(No Model.) 2 Sheets—Sheet 1.

E. G. BATES.

STORE SERVICE APPARATUS.

No. 383,851. Patented June 5, 1888.

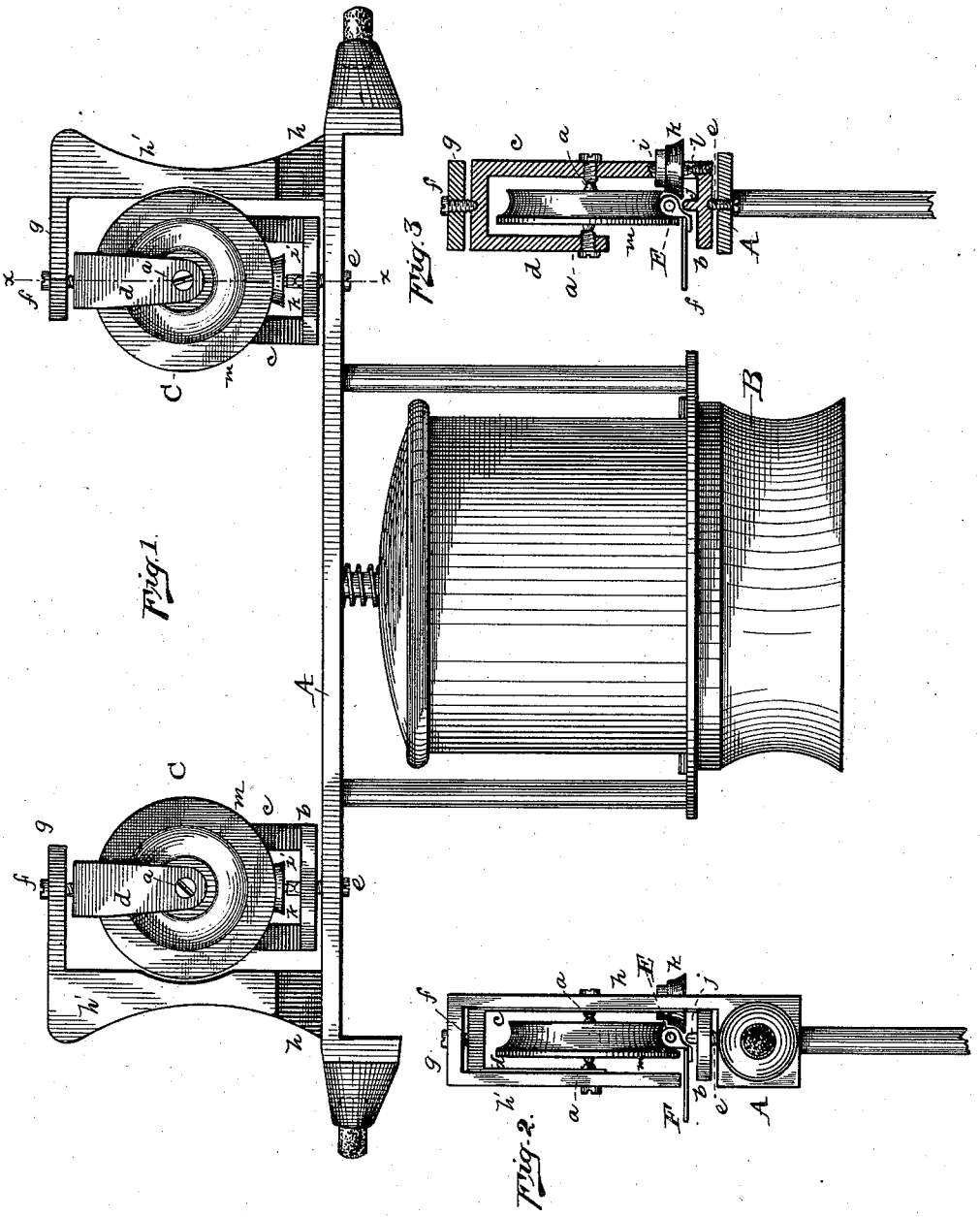

Fig. 1.

Fig. 3.

Fig. 2.

ATTEST:
E. C. Rowland
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INVENTOR:
Edwin G. Bates
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Attys.

(No Model.) 2 Sheets—Sheet 2.

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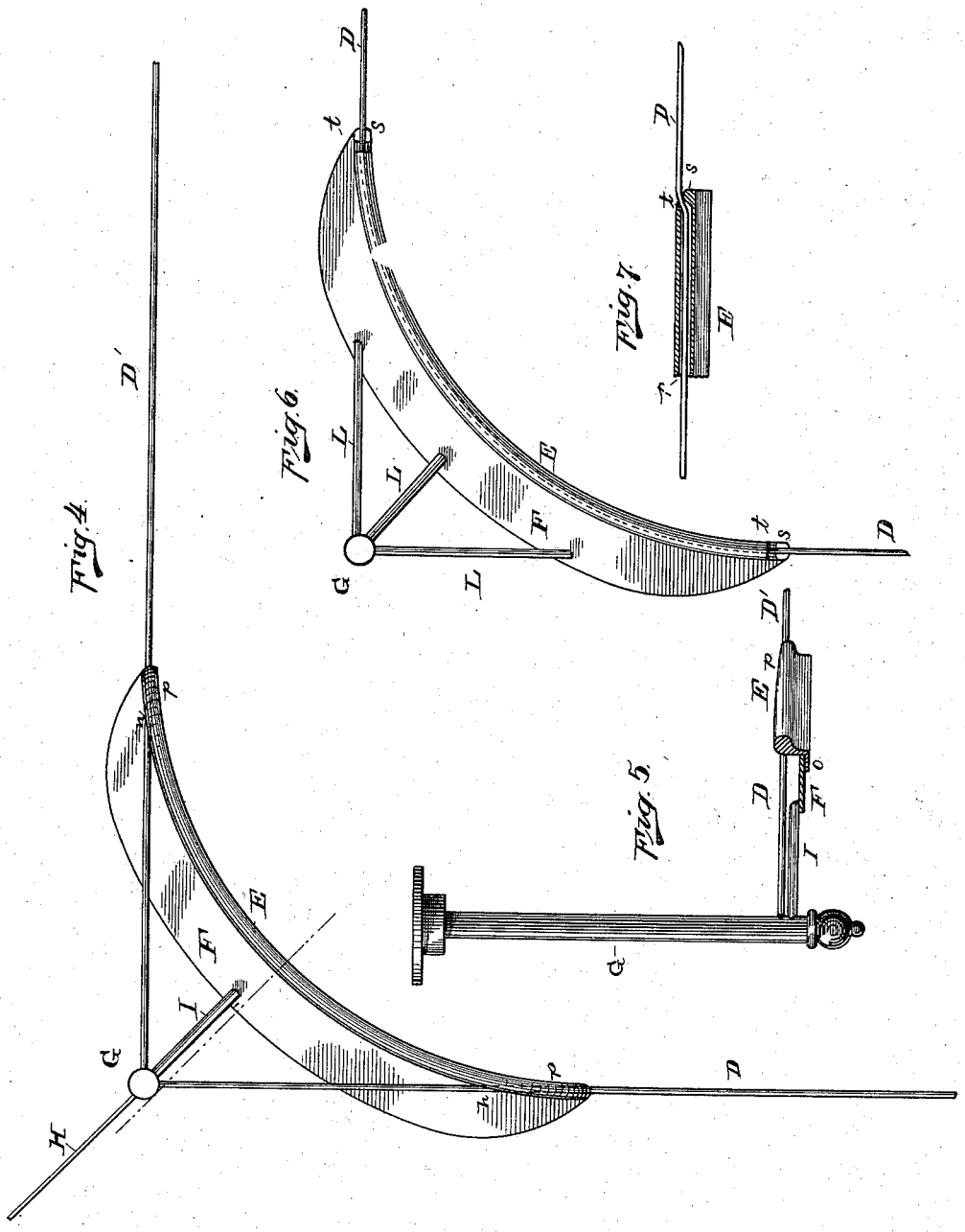

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INVENTOR:
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UNITED STATES PATENT OFFICE.

EDWIN G. BATES, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO SAMUEL INSULL, OF SAME PLACE.

STORE-SERVICE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 383,851, dated June 5, 1888.

Application filed March 4, 1886. Serial No. 193,941. (No model.)

To all whom it may concern:

Be it known that I, EDWIN G. BATES, of the city, county, and State of New York, have invented a certain new and useful Improvement in Store-Service Apparatus, of which the following is a specification.

My invention relates to that class of store-service apparatus in which a carrier travels upon a stretched wire, such carrier being suspended from its rollers or wheels, which run on the top of the wire; and my object is to so arrange the carrier and the line that the former may be made to travel around curves in the latter, whereby the lines may be made to turn corners and to pass around objects in the store.

My invention consists in the novel devices and combinations of devices employed by me in accomplishing this object, as hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a cash-carrier embodying so much of my invention as relates to the carrier itself; Fig. 2, an end view of said carrier in the position of entering upon a curve; Fig. 3, a section of the same on line *x x* of Fig. 1, looking from the right, the rollers being in elevation; Fig. 4, a plan view of a construction of curve; Fig. 5, a section on line *x x* of Fig. 4, with the supporting parts in elevation; Fig. 6, a plan view showing a curve of a different construction, and Fig. 7 a longitudinal section of a portion of the curve-piece of Fig. 6.

A is the metal plate which forms the body of the carrier.

B is the receptacle, carried beneath the same in any suitable manner.

C C are the wheels or rollers. Each of these is supported—having bearings at *a a*—in a frame, which consists of a base, *b*, a continuous side piece, *c*, and a hanger, *d*—all made in one piece—the latter extending down only far enough to support the bearing for the roller. This frame is swiveled or pivoted, so that it, with the roller, can turn freely laterally, this being accomplished by supporting the base *b* of the frame upon a screw, *e*, passing through platform A, and the top of the frame by a screw, *f*, passing through the overhanging lip *g*, which extends from the vertical support *h*, rising from the platform on one side. On the other or open side, in order to make the weight equal, part *h'* extends down nearly to the platform A. At its lower end side piece, *c*, has an aperture, *i*, in which is placed a small horizontal roller, *k*, turning in bearings at *l l*, above and below. Each roller C is a grooved wheel having a flange, *m*, on the open side of the car. The horizontal wheels *k k* are of a grooved conical form, as shown, so that the lower edge of such wheels passes under the wire.

The arrangement for a curve in the line shown in Figs. 4 and 5 is as follows: D D' is the line-wire. E is the curve-piece, which has extending from it a flange or plate, F. The wires D and D' enter the curve-piece E at each end thereof, and extending in straight lines leave the curve, apertures at *n n* being provided for the purpose, and extend to a support, which may be a post, G, supported from the ceiling or from a counter below or from the wall by means of a brace, as H. An additional support, I, may extend from post G to the curve. The curve-piece is a bar of metal having a lower lip, *o*, which is secured beneath plate F by screws or rivets, or in any suitable manner. Toward each end it has a downward bevel or incline, *p*, to make an easy ascent for the rollers.

It will be seen that when the car enters upon the curve the wheels ride upon the piece E, the flanges of said wheels keeping them on the track, and the horizontal rollers *k* bearing upon the other side of the curve and preventing undue friction, while the frame which holds the rollers turns in its bearings and allows the car to swing around the curve. The projecting screw *j* prevents the car from jumping off the line.

By the construction shown in Figs. 6 and 7 the ascent at the beginning of the curve is done away with and a continuous level way is obtained. The curve-piece E is here secured as before to the plate or flange F; but it has an aperture, *r*, extending through it from end to end, so that its upper portion forms a tube. At the ends of this tube are metallic tongues *s s*, extending nearly to the top, and in the upper side of the tube, at each

end, is a slot or aperture, *t*. The line-wire D is in this case continuous, and is bent down over the tongues *s* and through the slots *t* into the tube and extends through the same.

The tongues *s* are of such height that the wire passing over them is level with the top of the curve-piece, and the car thus has a continuous level way. It is evident that this construction of the curve-piece is also applicable to the arrangement for the line-wire shown in Fig. 4.

As in the form shown in Fig. 6, the wire D extends around the curve, the curve-piece has to be supported by separate braces L L, which may extend to a post, G, in the same manner as before described.

What I claim is—

1. In a carrier for store-service, the combination, with the body of the carrier, of the swiveled rollers adapted to travel upon a way above the carrier, the suspension being on one side only of said rollers, and said rollers having flanges higher on the open side than on the other, substantially as set forth.

2. In a carrier for store-service, the combination, with the swiveled rollers adapted to travel upon a way above the carrier, of the horizontal rollers at the side of the way, substantially as set forth.

3. In a carrier for store-service, the combination of the body or plate, the vertical supports rising therefrom, each having an overhanging lip, the frames swiveled between said plate or body and said lips, and the rollers turning in bearings in said frames, substantially as set forth.

4. In store-service apparatus, the combination, with the track-wire, of a curved tube inclosing said wire and provided with a horizontal flange, said flange and tube being integral, and a radial support attached to the flange, substantially as set forth.

5. In store-service apparatus, the combination, with the stretched wire way, of the rigid curve-piece having an aperture extending through it from end to end and a slot near each end of said aperture, the wire passing through said aperture from one of said slots to the other.

6. In store-service apparatus, the combination, with the stretched wire way, of the rigid curve-piece having an aperture extending through it from end to end, a slot near each end of said aperture, and an upward-extending tongue at each end, over which the wire is bent to enter said slots, substantially as set forth.

This specification signed and witnessed this 11th day of February, 1886.

EDWIN G. BATES.

Witnesses:
A. W. KIDDLE,
E. C. ROWLAND.