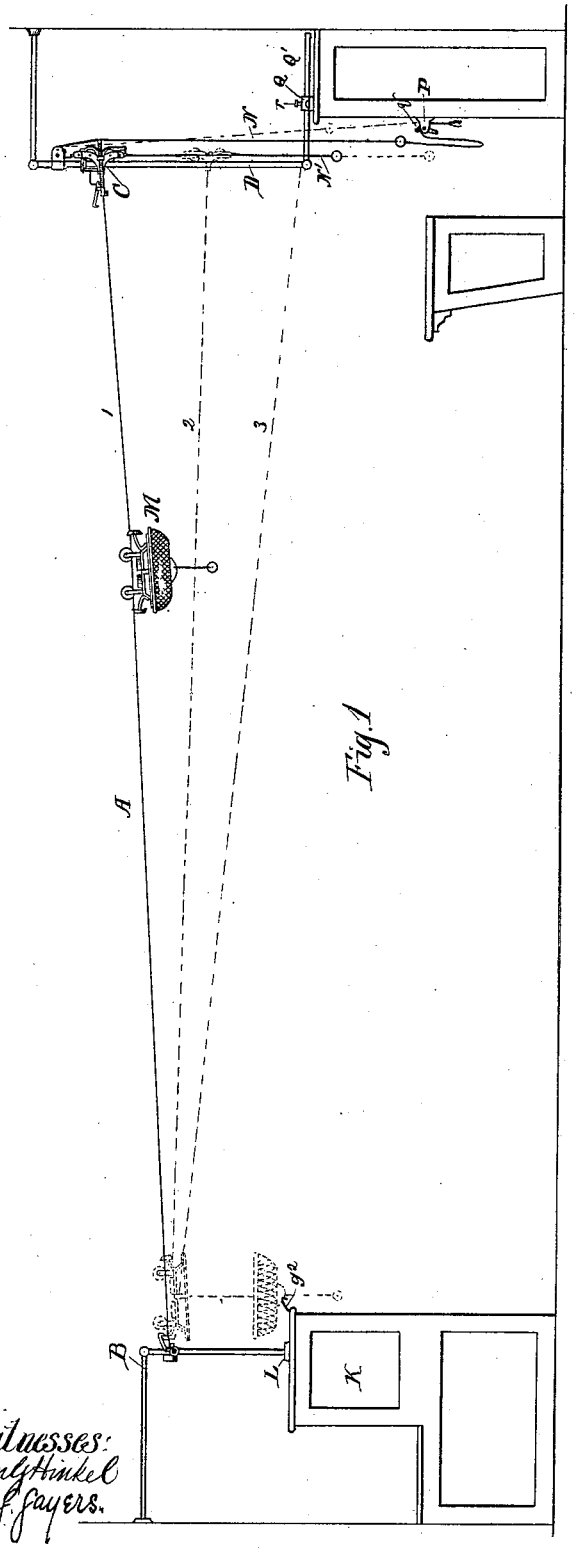
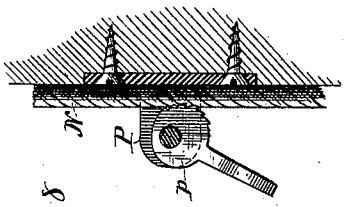
(No Model.) 5 Sheets—Sheet 1.

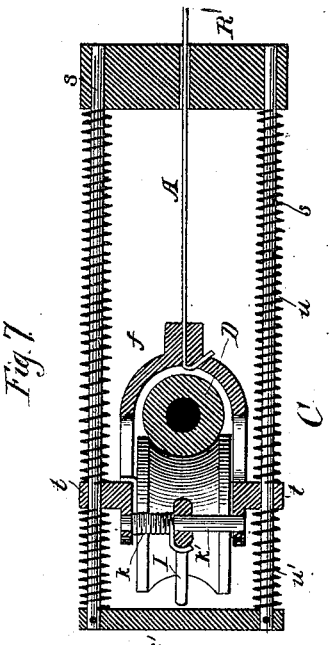
H. H. HAYDEN.

APPARATUS FOR STORE SERVICE.

No. 304,317. Patented Sept. 2, 1884.







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(No Model.) 5 Sheets—Sheet 2.

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APPARATUS FOR STORE SERVICE.

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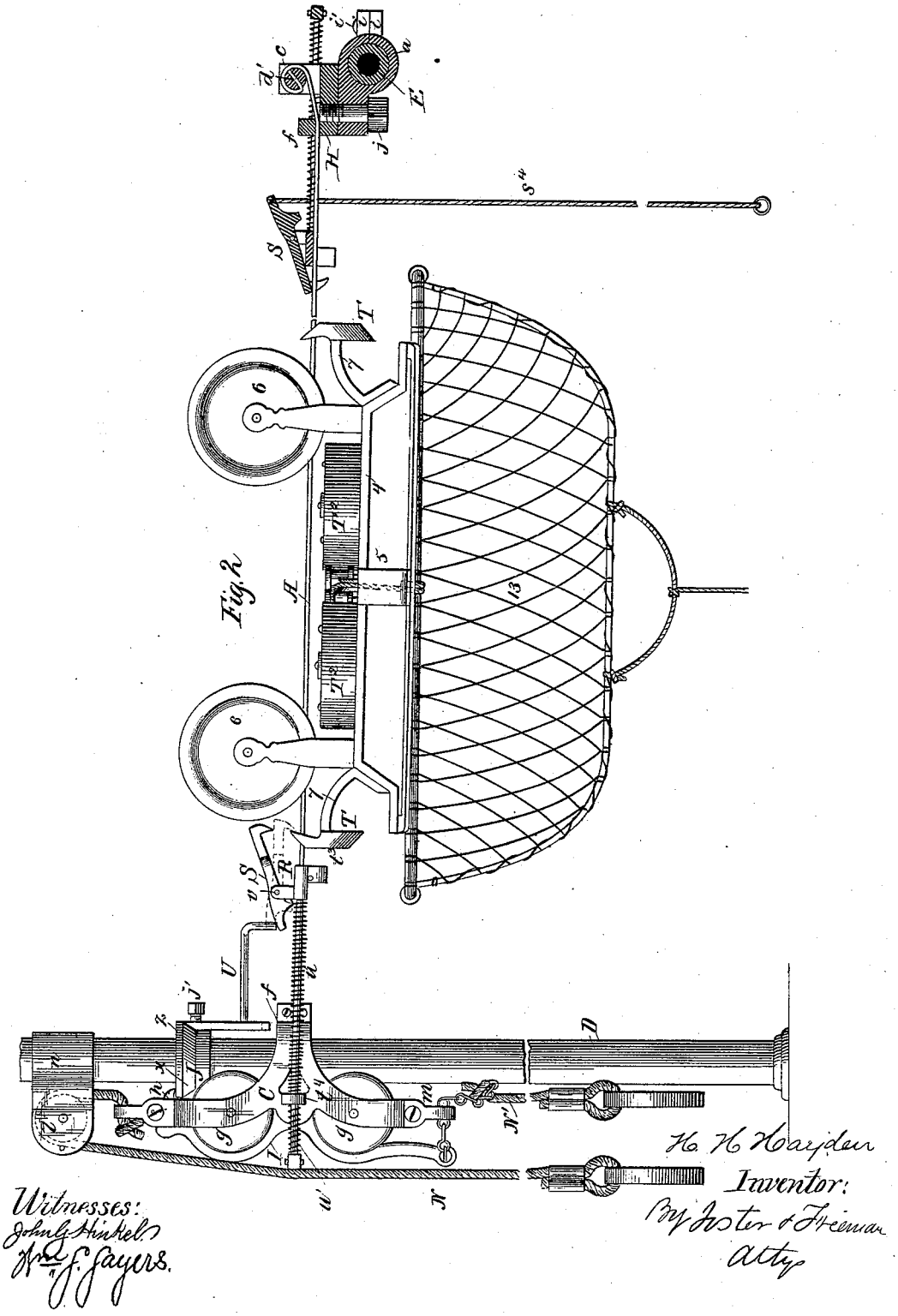

Fig. 2.

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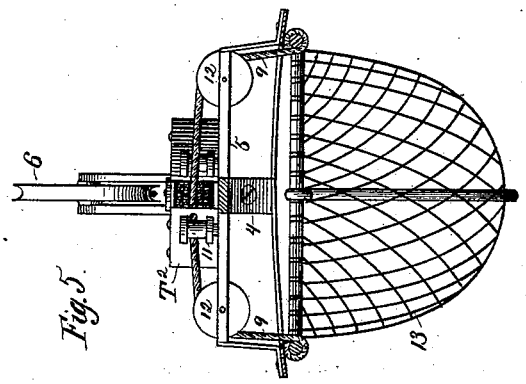

Fig. 5.

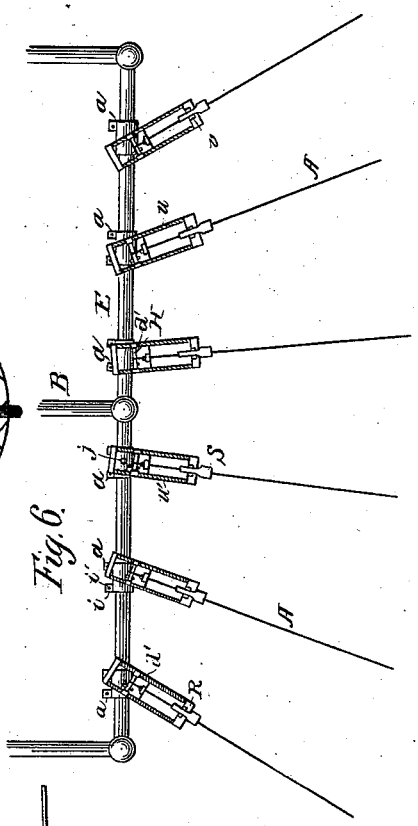

Fig. 6.

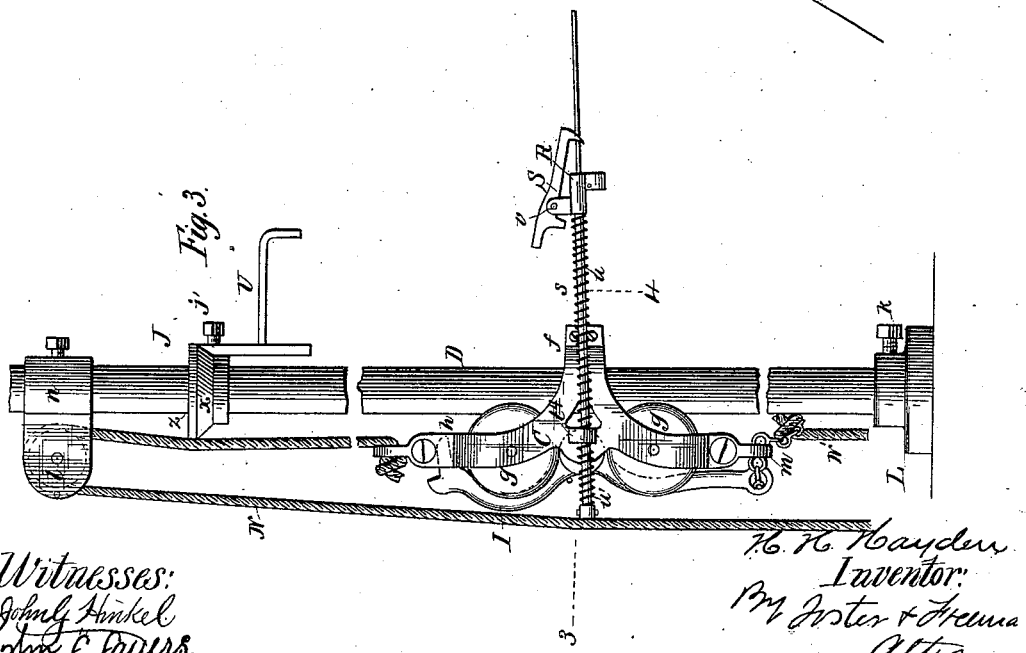

Fig. 3.

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(No Model.) 5 Sheets—Sheet 4.

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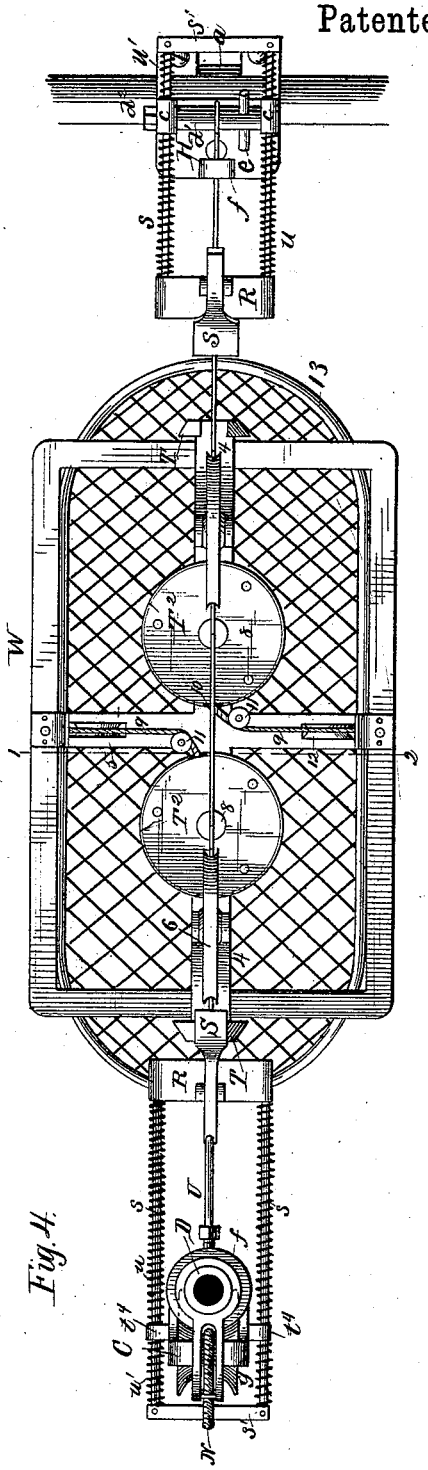

Fig. 4.

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(No Model.) 5 Sheets—Sheet 5.

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APPARATUS FOR STORE SERVICE.

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Fig. 9.

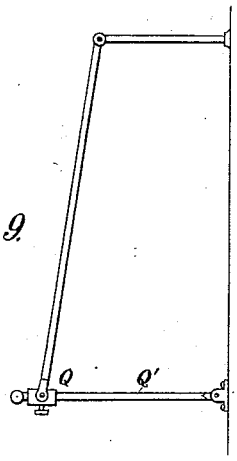


Fig. 10.

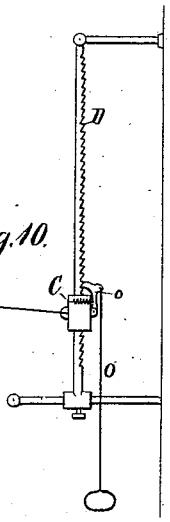
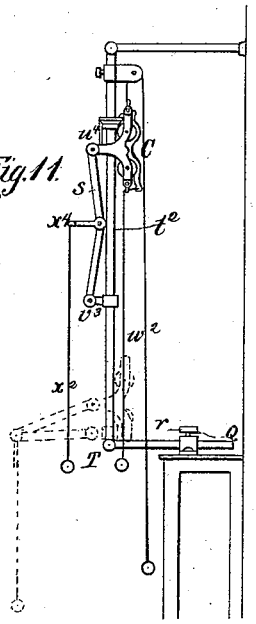


Fig. 11.



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UNITED STATES PATENT OFFICE.

HARRIS H. HAYDEN, OF NEW YORK, N. Y.

APPARATUS FOR STORE-SERVICE.

SPECIFICATION forming part of Letters Patent No. 304,317, dated September 2, 1884.

Application filed May 24, 1884. (No model.)

To all whom it may concern:

Be it known that I, HARRIS H. HAYDEN, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in an Apparatus for Store-Service, of which the following is a specification.

My invention relates to that class of store-service apparatus in which each carrier travels upon a separate way, and in which the ways radiate from a central desk to the stations and are adjustable for the purpose of altering the angle to cause the carriers to travel back and forth by gravity, as will be fully set out in the following specification; and my invention consists in certain details of construction of such apparatus whereby the efficiency of the same is increased and the various operations greatly facilitated.

In the drawings, Figure 1 is an elevation showing the central desk and one of the counters of a store, and illustrating the general construction and arrangement of my improved apparatus. Fig. 2 is an enlarged elevation showing the devices used in connection with the salesman's station, the support at the cashier's desk, (the latter being in section,) and a carrier upon the way. Fig. 3 shows the devices at the station in a different position. Fig. 4 is a plan of Fig. 2; Fig. 5, a cross-section on the line 1 2, Fig. 4; Fig. 6, a plan of the wire-supports at the cashier's desk; Fig. 7, an enlarged plan on the line 3 4, Fig. 3. Fig. 8 is a section of the clamp; Figs. 9, 10, and 11, views illustrating modifications.

The store is provided with counters or stations, as usual, and with a cashier's or packer's desk, and with one or more series of wire-ways, A, extending from the desk to the stations. Each wire, A, is attached at one end to a support, B, in a fixed position adjacent to the desk of the cashier or packer, and at the opposite end to a slide or traveler, C, which moves upon a guide or rod, D, secured in a position adjacent to the counter or station of the salesman.

The construction and arrangement of the fixed supports B and the series of wires A, centered at one desk, is illustrated in Fig. 6, which shows a horizontal rod or bar, E, upon which are adjustably secured sleeves, *a*, constituting bearings to which are pivoted brackets H, each provided with lugs *c c*, supporting a shaft, *d'*, perforated to receive one end of the wire, and also to receive a detachable cross-pin, *e*, which may be drawn out to allow the shaft to be turned to tighten the wire, by a wrench applied to the square head d^2, after which the pin is inserted in position to bear upon the edge of the bracket and prevent the shaft from turning, Fig. 4. A lug, *f*, is perforated for the passage of the wire A, and acts as a guide to hold the same in place. Each sleeve *a* consists of a tube split longitudinally and provided with ears *i*, through which extend screws or bolts *i'*, whereby the sleeve can be contracted upon the rod E to hold the device securely in any position to which it may be adjusted, and the bolt *j*, by which the bracket H is connected to the sleeve, may be loosened to permit the bracket to be turned to any suitable position to follow the alignment of the wire-way, as illustrated in Fig. 6, and then tightened to hold it in place.

The slide C consists of a frame, the side pieces of which are united to form a loop, *f*, which embraces the rod D and are perforated to receive the journals of grooved wheels *g*, which bear upon the rod at the rear side and are maintained in contact therewith by the tension of the wire A, which is connected to the slide, at the front of the loop *f*. To the slide is pivoted a lever, I, a lip, *h*, at the upper end of which is adapted to engage with a shoulder, *z*, upon a retainer adjacent to the way D. This shoulder in the present instance is formed by a ring, J, secured adjustably upon the rod D by means of a set-screw, *j'*, and having a downward projecting finger to stop the slide and a beveled lower edge, *x*, which, when struck by the lip *h*, will force the lever I back until the said lip is above the top of the ring, when a spring, *k*, Fig. 7, wound upon a pin, *k'*, to which the lever is pivoted, will throw the upper end inward and cause the lip to engage with the shoulder *z*, thereby holding the slide in an elevated position, when the wire A will be so inclined that a carrier, M, traveling thereon will descend by gravity to the desk of the packer or cashier. By adjust-

ing the ring J upon the rod the limit of the upward movement of the carrier is readily regulated.

Instead of securing the stop adjustably to the rod, it is sometimes fastened rigidly, and the rod is made adjustable vertically. For instance, as shown in Fig. 3, it passes through a hollow bearing, L, secured to the desk, counter, or other stationary object, and a set-screw, k^3, is used to hold it in any vertical position to which it is set. The slide is lifted by means of a cord, N, passing over a roller, l, carried by a bracket, n, secured permanently or adjustably to the rod D, or in a position adjacent thereto, the said cord extending downward to a position adjacent to the station of the salesman, who can thus, by drawing upon it, lift the slide and incline the wire toward the desk K.

To the lower end of the lever I is connected a cord, N′, which extends through a loop or bearing, m, upon the frame of the slide, downward to the station of the salesman, who by drawing upon said cord thereby first retracts the upper end of the lever, so as to carry the lip h from the shoulder z and unlocks the slide, and then by the same pull draws down the slide, so as to incline the wire sufficiently to cause the descent of the carrier M from the cashier's desk to the salesman.

When both the packer's and cashier's desk ends of the line are at a considerable distance from the floor, or when the cashier's desk and salesman's station are so near together that that the line will be very much inclined when the slide is drawn low enough to be accessible to the salesman, injury is apt to result from the great impetus of the carrier and its sudden projection against the stop at the salesman's station. To avoid this difficulty I provide means whereby the downward movement of the slide is temporarily arrested at such a point that the wire can be inclined sufficiently for the carrier to travel thereon but without undue speed, and whereby, after the carrier has ceased its movement, the wire, with the carrier upon it, may be brought down to a position accessible to the salesman. Different means of effecting this result may be employed. For instance, the rod D may consist of a rack-bar, as shown in Fig. 10, and the slide C may be a sleeve traveling upon said bar and provided with a spring-pawl, o, adapted to engage with the rack and connected to a rigid bar, O, by which it may be carried out of such engagement, and the carriage then raised or lowered to the desired extent; or a jointed arm, s, with a square-shouldered hinge, t^2, in the center, may be pivoted to the slide C at w^4, and at v^3 to a sleeve, w^2, which moves freely on the rod D, as shown in Fig. 11. When the slide is drawn up, the arm s assumes the position shown in full lines, (the hinge being preferably cut so as to set against the rod at a slight inward angle, as shown,) and follows the movement of the slide. When the slide is drawn down the sleeve w^2, on coming to the ball-joint T, will arrest the movement of the slide and prevent the further lowering of the line until the carrier has returned and the attendant wishes to remove the goods. A slight pull on the cord x^2, which is attached to an arm, x^4, at the hinge t^2, will then throw the arm into the position shown in dotted lines, and lower the line to the desired point. I prefer, however, the arrangement shown in Figs. 1 and 8, where a bracket, P, carries a serrated eccentric, p, between which and the back-plate of the bracket the cord N is passed, the eccentric constituting an automatic clamp, which permits the cord to be readily drawn downward, but holds it against any tendency to move in an opposite direction, beyond a certain point. The cord N is weighted slightly at its lower end, and as it is drawn down to raise the slide, it slips through the clamp until a knot or stop, q, on the cord N is reached, which regulates the incline of the track on the return of the carrier. Beyond this point the cord swings free from the clamp, as shown in Fig. 1; but when the cord N′ is pulled down until the cord N is taut, then the clamp p will hold it, and the wire A will be inclined to the position shown in dotted lines 2, Fig. 1, and the carrier can travel safely thereon. When the carrier reaches the salesman's desk, if it is too high for him to secure convenient access thereto, he lifts the clamp p to release the cord N, when the slide will descend until the wire A is in the position shown in dotted lines 3, and the carrier is readily accessible.

It will be obvious that any suitable clamping device or securing appliance may be used, instead of the eccentric clamp described, without departing from the essential features of my invention.

To allow a larger movement of the slide C on the rod B than would otherwise be practicable, I incline the rod or project the heel of the same slightly forward, as shown in Fig. 9. This adjustment may be secured by connecting the lower end of the guide to an adjustable block, Q, upon a horizontal rod, Q′, Fig. 9, or by connecting said rod permanently to the guide, and extending it through a permanent block, Q, provided with a set-screw, r, as shown in Fig. 1.

To secure the carrier in its position at each end of the line, and at the same time deaden the blow as it comes to a stop, I employ the combined stop and buffer, illustrated in the drawings, and consisting of a cross-bar, R, Fig. 7, having a groove or slot for the passage of the wire A, and with parallel rods s s, and a rear cross-bar, s', forming a frame, the said rods s extending through lugs t^4, either upon the sides of the frame of the slide or through the lugs c, on the bracket H, according to the end of the line at which the stop and buffer is to be secured. The rods s are encircled in front of the supporting-lugs by spiral springs

u, and at the rear of said lugs by spiral springs u', which springs tend to counteract each other and hold the frame, consisting of the rods and cross-pieces, in the position shown in Figs. 4 and 7, so that, when the carrier strikes the plate R, it will meet with a yielding resistance, while the springs u will be prevented from recovering their position so rapidly as to project the carrier back toward the salesman. Where a single central bar, s, is used instead of the two parallel bars, it is rectangular in cross-section, to prevent the buffer from turning when struck.

The stop or detent consists of a lever, S, pivoted between lugs v, upon the cross-bar R, and hooked at the end to engage with a hook, T, upon the carrier, which is thereby locked to the buffer as it is brought in contact therewith.

To automatically release the carrier when the end of the way where it is connected is elevated, I provide a stop, U, so arranged that when the wire is in its proper position the lever S will be brought in contact with said stop and will be lifted to the position shown in Fig. 2, and release the carrier. The stop U may be of any suitable character, and arranged fixedly or adjustably upon or adjacent to the guide D. I prefer, however, to connect it to the ring J, as shown, inasmuch as the shoulder and the stop should occupy relatively fixed positions and be adjustable together.

The apparatus, as described, is adapted for use either with carriers, which may be detached from the wires, or having detachable receptacles, or with carriers having what is known as "pull-down" receptacles. An improved construction of the latter class of carrier is shown in the drawings.

The frame W of the carrier is substantially rectangular in shape, and is provided with a central longitudinal bar, 4, and a cross bar, 5, the bar 4 supporting the standards in which turn the grooved wheels 6, and also supporting brackets 7, which terminate in the hooks T, the latter in the present instance being beveled-edged disks slotted for the passage of the wire A, this shape insuring the engagement with the detent-lever S, even if the carrier should be swung to a considerable extent to one side.

Upon the bar 4 are mounted the stationary casings T^2, inclosing spring-drums 8, round which extend cords 9, which pass through slots 10 in the said cases, round and over guide-rollers 11 and 12, and are connected to the basket or receptacle 13. By the use of two spring-drums, each connected to the basket, I am enabled to secure sufficient power in the springs to lift the loaded basket and at the same time employ springs of such flexibilty as to permit an extended movement of the basket.

In order to permit the ready loading and unloading of the receptacles of the carriers at the cashier's or packer's desk, and to avoid the necessity of the repeated handling of the carriers at this point, and also, incidentally, to retain them in their position at this point without the use of a special detent, I provide upon the desk or other fixed support a number of catches, g^2, each arranged below one of the wires A, in such position that the basket or some portion or attachment thereof may, when drawn down, be hooked upon said catch g^2, and thereby be held in close proximity to the desk, as shown in Fig. 1. When the carrier is to be sent back to the salesman, the detent-lever S at the cashier's desk should be raised to release the carrier. If the carriers are received at the packing-desk at a height at which the bar E can be readily reached by the packer, the rear of the detent-lever S is pressed down by a touch of the finger, which raises the front and releases the carrier; or, if the bar P is elevated above the heads of the packers the detent can be raised by pulling down upon a cord, s^4, attached as shown in Fig. 2.

I do not herein claim the supports for the ways horizontally adjustable, nor brackets pivoted to such supports and connected to the ends of the ways; neither do I herein claim two spring-drums arranged in a horizontal position upon the carrier-frame, and cords connected to the drums and the basket, as I reserve these for the subject-matter of another application.

Without limiting myself to the precise construction and arrangement of parts shown, I claim—

1. The guided slide supporting one end of the wire of a store-service apparatus, and provided with a movable catch on the slide arranged to engage with a retainer when the slide is in its highest position, substantially as described.

2. The guided slide provided with a catch, arranged to engage with a retainer, and with a cord connected to said catch, by means of which the salesman can release the same when the carriage is to be pulled down, substantially as set forth.

3. The combination of the guided slide connected to the wire of a store service apparatus, and provided with a catch pivoted on the slide, and an adjustable retainer adapted to engage with said catch, substantially as specified.

4. The combination of a slide connected to the wire of a store-service apparatus, a catch or detent upon said slide adapted to engage with a retainer, and a cord extending through a bearing upon the slide, and connected to said catch in such manner that a downward draft upon the cord will first remove the catch from the retainer and then draw down the slide, substantially as set forth.

5. The combination, with the guided slide, connected to the way of a store-service apparatus, of a movable catch or detent on the slide, and a fixed retainer having an inclined face adapted to throw back the catch or detent as it passes the retainer, and a shoulder adapted to engage with the catch or detent to hold the

slide in its elevated position, substantially as set forth.

6. The combination of the guide D, the slide provided with a frame connected to the wire of a store-service apparatus, a catch pivoted to the said slide, a retainer adapted to engage with said catch, a cord connected to the slide and passing over a guide-roller to raise said slide, and a cord connected to the lever and passing through a bearing upon the slide, substantially as set forth.

7. The combination, in a store-service apparatus, of guides D, arranged adjacent to the salesman's stations, a slide moving upon each of said guides, and, connected to the wires radiating from the central desk, catches upon said slides, adapted to engage with stationary retainers, and cords extending from such slide to the salesman's station and adapted to raise, unlock, and lower the slide, substantially as specified.

8. The combination, in a store-service apparatus, of adjustable guides, slides attached to the wires, and means for elevating and lowering the slides upon said guides, and devices for securing the guides after they have been set in inclined positions, substantially as set forth.

9. The combination, with the wires and slides of a store-service apparatus, of inclined guides, and means, substantially as described, of moving the slides upon the guides.

10. The combination, with the vertically-guided slide connected to the wire of a store-service apparatus, of a stop for temporarily limiting the downward movement of the slide, and means, substantially as described, for releasing the slide from said stop to further lower it after the carrier is at the salesman's counter, for the purpose set forth.

11. The combination, with the wire of a store-service apparatus and vertically-guided slide connected thereto, of a cord connected to said slide, and a clamp whereby said cord may be temporarily secured to limit the descent of said slide, for the purpose set forth.

12. The combination of the vertically-guided slide of a store-service apparatus, a cord connected to said slide and provided with a stop, and a device, substantially as described, for limiting the movement of the said cord, substantially as set forth.

13. The combination, with the vertically-guided slide of a store-service apparatus and with the wire connected thereto and supporting a carrier, of a detent-lever connected to the slide, and a fixed retainer arranged in a position to be struck by said lever, substantially as described.

14. The combination, with the wire-way of a store-service apparatus, of a buffer-frame provided with a bar arranged adjacent to said way, and with springs arranged upon opposite sides of lugs through which part of the frame extends, to resist the movement of the frame in both directions, substantially as described.

15. The combination, with the wire of a store-service apparatus, of a buffer consisting of a frame the side bars of which slide through fixed lugs, with springs upon opposite sides of said lugs, and a catch for the carrier, arranged upon the buffer-frame, substantially as specified.

16. The combination of the support, adjustable bracket connected to the wire, and a buffer and catch mounted on said bracket, substantially as described.

17. The combination of the adjustable bracket connected to the wire, with the buffer supported by said bracket, substantially as described.

18. The combination of the adjustable bracket connected to the wire, buffer supported by said bracket, and catch on said buffer, substantially as set forth.

19. The combination of the adjustable bracket connected to the wire, buffer supported by the bracket, catch, and tightener, substantially as described.

20. The combination of a buffer-frame with the slide connected to the wire of a store-service apparatus, the slide provided with bearings supporting the buffer-frame, and springs interposed between said bearings and the frame, substantially as set forth.

21. Buffer-frames with catches combined with adjustable brackets supporting the ends of the wires of a store-service apparatus, substantially as described.

22. The combination, with the wires and central desk of a store-service apparatus, of carriers provided with receptacles that can be drawn down from the frames of the carriers, and catches arranged upon or adjacent to the desk to hold the receptacles in said positions until released, substantially as set forth.

23. The combination, with the wire and the carrier traveling thereon, of a catch-lever adjacent to the end of the wire and an arm upon the carrier provided with a slotted beveled-edged disk adapted to engage with the catch and receive the wire, substantially as described.

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

HARRIS H. HAYDEN.

Witnesses:
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CHARLES RUSHBROOK.