

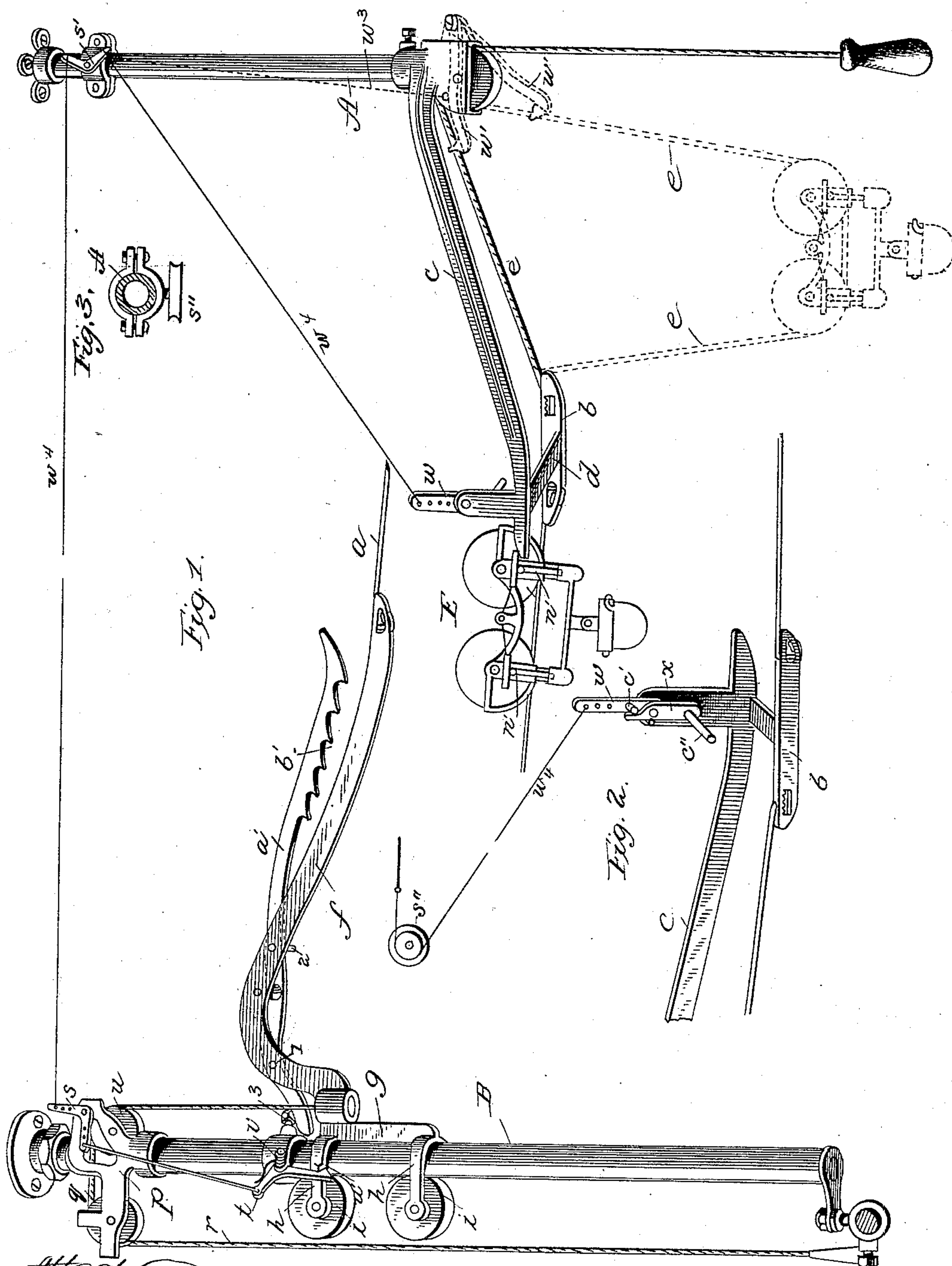
(No Model.)

2 Sheets—Sheet 1.

W. H. GORNALL.  
STORE SERVICE APPARATUS.

No. 392,026.

Patented Oct. 30, 1888.



Attest  
Haller Donaldson.  
J. L. Middleton.

Inventor.  
William H. Cornall.  
by Eli Spear.  
Atty.

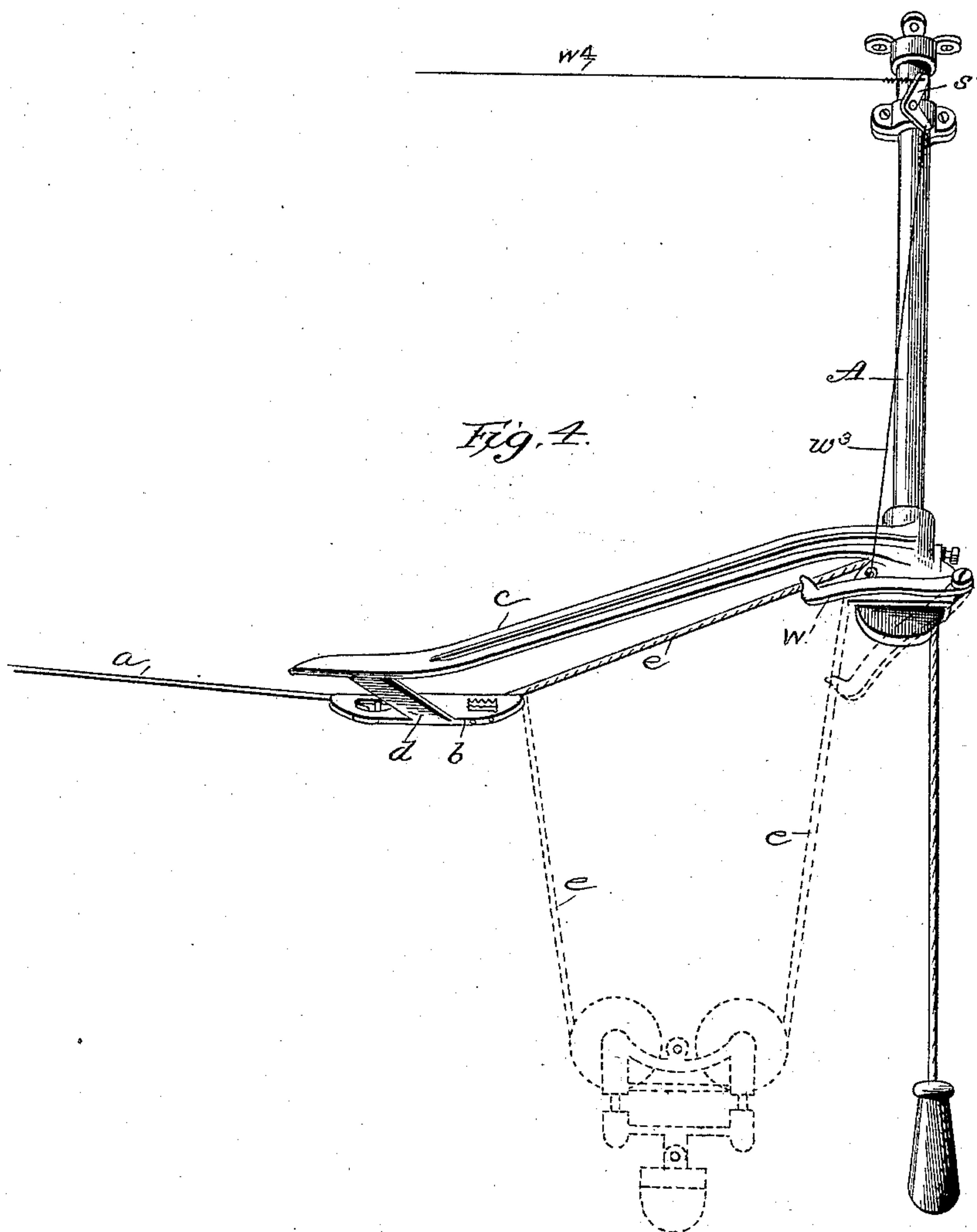
(No Model.)

2 Sheets—Sheet 2.

W. H. GORNALL.  
STORE SERVICE APPARATUS.

No. 392,026.

Patented Oct. 30, 1888.



Attest  
William Donaldson,  
F. L. Middleton.

Inventor,  
William H. Gornall,  
by Ellis Spear,  
Atty.



# UNITED STATES PATENT OFFICE.

WILLIAM HENRY GORNALL, OF BALTIMORE, MARYLAND.

## STORE-SERVICE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 392,026, dated October 30, 1888.

Application filed May 28, 1888. Serial No. 275,302. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM HENRY GORNALL, of Baltimore, in the State of Maryland, have invented a new and useful Improvement in Store-Service Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the same.

In order to carry cash and parcels in stores from the salesman's counter to the cashier's desk, and vice versa, with rapidity and certainty and with a minimum amount of labor upon the part of the cashier, I have devised a store-service apparatus, hereinafter described.

One of the objects of the invention is to provide a way between two points, with one end fixed and the other movable, so as to incline the way to allow the carrier thereon to travel by gravity, and to provide means for holding the moving end of the way in an elevated position and to automatically release the same to allow it to assume a position reversed with its end lowered, thus permitting the carrier to return by gravity over the same line.

In the drawings, Figure 1 represents the two ends of the way, the position of the cashier's desk, for instance, being at the left, and the position of the salesman's counter at the right, with the wire of the way between the terminals broken away. Fig. 2 is a view showing the opposite side of the bracket between the wire way and flexible extension, and the operating-wire for releasing the movable end of the way. Fig. 3 is a modification of a detail of construction, showing in section the standard A and the use of a pulley, *s'*, instead of bell-crank lever. Fig. 4 is a detail view showing the preferred form and arrangement of trip.

The wire of the way is shown at *a*, and extends between the two stations of each series within the store. It is composed of ordinary wire, and is stretched taut between the two points. At the salesman's counter it is connected in any suitable manner to a plate, *b*, which forms a continuation of the track for a short distance, this plate being supported from a bracket, *c*, by means of a web, *d*, which connects with the plate *b* on its under side. The bracket *c* extends rearwardly in the direction of the way, and is supported upon a standard, A, by means of a sleeve surrounding the same.

The said sleeve is provided with set-screws, and the bracket may be adjusted in height according to the requirement of the store. The way is continued for the car to run upon between the end of the plate *b* and the line of the supporting-standard through the medium of a rope, *e*, or other flexible connection, this flexible extension of the way being adapted to be lowered when it receives the weight of the carrier, and to be operated by hand or in any suitable way to raise the carrier and to restore it to the permanent way. At the opposite end of the way is a standard, B, which is suitably supported from the ceiling or from the counter or floor, and serves as a support for the end of the way at the cashier's desk. In order to allow the carrier to run by gravity to and from the cashier's desk, I support the end of the way at this station in a moving relation with the supporting-standard, so that it may change the incline of the way to allow the carrier to run away from or to the cashier. As shown in Fig. 1, the wire of the way is connected to a bracket, *f*, which is curved upwardly, as shown, and which terminates in a sliding frame, *g*, which is supported upon the standard B. This frame is provided with embracing-arms *h*, which pass around the standard and support pulleys *i*, which bear against the back of the standard, and in the movement of the frame up and down act as friction-rollers.

In order to save the cashier from the work of lowering his end of the way whenever the salesman is ready to send to him a loaded carrier, I have provided a movable trip located at the salesman's end of the way, which is connected through intermediate devices with the movable frame at the cashier's end. It is designed that the carrier, when it reaches this trip, will move it, and this action, through the intermediate connections, will release the movable frame at the cashier's desk, which will then fall.

To the upper end of the standard B, I provide a casting, and to the upper end of the casting I connect a coupling, which may be provided with any suitable attachment to enter into the ceiling to support the standard. The casting (indicated at *p*) is provided with bearings in line with each other, having pulleys *q* and *u*, and over these pulleys extends a hand-rope,



5 *r*, terminating in a handle upon its free end and connecting with the sliding frame *g* at its opposite end. Mounted upon the casting *p* is a bell-crank lever, *s*, which connects with a movable retainer for holding the sliding frame *g*. In the present case this consists of a second bell-crank lever, *t*, which is pivoted upon a collar on the standard B. This retainer or bell-crank lever *t* terminates upon one end in a latch which is adapted to catch over a projection, *u*, on one of the arms of the sliding frame. When the sliding frame has been elevated by means of the hand-rope *r*, it is retained in its elevated position by the catch of the lever *t* engaging with the projection *u* on the sliding frame, and in this position of the frame the way is inclined from the cashier's desk to the salesman's counter. The retainer or lever *t*, as will be seen, is under spring-tension from the spring *v*, and therefore ordinarily is in position to catch the frame *g* when it is elevated, as has been described.

25 In order to automatically release the frame and to allow it to descend to change the inclination of the way, I connect the upper end of the bell-crank lever *s* with the pulley or bell-crank lever *s'*, mounted upon a collar at the upper end of the standard A, at the opposite end of the way, by means of the wire *w*, this wire being of the finest kind and as near the ceiling as possible, so as to be scarcely discernible to the ordinary observer. The other arm of the bell-crank lever *s'* is in connection with a movable trip, consisting of an arm, *w*, which, as shown, is pivoted on a post projecting from the bracket C, and has a pin, *c'*, projecting from its inner face just above its pivot. On the same pivot is an arm, *x*, having an upward extension in line with the pin *c'*, and with a projection, *c''*, extending at right angles into the path of the carrier. As the car running down the inclined way from the cashier's desk reaches the web *b*, the wheel of the carrier comes in contact with the projection *c''*, which is pushed ahead to allow the wheel to pass beneath the same, and as the arm *x* moves the upper end comes in contact with the pin *c'*, which causes the arm *w* to move with it, which will operate to depress the right-hand arm of the bell-crank lever *s'*, and this action through the fine wire will, through the bell-crank lever *s*, throw out the latch end of the lever *t*, and the sliding frame *g* will thus be released and allowed to descend to its lowest position, placing the line in condition for the return of the carrier to the cashier's desk. In the return of the car the arm *x* freely swings aside without action on the second wire.

60 It will be understood that the bell-crank levers described may be arranged differently, in order to form the different location of the cashier's desk and the plan of the room; or, as in Fig. 2, pulleys may be used instead.

65 The bracket *f*, which supports the end of the way at the cashier's desk, is curved upwardly, as shown, and acts to retard the movement of the carrier by its inclination. Pivoted at one

side, near the rear of said bracket, is an arm, *a'*, which extends to the front of the bracket a little above the plane thereof and a little distance to one side. This arm is provided on its undersurface with teeth or serrations, as shown at *b'*, and the carrier is provided with a projecting pin, *n'*, which extends out into line with or under the arm *a'*, and is held and prevented from returning by catching in the teeth of said arm. Stop-pins 1 2 extend from the bracket *f*, beneath the arm *a'* upon either side of the teeth of said arm, and tend to limit the movement of the arm in both directions. As the sliding frame *g* is elevated to incline the way to the salesman's counter, the inner end of the arm *a'* comes in contact with a stud, 3, projecting from the standard, or the collar on the standard, which elevates the front end of said arm, and thus releases the carrier from the teeth thereof and allows it to run by gravity to the opposite end.

The carrier is shown at E, and is composed of a suitable frame provided with bearings for two wheels, one running behind the other. In order to allow the carrier to pass by the web *b* at the point of junction of the metal and flexible parts of the way, I arrange the frame of the carrier upon one side with pivoted portions *n'*, which, under the action of the web, are adapted to be thrown aside, which thus allows the carrier to pass this obstruction. A suitable spring fastened in the center on one side of the frame has its free ends bearing on the upper extension of the pivoted gates *n'*.

It will be understood that while I have shown the way as provided with a flexible extension I do not limit myself to a store-service containing this feature, as my invention is not dependent upon such an extension.

In dotted lines in Fig. 1 and in full lines, Fig. 4, I have shown another and preferred form of movable trip adapted to be operated through the flexible extension under the action of the carrier. In this arrangement I connect (by a wire, *w''*, shown by a dotted line) the arm of the bell-crank lever *s'* with a pivoted arm, *w'*, which extends, as shown, within the line of the flexible extension *e* of the way, and is provided with an eye through which the rope *e'* passes. As the car running down the inclined way from the cashier's desk reaches the flexible extension of the way and lowers the same under the weight of the carrier, as in dotted lines, this will pull down the arm *w'*, which will operate to depress the right-hand arm of the bell-crank lever *s'*, and, as heretofore described, through the connections referred to, trip the holding-latch and allow the sliding frame to descend to its lowest point to change the inclination of the way.

I claim as my invention—

1. In combination, a way stretched between two points, a carrier on the way, one end of said way being connected to a movable support, a movable trip situated at the opposite end of the way and in line with a portion of the carrier to be operated thereby, and an op-



erating-wire connection between the movable trip at one end and the movable support at the other, whereby the movable support will be released automatically and the inclination of the way changed for the return of the carrier when the carrier reaches the opposite end of the way and operates the trip, substantially as described.

2. In combination, the supporting-standards, the way stretched between, a movable support for one end of the way, a retainer for holding said support, a wire extending from said retainer to the opposite end of the way, and a movable trip in connection with said wire, to be automatically operated by the movement of the carrier, substantially as described.

3. In a store-service apparatus, supporting-standards, a way, a carrier mounted thereon, a movable trip at one end, to be automatically operated by the movement of the carrier, a movable frame at the opposite end, an operating-rope for elevating the frame, a retainer-latch for holding said frame in its elevated position,

a bell-crank, *s*, mounted on the standard and connected with the end of the retaining-latch, a bell-crank, *s'*, at the opposite end of the way, a wire between the bell-crank *s* and the bell-crank *s'*, and a wire between said movable trip and the arm of the bell-crank *s'*, whereby the action of the carrier will be communicated to the opposite end of the way to release the moving frame and allow it to change the inclination of the way, substantially as described.

4. In combination, a way, a carrier thereon, a movable support for one end of the way, a movable trip, a retaining-latch, a wire connection between said trip and latch, and a flexible extension of the way in connection with the trip, substantially as described.

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

WILLIAM HENRY GORNALL.

Witnesses:

ALEXANDER J. COATES,  
C. H. PALMER.