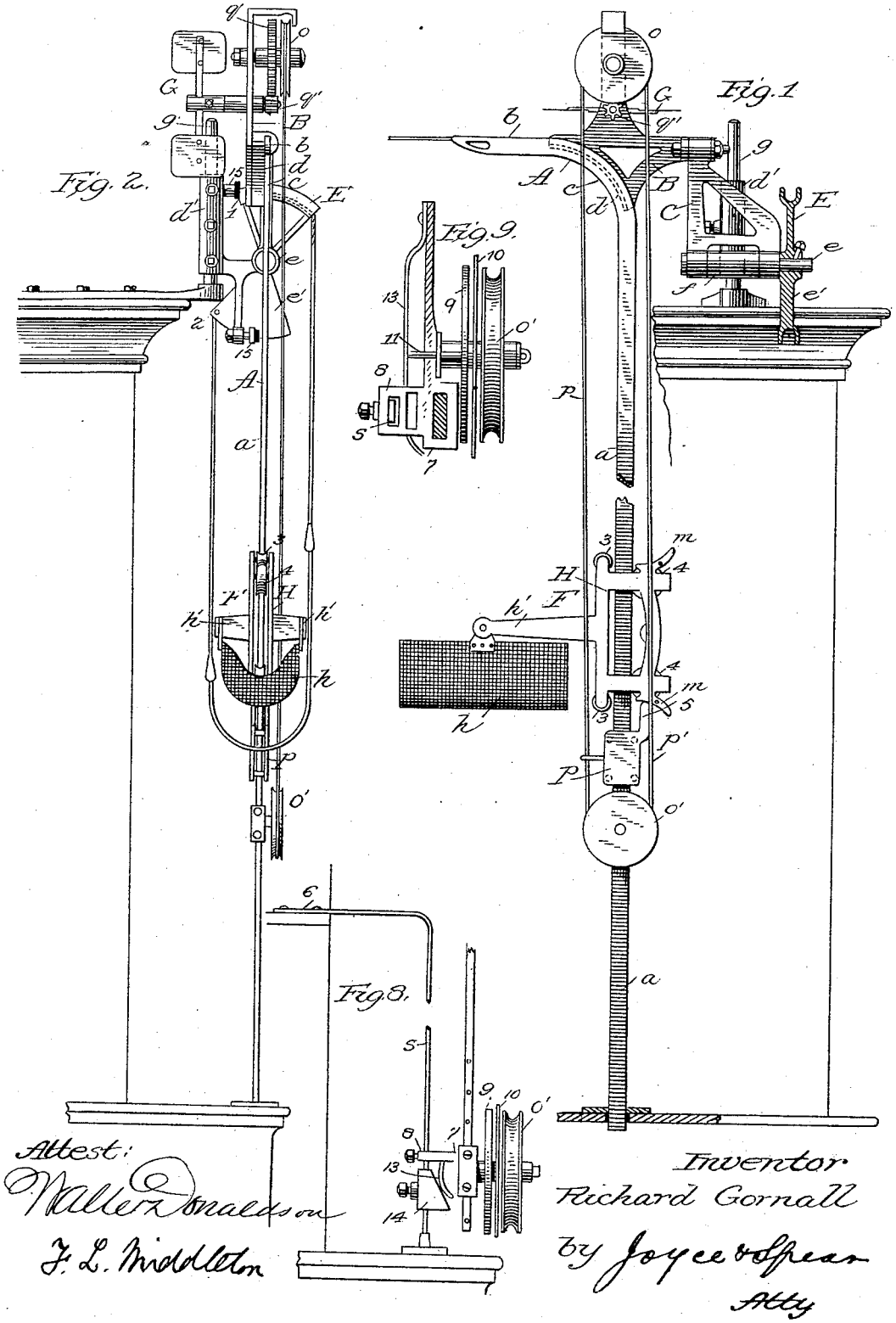
(No Model.) 2 Sheets—Sheet 1.

# R. GORNALL.

## STORE SERVICE APPARATUS.

No. 342,255. Patented May 18, 1886.

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Atty

(No Model.) 2 Sheets—Sheet 2.

# R. GORNALL.

## STORE SERVICE APPARATUS.

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Fig. 3.

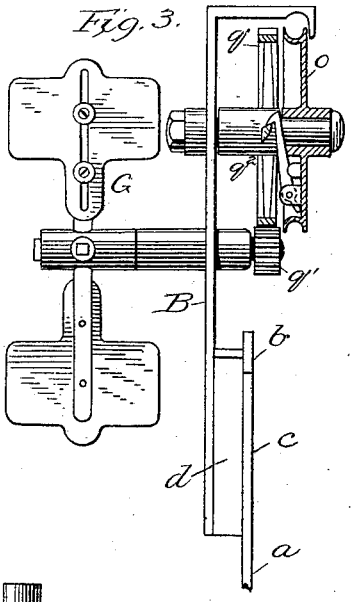
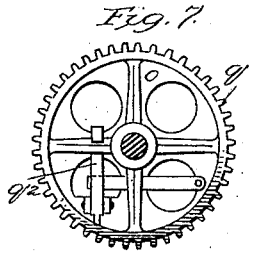



Fig. 7.



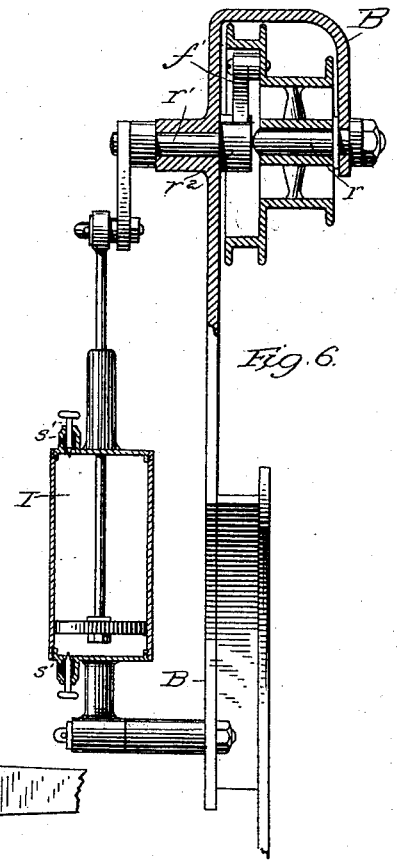




Fig. 5.

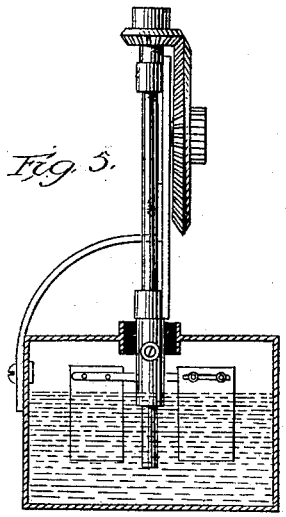
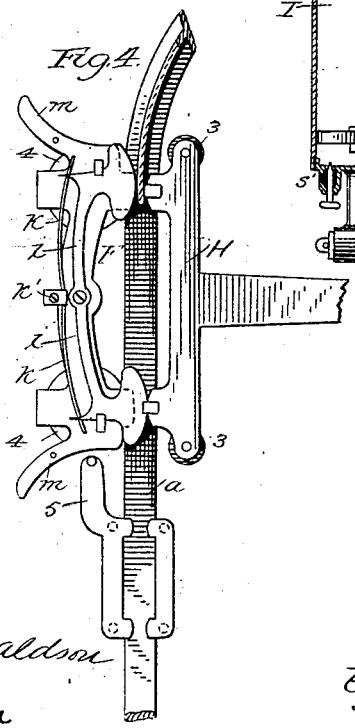


Fig. 4.

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# UNITED STATES PATENT OFFICE.

RICHARD GORNALL, OF BALTIMORE, MARYLAND, ASSIGNOR OF ONE-HALF TO GEORGE A. DUBREUIL, OF SAME PLACE.

## STORE-SERVICE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 342,255, dated May 18, 1886.

Application filed February 11, 1886. Serial No. 191,611. (No model.)

*To all whom it may concern:*

Be it known that I, RICHARD 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.

My invention is an improved store-service apparatus; and its object principally is to provide an apparatus by which the cash and parcel carrier may be propelled back and forth between the cashier's desk and the salesman's counter at a height above all the goods which are usually displayed in most stores.

Numerous other objects are attained by the use of my improved apparatus, all of which will be explained in the following specification.

In the accompanying drawings, Figure 1 represents a side elevation of the mechanism at the salesman's counter for operating the carrier and for lowering the track. Fig. 2 is a front elevation of the same. Fig. 3 is a detail view of the mechanism for checking the speed of the carrier. Fig. 4 is an elevation of one side of the body of the carrier. Figs. 5, 6, 8, and 9 are modifications of mechanism for checking the speed of the carrier. Fig. 7 is a detail view of part of Fig. 3.

I have not represented the connecting wire-way between the stations, as this is of ordinary construction, nor have I represented the cashier's desk; but it will be understood that any of the mechanism herein described may be duplicated at the cashier's desk for elevating or lowering the carrier to or upon the way, or any of the mechanism for this purpose described in applications filed in the United States Patent Office of even date herewith (Serial No. 196,709 and No. 191,609) may be used instead; or the way may be simply secured, and the cashier's desk elevated, so that the salesman by raising and lowering his end of the way causes the carrier to run to and from the cashier without any exertion on his part other than to release the carrier from its retaining-buffer.

The track to which the wire is connected is shown at A, and consists of a vertical rod, *a*, having a horizontal extension, *b*, to which the wire is attached, the curved portion *c* connecting the two. A thin web, *d*, at the curved portion *c* connects the track with the bracket B. This bracket is pivoted to a second bracket, C, which has its bearings on the oscillating shaft *e*. (Shown in Fig. 1.) This shaft is supported on the sleeve *f*, which is secured to the vertical sleeve *d'*, which is adapted to be adjusted by means of a set-screw upon a standard, *g*. By this adjustment the bracket, and consequently the track connected thereto, may be adjusted vertically to the proper height, and also to any angle desired.

The bracket B, to which the track is secured, being pivoted to the bracket C, and this bracket being pivoted on the shaft *e*, movement of said shaft will lower the track to a distance below the shaft *e* equal to the distance which it is shown above it in Fig. 1, and in order that the movement of this shaft may be effected to raise and lower the track, I have provided a segmental wheel, E, with its lower end, *e'*, weighted, as shown, which serves to counterbalance the parts. A cord is secured at one end, at the point 1, to the upper part of the segment, and the opposite end is secured at the point 2 to the weighted segment, having suitable handles, as shown in Fig. 2, extending down within reach of the salesman, and by drawing upon one handle or the other the shaft *e* is oscillated and the track lowered or raised, thus inclining the way toward or from the salesman. The vertical rod *a* of the track extends down through an opening in the counter in rear of the salesman, in which it is guided in the vertical movement of the track.

The carrier is represented at F as composed of the pivoted basket *h*, and a frame, H, having projecting arms *h'*, from which the basket is suspended. The frame of the carrier is shown in Figs. 1 and 4, the opposite sides being represented in these figures. This frame has connecting-bars extending across the track, with small pulleys 3 3 bearing upon one edge of the track, and larger pulleys or wheels, 4 4, bearing upon the opposite side of the track. The smaller pulleys are adapted to act as anti-friction wheels in the vertical descent of the carrier, and the larger wheels support the carrier in its horizontal movement.

In order that the carrier may pass from the horizontal portion of the track to the vertical portion thereof past the web which connects the track to the bracket, I provide the construction shown in Fig. 4 upon the side of the carrier adjacent to this web. This consists of two pivoted levers, *i i*, having rounded faces,

the pivot-pin being in the center upon one side of the frame, the said levers having a spring, *k*, held in place by a suitable stud, *k'*, bearing upon the outer ends of the levers, which tension keeps the faces of the levers pressed against the opposite side of the frame. In its normal condition this side of the carrier is closed; but as it approaches the web the rounded faces of the lever will allow the end of the web to enter between it and the side of the carrier, against which it bears, and will lift the levers up and allow the carrier to pass by the web down to the vertical portion of the track, the spring *k* immediately exerting its influence and closing the levers. These levers do not open far enough to admit of the possibility of throwing the car from the track, but only sufficiently to allow the car to pass by the web.

The carrier at each end is formed with curved ears *m*, which serve a purpose hereinafter explained.

To the upper end of the bracket B, on a suitable shaft, is supported a pulley, *o*, and this is connected with a pulley, *o'*, secured to the lower end of the track, by means of a suitable connecting-cord, *p'*. This cord is not endless; but the ends are secured to an intermediate sliding block, *p*, supported upon the vertical part of the track, and in the movement of the cord in one direction or the other this sliding block moves with it. The block has a projection, 5, at one corner, which is adapted to bear upon the ears *m*, and when the carrier is at its lowest position on the vertical part of the track it is elevated to the horizontal part by means of the sliding block, movement being imparted to it by the cord *p'*. Before the carrier is thus elevated to the horizontal portion of the track, the track itself has been elevated to incline the way to the cashier's desk, and the impulse given by the sliding block in connection with the inclined way is sufficient to impel the carrier to the opposite end thereof.

In order to stop the carrier gradually in its vertical descent, I have provided the following means: The pulley *o*, which operates the carrier, is supported upon a pin, and on the same pin, in rear of the pulley, is a gear-wheel, *q*, of the same size as the pulley. This gear-wheel meshes in a smaller gear, *q'*, (shown in Figs. 1 and 2,) which is fast on a shaft which has its bearings in a suitable sleeve projecting upon either side of the bracket B. Secured to the end of this shaft opposite to that upon which the small gear-wheel is secured is a fan, G, which is composed of a suitable number of blades and connecting-ribs. The gear-wheel *q*, as shown in Fig. 3, has peculiarly-shaped ribs, which are adapted to act in connection with a toothed pawl, $q^2$, supported within the shell of the pulley *o*. This pawl is pivoted upon projecting lugs within the shell of the pulley *o*, and has a tail-piece to limit its outward movement, and a small spring, giving it a constant pressure outward. When the pulley is revolved in one direction to elevate the carrier, the end of the pawl will slip over the curved faces of the spokes of the gear-wheel; but in the reverse movement of the pulley, as when the carrier is beginning its descent of the vertical part of the track, the hooked pawl will catch over the correspondingly-shaped edge of the spokes of the gear-wheel, and in the further descent of the carrier the gear-wheel *q* will revolve with the pulley, and as it meshes with the smaller gear, *q'*, which is fixed upon the same shaft with the fan, the fan will be revolved also, and will serve as a check, as the carrier descends to within reach of the salesman, stopping it gradually. Modifications of this arrangement for gradually stopping the carrier and overcoming the shock which would necessarily follow its direct vertical descent are shown in Figs. 5, 6, 8, and 9.

In Fig. 5, instead of having simply fans revolving in the air, I arrange a tank of liquid, preferably glycerine, which is supported upon the bracket B in any suitable manner. The fans, which revolve in this liquid within the tank, are supported upon a vertical shaft, which has a beveled gear at its upper end, gearing with a large gear, which is connected to the same shaft as the pulley *o*. The fans can be adjusted by means of a collar and set-screw, as shown, so as to have more or less of the blades immersed. The fans, in the form above described, may also be adjusted as represented.

In Fig. 6 a distinct modification is represented. Two sizes of pulleys are shown, being preferably formed in one piece and supported upon a pin, *r*, which is secured at its front end to the bracket B. A projecting bearing is formed on the rear of the bracket, and the shaft *r'* is supported therein, having a ratchet-wheel, $r^2$, upon the inner end, incased within the cavity of the larger pulley, and into this ratchet-wheel a pawl, *f*, engages, said pawl being pivoted, as shown, sliding over the teeth of the ratchet when the car is moving in one direction, and engaging therewith when the car is moving in the opposite direction. To the upper end of the shaft *r'* is secured a crank, which is connected to the end of a piston-rod, the disk of which operates in a chamber, I, said chamber being pivoted upon a projecting stud of the bracket B. Suitable valves are placed at either end of the cylinder, as shown at *s'*, in order to regulate the pressure upon the piston, and the action of this modification is similar to the forms heretofore described, gradually stopping the car in its vertical descent.

In Figs. 8 and 9 I have represented a clutch or brake device which serves the same purpose as the mechanism described in Figs. 5 and 6. This brake mechanism is applied at the lower end of the vertical part of the track. In Fig. 8, instead of the vertical rod being guided in an opening in the counter, it is guided upon a light metal rod, *s*, supported at a suitable distance above the counter by connection with the shelving, as shown at 6.

The pulley at the lower end of the rod is supported upon a frame, 7, which has a projection, 8, with a hole in it encircling the guiding-rod, this serving to guide the track in its movement up and down. The pulley is loose upon the shaft, which extends from one side of this frame, and upon the same shaft a disk, 9, is loosely supported. Between this disk 9 and the pulley is a disk of card-board, 10. Through ears in the frame a pin, 11, passes, bearing against the disk 9 at one end and extending out beyond the edge of the frame at the other end. A thin metal spring-plate, 13, bears lightly against this pin. This plate does not rest directly against the face of the frame, but is bent so as to extend parallel a short distance therefrom. Upon the lower part of the guiding-rod, secured by a set-screw, is a block, 14, having a wedge-shaped face, which projects out into the path of the frame upon the lower end of the vertical portion of the track, and as this track is lowered to allow the carrier to be sent from the cashier's desk to the salesman's counter the wedge-shaped face, coming in contact with the spring-plate, will force it in toward the surface of the frame, thus driving in the pin, which in its turn bears against the disk, which thus forces the interposed paper disk against the face of the wheel, and the friction thus applied to the pulley is transmitted through its connecting-cord to the sliding block, and the carrier, as it strikes against this block, descends very gradually within reach of the salesman.

Buffers 15 15 are provided, as shown in Fig. 2, extending outward from the sleeves *d'*, to take up the shock of the track as it is raised or lowered.

The matter shown and described, but not claimed herein, will be found in an application filed by me of even date herewith, the Serial number of which is 191,609.

I am aware that it is not new to provide fixed tracks inclined in opposite directions with a vertically-moving section for carrying the carrier from one of said tracks to the other, and I do not claim such an apparatus.

I claim as my invention—

1. In a store-service apparatus, the combination, with a wireway, of a connecting track or section at the salesman's counter, forming a continuation of said way, said track being supported at its upper end and vertically adjustable therefrom, the wireway being inclined in one direction or the other by such adjustment, substantially as described.

2. In combination, a wireway, a curved track connecting therewith and forming a continuation of said way leading to the salesman's counter, and means for adjusting said track vertically to incline the way in one direction or the other, consisting of a pivoted bracket supporting the upper end of said track and mechanism for giving a half-turn to said bracket, whereby the track may be lowered or raised, substantially as described.

3. In combination with a wireway, a track consisting of horizontal and vertical portions, a bracket supporting said track at its upper end, pivoted upon a bracket, C, and a segmental wheel having suitable operating-ropes adapted to give a half-turn to the brackets supporting the track, and thus raise or lower the same, substantially as described.

4. In combination, a way, a curved track having horizontal and vertical portions and connected to a bracket by a web, a carrier adapted to travel on said way, and pivoted levers composing said carrier-frame adapted to pass by the connecting-web of the track, substantially as described.

5. In combination with the track and the way connected thereto, the carrier composed of the frame closed upon one side, and having upon the other side pivoted levers *i i*, held in closed position by means of a spring and adapted to be opened by the web, whereby the carrier may pass the same, with projecting arms adapted to support a pivoted receptacle, substantially as described.

6. The combination, with the way and the carrier mounted thereon, of a sliding block independent of the carrier, adapted to sustain the shock thereof, and mechanism, substantially as described, in connection with said block, for gradually checking the motion of the carrier, as set forth.

7. In combination with a way, a track connected therewith rigidly, having a horizontal and a vertical portion forming a continuation of the said way, a carrier mounted upon the way, a sliding block mounted upon the vertical portion of the track, a cord connected with said sliding block, passing over suitable pulleys, and mechanism, substantially as described, connected with the shaft of one of the pulleys, adapted to check gradually the descent of the carrier after it strikes the sliding block, substantially as described.

8. In a store-service apparatus, the combination of a wireway suitably secured to the cashier's desk, a track at the salesman's counter having horizontal and vertical portions, mechanism, substantially as described, for elevating and lowering the track, a carrier mounted on the way and adapted to pass by the web portion of the said track, an operating-cord for raising and lowering the track, a sliding block supported on the track and adapted, by means of connecting-ropes and pulleys, to elevate the carrier, and mechanism, substantially as described, connected with the upper pulley, for retarding and gradually stopping the movement of the carrier in its descent of the vertical track, substantially as described.

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

RICHARD GORNALL.

Witnesses:
WALTER DONALDSON,
ISADORE MIDDLETON.