

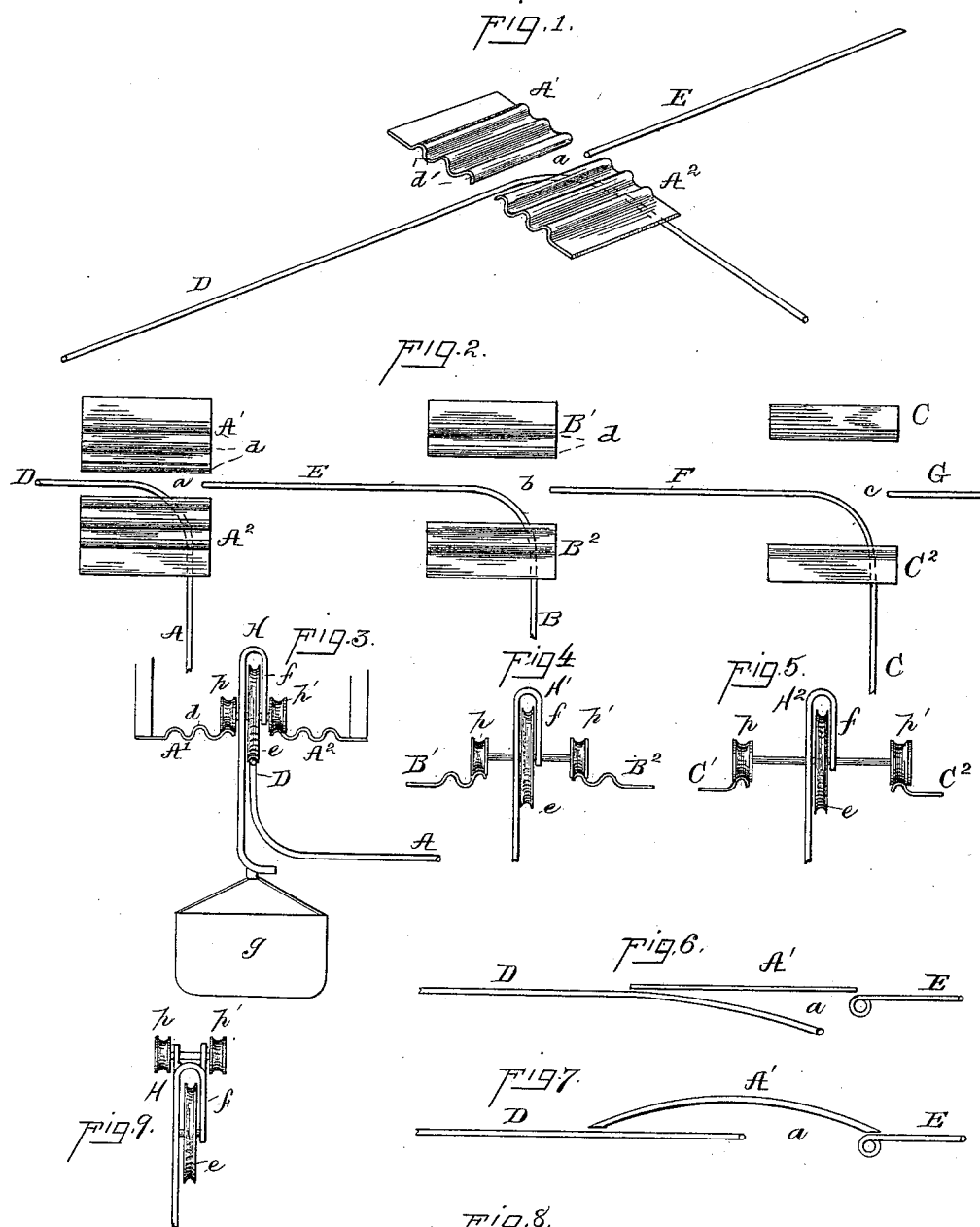
(No Model.)

R. N. DYER.

SWITCH FOR STORE SERVICE APPARATUS.

No. 381,495.

Patented Apr. 17, 1888.



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# UNITED STATES PATENT OFFICE.

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

## SWITCH FOR STORE-SERVICE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 381,495, dated April 17, 1888.

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*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 Store-Service Apparatus, of which the following is a specification.

The object I have in view is to produce a simple and efficient means for switching the carriers of store-service apparatus from the way to stations at different points on the way, or from such stations back to the way. My switching device is one without moving parts which exercises a selective action, directing the wheeled carriers to the stations for which they are intended, and permitting other carriers, designed to travel to more distant stations, to pass the switching devices at the intermediate stations. At the same time the center of gravity of the carriers is not disturbed by the switches. The devices have the additional feature of increasing the power of the carriers (when they carry their own propelling-power) at the switches, so that they can surmount the switches without difficulty.

In carrying out my invention I break the way at each switching-point and deflect that end of the way approaching the break laterally to the station. The carriers for succeeding stations are carried over the break by two parallel bridge-plates which are located at the sides of the way at such a distance apart that the carrier for the particular station passes between the bridge-plates and then under one of them laterally, while carriers for succeeding stations have wheels which engage the bridge-plates and support the carriers until the main wheel strikes the way on the other side of the break. To permit the wheeled carrier intended for the particular station to pass under one bridge-plate, the way inclines downwardly before being deflected laterally, or the bridge-plates are arched above the break, or the clearance may be formed partly by arching the bridge-plates and partly by depressing the way. The carriers are constructed to hang down on one side only of the way, with the arm for attaching the receptacle to at a point sufficiently low to pass under and clear the laterally-deflected way. The switching-wheels are smaller than the main wheel or wheels, to give an increase of power in passing over the

bridge-plates. These switching-wheels may be on the same shaft as the main wheel or wheels, or on a separate shaft extending across the top of the carrier-frame. The former arrangement I prefer when the carrier has its own motor. The space between the bridge-plates will be greater for every succeeding station, while the switching-wheels on the carriers will be a greater or less distance apart, according to the stations they are designed to run to. The carrier for the first station will have no switching-wheels. That for the second station will have switching-wheels located at such a distance apart that they will engage the bridge-plates at the first station, but will pass between the bridge-plates at the second station, and so on for the carriers for succeeding stations.

In the accompanying drawings, forming a part hereof, Figure 1 is a perspective view showing one of the switches; Fig. 2, a top view illustrating the switches for three stations. Figs. 3, 4, and 5 are end views of the bridge-plates for the switches at the first, second, and third stations, showing upon such bridge-plates the carriers for the second, third, and fourth stations. Figs. 6, 7, and 8 are side elevations of three arrangements of the bridge-plates and way; and Fig. 9, an end view of a carrier, showing the switching-wheels on a shaft other than that of the main wheel.

Like letters denote corresponding parts in all the figures.

The way is a track composed of stretched wire, strips of sheet metal, or other material suitably supported from one side, as will be well understood, so that wheeled carriers having frames hanging down on one side of the way can travel thereon. The way is not continuous, but is broken at intervals where it is desired to have stations. The way illustrated is one having four sales-stations, besides the end station at the cashier's desk, the three sales-stations intermediate between the cashier's desk and the sales station at the other end of the way being provided with the switching devices. These three intermediate sales-stations are located at the points A, B, and C. The first section, D, of the way extends from the cashier's desk to the break *a* in the way, where it is deflected laterally to the station A. The second section, E, of the way starts straight

from the break *a* and extends to the break *b*, where it is deflected laterally to the station B. The third section, F, extends from the break *b* to the break *c*, and is there deflected laterally to the station C. The fourth section, G, extends from the break *c* to the terminal sales-station. At the sides of the breaks *a b c* are arranged the sets of parallel bridge-plates A' A<sup>2</sup>, B' B<sup>2</sup>, and C' C<sup>2</sup>. The plates B' B<sup>2</sup> are separated by a space wider than that which separates the plates A' A<sup>2</sup> and the plates C' C<sup>2</sup> have a greater width of separation than the plates B' B<sup>2</sup>. These bridge-plates preferably have ribs or corrugations *d*, or other raised or depressed portions, forming tracks. The plates A' A<sup>2</sup> have each three of such tracks. Plates B' B<sup>2</sup> have each two of such tracks, and plates C' C<sup>2</sup> each one of such tracks. In other words, the succeeding sets of bridge-plates have progressively one pair of tracks less and an additional width of separation equal to a pair of tracks. The carriers have each one or more main wheels, *e*, traveling on the way and supporting a frame, *f*, which hangs down on one side only of the way, and supports a basket, *g*, cash-box, or other receptacle. The shaft of the main wheel *e* of each carrier is extended through the sides of the frame *f* and carries on its ends two small switching-wheels, *h h'*, designed to tread on the tracks of the bridge-plates. The carrier (not shown) for station A has no switching-wheels, and hence this carrier is not lifted over the break *a*. The carrier H for station B has its switching-wheels close to the frame *f*. The switching-wheels of this carrier engage the ribs at the inner edges of the bridge-plates A' A<sup>2</sup>, but are not far enough apart to catch the bridge-plates B' B<sup>2</sup>. The carrier H' for station C has its switching-wheels farther apart than those of the carrier H. The switching-wheels of this carrier engage the second set of ribs of the plates A' A<sup>2</sup> and the first set of ribs of the plates B' B<sup>2</sup>, but fail to catch the plates C' C<sup>2</sup>. The carrier H<sup>2</sup> for the terminal sales-station has its switching-wheels still farther apart. They engage the third set of ribs of the plates A' A<sup>2</sup>, the second set of ribs of the plates B' B<sup>2</sup>, and the first set of ribs of the plates C' C<sup>2</sup>. To give the proper clearance to permit the carriers to pass under the bridge-plates, the ends of the way are depressed before being deflected laterally, as shown in Fig. 6, or the bridge-plates may be arched, Fig. 7, or both plans may be combined, Fig. 8.

Instead of having the switching-wheels on the same shaft with the main wheels, they may be mounted on a separate shaft located at the top of the carrier-frame, Fig. 9. With this arrangement of the switching-wheels the bridge-plates would necessarily be more elevated above the way.

The carriers can be switched onto the way from the sales-stations and returned from the sales-stations over the same way, or a separate return-way can be employed having similar switching devices.

What I claim is—

1. In store-service apparatus, the combination of a way having one or more breaks in its continuity, wheeled carriers traveling on such way, and bridge-plates for supporting carriers over the breaks, substantially as set forth.

2. In store-service apparatus, the combination, with a way having one or more breaks in its continuity and wheeled carriers traveling on such way, of bridge-plates at such breaks and extra switching-wheels on the carriers engaging such bridge-plates selectively, substantially as set forth.

3. In store service apparatus, the combination, with a way having one or more breaks in its continuity and wheeled carriers traveling on such way, of a set of parallel bridge-plates at each break and extra switching-wheels on both sides of the carriers engaging such bridge-plates selectively, substantially as set forth.

4. In store-service apparatus, the combination, with a way having one or more breaks in its continuity and wheeled carriers traveling on such way, of bridge-plates at such breaks and extra switching-wheels on the carriers engaging such bridge-plates selectively and of smaller diameter than the main wheels of the carriers, substantially as set forth.

5. In store-service apparatus, the combination, with a way having one or more breaks in its continuity and wheeled carriers traveling on such way, of bridge-plates at such breaks and extra switching-wheels on the carriers engaging such bridge-plates selectively and mounted on the same shafts as the main wheels of the carriers, substantially as set forth.

6. In store-service apparatus, the combination, with a way having one or more breaks in its continuity and wheeled carriers traveling on such way, provided with extra switching-wheels located at different distances apart for the different carriers, of a set of parallel bridge-plates at each break, the bridge-plates at the several breaks being separated by spaces of different width, substantially as set forth.

7. In store-service apparatus, the combination, with a way having one or more breaks in its continuity, the ends of the sections approaching the breaks being deflected laterally, of sets of parallel bridge-plates at the breaks having different widths of separation and wheeled carriers provided with extra switching-wheels engaging the bridge-plates and located at different distances apart, so as to act selectively with the bridge-plates, substantially as set forth.

This specification signed and witnessed this 28th day of June, 1887.

RICHARD N. DYER.

Witnesses:

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