end, to which is attached a cord or wire, *r′*, extending to the sliding block *q³*. A weight, *s*, attached to the block *q³* retracts it to its normal position.

The operation of these turn-table devices is as follows: The carrier runs in upon the turn-table, rides over the pawl *q*, and is arrested by the spring-stop *o*. When it is desired to return the carrier to the cashier, the turn-table is turned a half-revolution by the handle *l*, bringing the turn-table tracks into line with the tracks of the returning way B, as shown at sales-station E³ in Fig. 1. This movement causes the cord *r′* to wind up on the wheel *r*, drawing the block *q³* forward and putting the spring *q²* under tension against the carrier. The cord *p* is now pulled by the operator, withdrawing the stop *o* from in front of the carrier, and the carrier is forced by the spring *q²* upon the returning-way B, and is started in its return movement upon such way, so as to cause the electric motor to operate. The turn-table is then returned to its normal position. By means of the turn-table the bail of the carrier is brought upon the outside of the return way, where it meets no obstructions, and the carrier is caused to travel with the same end forward as when upon the outgoing way, the motor having the same circuit relations upon both ways.

What I claim is—

1. In electrical store-service apparatus, the combination, with two ways, each composed of two parallel tracks placed close together, of supports connecting such ways together and supporting them from their inner sides, whereby the tracks will be left clear upon their tops and their outer sides and beneath for the movement of the carrier-receptacles, wheeled carriers traveling on such ways and having electric motors by which they are driven, taking current from the tracks, and provided with bails hanging down on the outer side of the ways and curved laterally beneath such ways to support the receptacles, and a source of electrical energy connected with the tracks of both ways, substantially as set forth.

2. In electrical store-service apparatus, the combination, with outgoing and returning ways, each consisting of two tracks, and carriers with electric motors traveling upon such ways, of a source of electric energy connected from one pole to the inner tracks of the two ways and from the other pole to the outer tracks, and a turn-table for reversing the position of the carrier in shifting from one way to the other, substantially as set forth.

3. In an electrical store-service apparatus, the combination, with the two ways supported and connected together on their inner sides, of carriers having electric motors traveling on such ways and provided with bails depending on one side, and a turn-table for reversing the position of the carriers in shifting them from one way to the other, substantially as set forth.

4. In electrical store-service apparatus, the combination, with carriers having depending bails, of outgoing and returning ways, each of which is broken and deflected laterally at stations, and bridging switching-plates at such breaks for lifting carriers to or from succeeding stations over such breaks, substantially as set forth.

5. In electrical store-service apparatus, the combination, with carriers having depending bails, of outgoing and returning ways, each of which is broken and deflected laterally at stations, and bridging switching-plates at such breaks for lifting carriers to or from succeeding stations over such breaks, and a turn-table at each sales-station for reversing the position of the carriers in shifting from one way to the other, substantially as set forth.

6. In electrical store-service apparatus, the combination, with outgoing and returning ways, each consisting of two tracks, and carriers with electric motors traveling upon such ways, of a turn-table for reversing the posi-

tion of the carrier in shifting from one way to the other, and a spring which is put under tension by the turning of the table and acting when the carrier is released to start it onto the return way, substantially as set forth.

7. In electrical store-service apparatus, the combination, with outgoing and returning ways, each consisting of two tracks, and carriers with electric motors traveling upon such ways, of a turn-table for reversing the position of the carrier in shifting from one way to the other, a spring-stop with pivoted releasing-latch, and a spring starting device with a pivoted latch over which the carrier rides, substantially as set forth.

8. In electrical store-service apparatus, the combination, with outgoing and returning ways, each consisting of two tracks, and carriers with electric motors traveling upon such ways, of a turn-table for reversing the position of the carrier in shifting from one way to the other, a turning pipe on which the turn-table is mounted, a stationary shaft within said pipe, a spring mechanism for starting the carrier on its return journey, and a connection between the stationary rod and the spring, substantially as set forth.

9. In electrical store-service apparatus, the combination, with outgoing and returning ways having each two tracks connected with the source of electrical energy, of a section of track disconnected from the circuit and joining the ways together at the cashier's end, substantially as set forth.

This specification signed and witnessed this 30th day of June, 1887.

RICHARD N. DYER.

Witnesses:

WILLIAM PELZER,

E. C. ROWLAND.