

No. 659,614.

Patented Oct. 9, 1900.

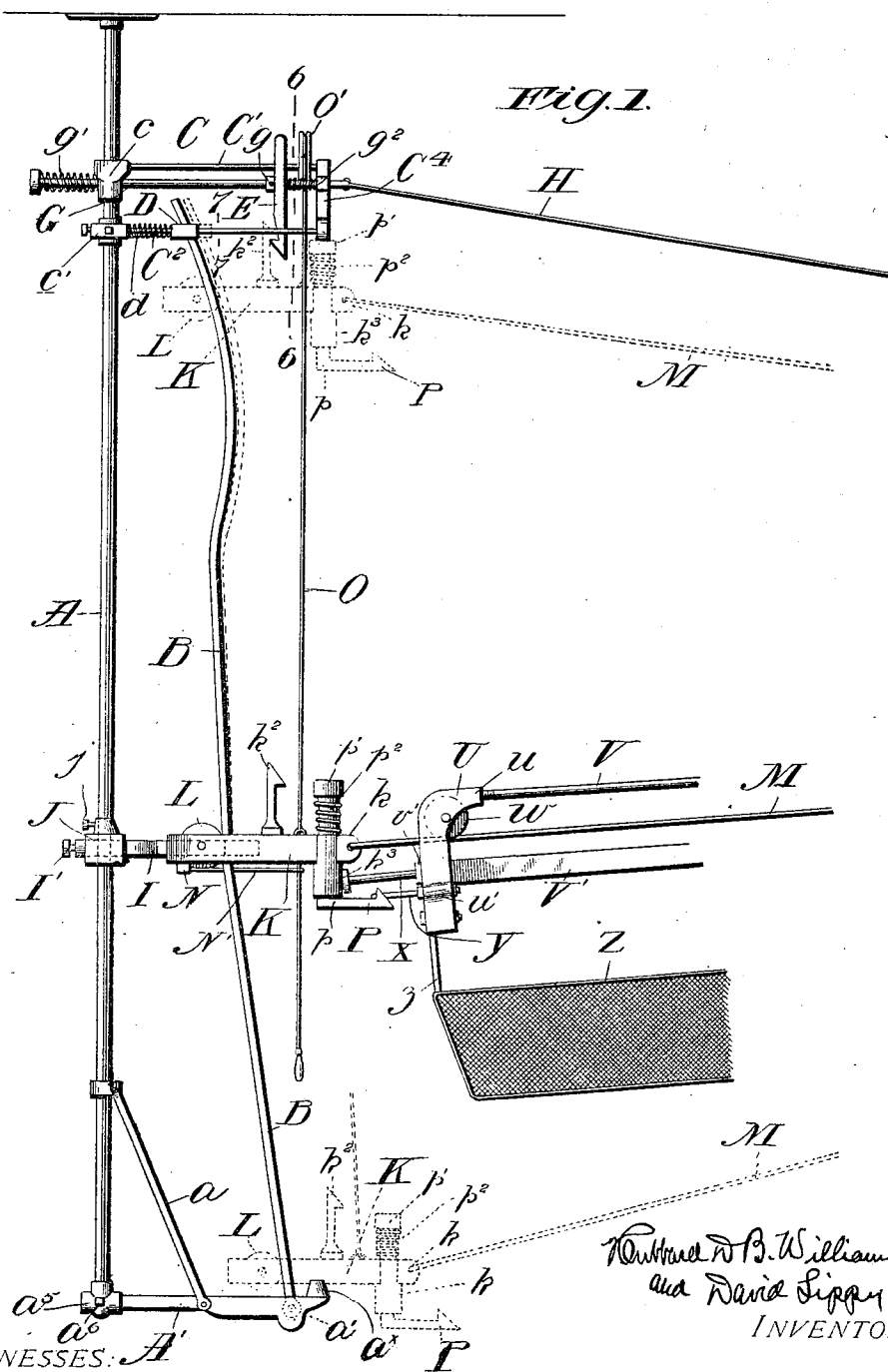
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STORE SERVICE APPARATUS.

(Application filed Mar. 31, 1900.)

(No Model.)

3 Sheets—Sheet 1.



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3 Sheets—Sheet 2.

Fig. 2.

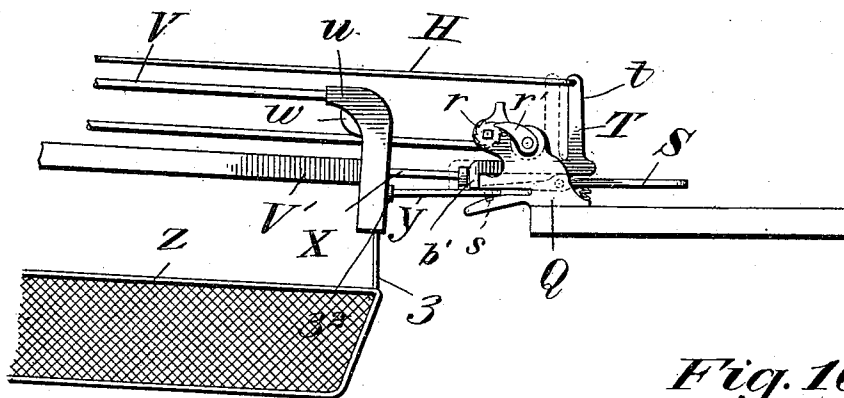


Fig. 10.

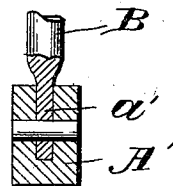
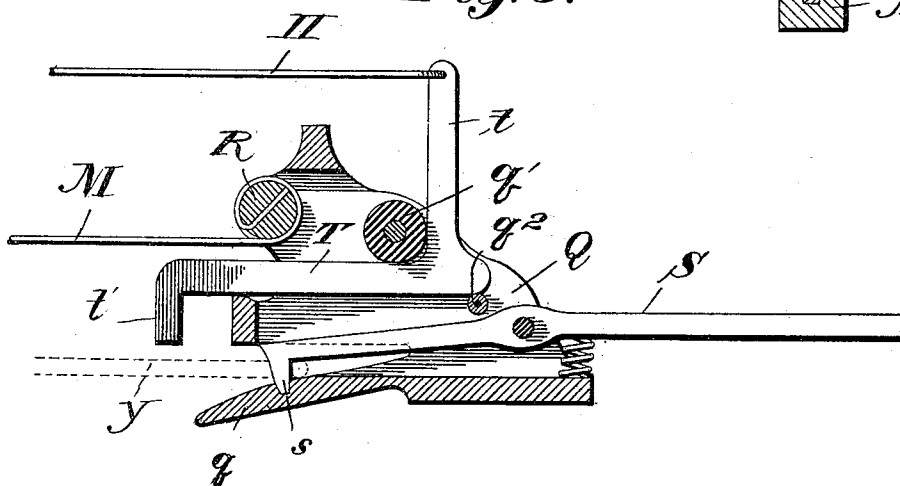


Fig. 3.



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Fig. 4.

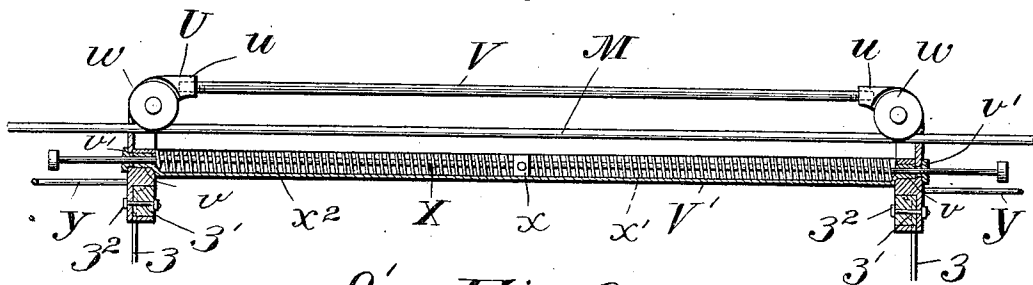


Fig. 5. Fig. 6.

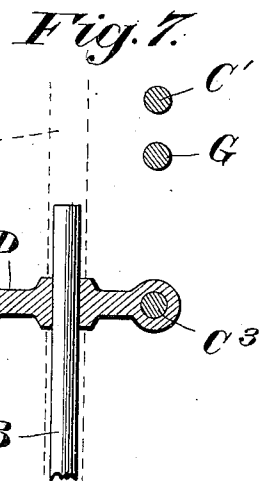
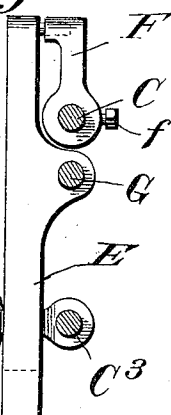
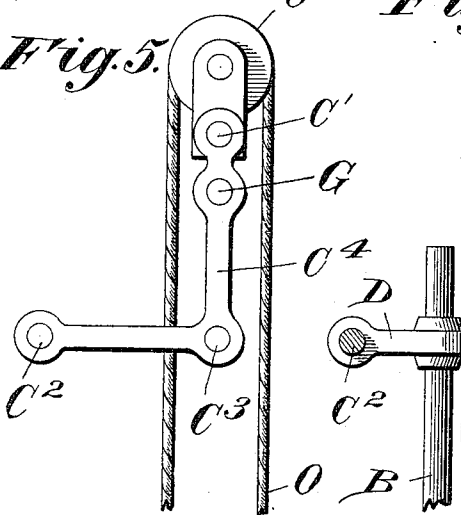


Fig. 8.

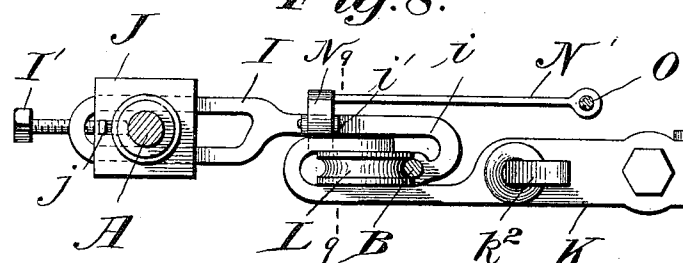
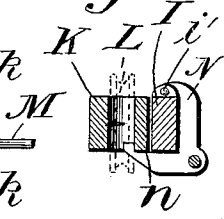


Fig. 9.



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UNITED STATES PATENT OFFICE.

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SIGNORS OF ONE-HALF TO THOMAS O. STEARNS, OF SAME PLACE.

STORE-SERVICE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 659,614, dated October 9, 1900.

Application filed March 31, 1900. Serial No. 11,004. (No model.)

To all whom it may concern:

Be it known that we, HUBBARD D. B. WILLIAMS and DAVID LIPPY, citizens of the United States, and residents of Mansfield, in the county of Richland and State of Ohio, have invented certain new and useful Improvements in Store-Service Apparatus, of which the following is a specification.

This invention is an improvement in store-service apparatus, and relates more especially to that class in which the carrier travels by gravity and spring force on an inclined track or way; and one object of the invention is to provide an apparatus of this general character with certain mechanical devices which operate automatically to release the carrier and start it upon the inclined track and to also change the inclination of the track-wire for the purpose of returning the carrier to the salesman.

A further object of the invention is to provide for lowering the carrier to within easy reach of the salesman.

With the above objects in view the invention consists of a vertical rod or way suitably supported, a line-wire support movable upon said rod or way, and devices adapted to automatically engage the line-wire support and hold it at different elevations, together with means which automatically release the carrier when the line-wire support is elevated to its highest point.

The invention further consists in the combination, with the vertical rod or way and line-wire support movable thereon, of an intermediate stop for the line-wire support and means for tripping said stop to permit the line-wire support to be lowered to the lower end of the rod.

The invention further consists in the combination, with the carrier, of the vertical rod or way, a line-wire support movable thereon, and a device adapted to automatically engage the line-wire support, together with a trip-wire connected to said device and means for operating the trip-wire from the other end of the line-wire or track.

The invention consists, furthermore, in the particular construction and combination of the parts, as hereinafter fully set forth, and

specifically pointed out in the appended claims.

In the accompanying drawings, which form a part of this specification, and in which like letters of reference indicate similar parts throughout the several views, Figure 1 is a side elevation of that part of the apparatus which is located at or near the salesman's counter. Fig. 2 is a side elevation of that part of the apparatus which is located at the cashier's desk, showing the engagement of the carrier therewith. Fig. 3 is a vertical longitudinal sectional view of the device located at the cashier's desk. Fig. 4 is a detail sectional view of the carrier. Fig. 5 is a front end view of the upper supporting-bracket. Fig. 6 is a sectional view of the upper supporting-bracket on the line 6 6 of Fig. 1. Fig. 7 is a similar view on the line 7 7 of Fig. 1. Fig. 8 is a detail plan view of the intermediate supporting-bracket and movable line-wire support shown in engagement therewith. Fig. 9 is a detail sectional view on the line 9 9 of Fig. 8. Fig. 10 is a detail sectional view showing the connection of the vertical rod to the lower supporting-bracket.

Referring to said drawings, A designates a vertical bar or standard which depends from a suitable support and is firmly braced, the said bar or standard being adapted to support the mechanisms which are located at or near the salesman's counter. From the lower end of this bar or standard projects forwardly an arm A', braced by an inclined rod a, as shown, and near the outer end of said arm is formed a socket a', into which is stepped the lower end of a rod B, which forms a vertical track for the movable line-wire support, hereinafter described. Upon the bar or standard A, at a suitable distance above the lower supporting-arm A', is rigidly mounted a frame C, comprising an upper horizontal bar C' and lower horizontal bars C² and C³, connected together at their outer ends by a casting C⁴, the said bars C', C², and C³ being supported at their inner ends by collars c and c', mounted upon the standard A and held thereon by set-screws. Slidably mounted upon the lower bars C² and C³ of this frame is a cross-piece or slide D, through the center of which passes

the upper end of the rod B, and said slide is adapted to abut against helical springs or bumpers *d* when the upper end of the rod returns to its normal position. (Shown in full lines in Fig. 1 of the drawings.) At the forward end of the frame C is a swinging hook E, which depends between the bars C² and C³ and is pivoted at its upper end to a bracket F, adjustable upon the bar C' and secured by a set-screw *f*. The hook is adapted to engage and support the movable line-wire support and is released by a horizontal rod G, slidably mounted in the frame and having an adjustable collar *g*, which contacts with the said hook, the operating-rod being returned to its normal position by a spring *g*¹, while the hook is returned to its normal position by a spring *g*². This supporting-hook for the movable line-wire support is released automatically by a trip-wire H, connected to a slide-bar at the home station. The rod or vertical track B is of resilient metal, and the upper portion thereof is bent rearward in a curve for the purpose hereinafter explained, while at an intermediate point said rod is braced by an adjustable arm I, having a lateral projection *i*, to which said rod is secured. The rear end of the arm I is slotted, as shown in Fig. 8, to receive the bar or standard A, upon which it is supported by a collar or casting J, held upon the standard by means of a set-screw *j*. The arm is slidable in the casting J in order that it may be adjusted longitudinally to vary the inclination of the rod B, said adjustment being accomplished by a set-screw or eyebolt I', which passes through the rear end of the arm and bears against the standard, while a vertical adjustment of the arm may be had by moving the supporting collar or casting J upon the standard. It will also be noted that the lower supporting-arm A' for the rod B is also adjustable longitudinally in a T-coupling *a*⁵, forming the lower end of the depending bar or standard A, the adjustment of this arm being held by a set-screw *a*⁶.

K designates the frame of the movable line-wire support, the rear end of which is shaped, as shown, to receive a grooved wheel L, which travels upon the rod B, while the forward end of said frame is provided with ears *k* *k*, through which passes a screw *k*¹, forming a cross-bar to which the line-wire or track M for the carrier is attached. It will be understood that the tension on the line-wire M is such as to keep the line-wire support K in engagement with the rod B, upon which it is adapted to travel, and that the frame of this line-wire support is open at one side in front of the wheel in order that it may pass the bracing-arm I; but as the normal position of said line-wire support is at the arm I the latter is provided with a swinging hook N, pivoted to a lug *i*¹ and adapted to swing under the arm into the path of the line-wire support. The outer end of this hook is beveled, as shown, so that the line-wire support in passing upward will push the

hook backward out of its way, while the upper part of the hook is recessed, as shown at *n*, to catch the line-wire support upon its downward movement. The hook swings into position by gravity and is released by a rod N', projecting forwardly therefrom and formed into an eye at its outer end, through which the hoisting and lowering cord O for the line-wire support passes. The operating-cord O passes over a sheave O', secured upon the frame C, being adjustable upon the bar C', so that it may be properly positioned with respect to the line-wire support.

The movable line-wire support K is provided with an upwardly-projecting hook *k*², which is adapted to engage the swinging hook E, hereinbefore referred to, and support the line-wire support in its elevated position, and in this position the line-wire or track inclines downwardly to the cashier's desk, while in the normal position of the line-wire support K, supported by the hook N, said line-wire or track inclines downwardly from the cashier's desk to return the carrier. The line-wire support K is also provided with a depending hook P, having a reduced portion or stem *p*, which passes through the support K and above the same and is provided at its upper end with a head *p*¹. A spring *p*² encircles the stem and is interposed between the head and frame of the line-wire support to lift the hook. Above this hook the line-wire support presents a head *k*³, against which the bumper of the carrier abuts, and it will hereinafter appear that the hook *p* is depressed by contact with the end piece C⁴ of the frame C.

The device which is located at the home station near the cashier's desk consists of a frame or casting Q, in the upper end of which is mounted a drum R, to which is attached an end of the line-wire or track M. One end of this drum is squared to provide for turning the same, and adjoining this squared end is a ratchet-wheel *r*, with which engages a gravity-pawl *r*¹ in order that any slack in the line-wire may be readily taken up. In the frame Q is also mounted a lever S, having a hooked end *s*, below which is a guide-arm *q*, channeled in its upperside, as shown. Frame Q also supports a bar T, slidable horizontally therein, said bar having an upwardly-projecting arm *t* at its rear end, extending a suitable distance above the line-wire or track M, and to the upper end of this arm is attached the trip-wire H, which extends from the operating-rod G for the hook F at the outer station of the apparatus. The forward end of the bar T has a depending portion *t*¹, against which the carrier strikes to operate said bar. The bar slides between rollers *q*¹ and *q*² to reduce friction.

The carrier, which is especially adapted for use in connection with the devices hereinbefore described, is made of the end pieces or castings U U, similar in construction and connected by upper and lower bars V and V', respectively, the upper ends of said end pieces

housing grooved rollers *w*, which travel upon the line-wire or track *M* of the apparatus. The ends of the flat upper bar *V* are secured in bifurcated lugs *u* at the upper ends of the end pieces or castings *U*, while the lower bar *V'* is U-shaped in cross-section, and the ends are provided with threaded projections *v*, which pass through the end pieces *U* and are attached thereto by a round nut *v'*. The threaded projections *v* of the U-shaped bar *V'* are provided with longitudinal openings, through which passes a rod *X*, extending the full length of said bar and beyond the ends of the carrier, the said rod being provided at its ends with bumpers *X'*. The rod lies in the channel of the bar *V'*, and centrally it is provided with a rigid collar *x*, against the opposite sides of which bear helical springs *x'* and *x''*, said springs encircling the rod and being interposed between said collar and the end pieces of the carrier, thus forming spring-bumpers at both ends of the carrier, said bumpers serving also to start the carrier when it is released. At each end of the carrier is a loop *Y*, the ends of which are passed into lugs *u'* on the end pieces *U* and are held in said lugs by set-screws, the loops being adapted to engage the hooks *T* and *P* at the home and outer stations, respectively. The lower end of each end piece *U* is formed into a socket, into which are passed the ends of the wires *z*, supporting the basket *Z*, said wires being held in the socket by a block *z'*, clamped upon the wires by screws *z''*.

The operation of the apparatus is as follows: Supposing the parts at the outer station to be in the position illustrated in full lines, Fig. 1, with the movable line-wire support resting upon the hook carried by the arm *I*, the operator should draw upon the cord *O* sufficiently to lift the line-wire support off the hook *N* and then exert a lateral pull upon the cord to move said hook out of the path of the line-wire support to permit the latter to be lowered to the lower end of the rod *B* and rest upon cushion *a''*. After depositing the articles in the basket *Z* the cord *O* is pulled upon to move the line-wire support up the rod *B* until the hook *k''* thereof engages the hook *E*, adjoining the upper end of said rod, and in this position the track-wire *M* is inclined from the outer station downward to the home station and will allow the carrier to travel by gravity from said outer station to the home station. Simultaneously with the engagement of hook *k''* with hook *E* the hook *P*, which holds the carrier to the line-wire support, will be disengaged by contact with the end piece *C'* of the frame *C*, and as the spring-bumper on the carrier is held compressed by engagement of said carrier with hook *P* said bumper will exert a force to start the carrier as soon as it is released. When the carrier arrives at the home station, it will abut against the slide-bar *T* and operate it to pull upon the trip-wire *H* and trip the hook *E* from engagement with the movable line-wire support, per-

mitting it to drop to the arm *I*, where it is caught by the hook *N*, thus inclining the track-wire *M* in the opposite direction, so that the carrier will return by gravity to the outer station. It may be here noted that as the line-wire support travels upward upon rod *B* the upper portion thereof is drawn forward by the tension of the track-wire *M*, and the curve of said upper portion of the rod is such that it will force the line-wire support downward as it assumes its normal position. As the carrier strikes at each end of the line or track the spring-bumper, comprising the rod *X* and springs *x'* and *x''*, will be compressed before the engagement of loops *Y* with either hook, so that the force of one of said springs is employed to start the carrier as soon as it is released. From the foregoing description, in connection with the accompanying drawings, it will be seen, therefore, that the operator or salesman need only pull upon cord *O* until the movable line-wire support reaches the upper end of the rod *B* and engages the hook *E*, the device then operating to automatically release the carrier and start it upon its way to the home station, and that when it arrives at the home station it will automatically operate the trip-wire to release the movable line-wire support and permit it to drop to its normal position, and that the cashier or operator at the home station is only required to depress the lever *S* to disengage the carrier therefrom, the carrier being started in each instance by the spring force of the bumper, as hereinbefore explained.

The apparatus is constructed as light as possible consistent with the required strength.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a store-service apparatus, the combination, of a rod or vertical track, a line-wire support movable thereon, means for supporting the line-wire support at upper and lower points on the rod or track, and an intermediate support movable in and out of engagement with said line-wire support; together with means for raising and lowering the line-wire support, substantially as shown and for the purpose set forth.

2. In a store-service apparatus, the combination, of a vertical rod or track, a line-wire support movable thereon, means for supporting the line-wire support at upper and lower points on the rod or track, and an intermediate support movable in and out of engagement with the line-wire support; together with means for raising and lowering the line-wire support, said means being adapted to also operate the intermediate support or stop, substantially as shown and for the purpose set forth.

3. In a store-service apparatus, the combination, of a vertical rod or track, a line-wire support movable thereon, means for supporting the line-wire support at upper and lower

points on the rod or track, and an intermediate support movable in and out of engagement with the line-wire support; together with a cord or flexible connection attached to the line-wire support passing therefrom over an elevated sheave or guide-pulley and depending through an eye of the intermediate support, substantially as shown and for the purpose set forth.

4. In a store-service apparatus, the combination, of a rod or vertical track, a line-wire support movable thereon, means for supporting the line-wire support at upper and lower points on the rod or track, and a swinging hook adapted to support the line-wire support at an intermediate point on the rod or track, said hook having an eye through which the operating-cord passes, substantially as shown and for the purpose set forth.

5. In a store-service apparatus, the combination, of a vertical rod or track, a line-wire support movable thereon, means for supporting the line-wire support at upper and lower points on the rod or track, and a swinging hook adapted to arrest the downward movement of the line-wire support, the upper side of the hook being recessed while the under side is beveled; together with the operating-cord for the line-wire support, said cord being passed through an eye of the swinging hook, substantially as shown and for the purpose set forth.

6. In a store-service apparatus, the combination, of a vertical rod or track, a line-wire support movable thereon, a hook carried by the line-wire support and adapted to engage the carrier from the hook; together with the carrier having a spring-bumper and loop or part which engages the aforesaid hook with the spring-bumper compressed, substantially as shown and for the purpose set forth.

7. In a store-service apparatus, the combination, of a vertical rod or track, a line-wire support movable thereon, a hook movably connected to the line-wire support, and a frame with which the hook contacts when the line-wire support is elevated; together with the carrier having a spring-bumper and part which engages the aforesaid hook, substantially as shown and for the purpose set forth.

8. In a store-service apparatus, the combination with the line-wire supports, of a carrier having spring-bumpers at its ends, and hooks or loops adapted to engage the line-wire supports when a spring-bumper is compressed, substantially as shown and for the purpose set forth.

9. In a store-service apparatus, the combination, with the line-wire supports and hooks carried thereby, of a carrier, spring-bumpers comprising a rod and springs compressed by a movement thereof, said rod extending longitudinally through the carrier and projecting beyond each end thereof, and hooks or loops at the ends of the carrier, said hooks or loops being shorter than the projecting ends of the

bumpers and adapted to engage the aforesaid hooks when a bumper is compressed, substantially as shown and for the purpose set forth.

10. In a store-service apparatus, the combination with the line-wire supports and hooks carried thereby, of a carrier having a longitudinal channel-bar, a rod extending along the channel-bar and slidable in the carrier, the ends of said rod projecting beyond the ends of the carrier and terminating in heads, helical springs mounted on the rod and interposed between the end pieces of the carrier and stops on said rod, and hooks or loops at the ends of the carrier, said hooks or loops being shorter than the projecting ends of the rod and adapted to engage the aforesaid hooks when a spring-bumper is compressed, substantially as shown and for the purpose set forth.

11. In a store-service apparatus, the combination with the line-wire supports and hooks carried thereby, of a carrier having a longitudinal channel-bar, a rod extending along the channel-bar and slidable in the carrier, the ends of said rod projecting beyond the ends of the carrier and terminating in heads, springs compressed by a movement of the rod in either direction, and hooks or loops adjus- tably attached to the ends of the carrier, said hooks or loops being shorter than the projecting ends of the rod and adapted to engage the aforesaid hooks when the spring-actuated rod is retracted, the carrier having means for supporting a basket, substantially as shown and for the purpose set forth.

12. In a store-service apparatus, the combination, of a vertical rod or track, a line-wire support movable thereon, said line-wire support having a hook for engaging the carrier and a hook for engaging an upper support; a swinging hook for engagement with the hook on the carrier, a trip-wire connected to the swinging hook, and means for operating the trip-wire at the other end of the line-wire or track, substantially as shown and for the purpose set forth.

13. In a store-service apparatus, the combination, of the vertical rod or track, a line-wire support movable thereon, said line-wire support having a vertically-movable hook for engaging the carrier and a hook for engaging an upper support; an upper support having a part engaging the aforesaid movable hook; a swinging hook adapted to engage the upper hook of the line-wire support; a trip-wire connected to the swinging hook, and means operating the trip-wire from the other end of the line-wire or track; together with the carrier having a spring-bumper and a hook or loop adapted to engage the aforesaid movable hook of the line-wire support when the spring-bumper is compressed, substantially as shown and for the purpose set forth.

14. In a store-service apparatus, the combination, of a vertical rod or track having a yielding upper portion, a slide engaging the upper end of the rod, a line-wire support

traveling on said rod or track, and an intermediate movable support adapted to arrest the downward movement of the line-wire support, means for engaging and supporting the line-wire support in an elevated position, a trip-wire connected to said supporting means, and means operating the trip-wire by the impact of the carrier; together with a cord or flexible connection attached to the movable line-wire support extending therefrom over a sheave or pulley and depending through an eye in the aforesaid intermediate support, substantially as shown and for the purpose set forth.

15. In a store-service apparatus, the combination, of a vertical spring-rod having a yielding upper portion, a line-wire support adapted to travel upon said rod, a swinging hook adapted to engage the line-wire support and support it in an elevated position, an operating-rod engaging the hook, a trip-wire connected to said rod, and a slide-bar to which the trip-wire is attached, the slide-bar being located at the other end of the line from the movable line-wire support and positioned to be struck by the carrier, substantially as shown and for the purpose set forth.

16. In a store-service apparatus, the combination, of a vertical rod having a yielding upper portion, a slide connected to the upper end of said rod and adapted to guide the same, a line-wire support traveling upon the rod, a swinging hook adapted to engage the line-wire support, a spring-actuated rod for moving the hook in one direction, a trip-wire con-

nected to said spring-actuated rod, and a slide-bar to which the other end of said trip-wire is attached and which is adapted to be struck by the carrier, substantially as shown and for the purpose set forth.

17. In a store-service apparatus, the combination, of a vertical spring rod or track having a yielding upper portion, a frame, a slide supported in said frame and adapted to guide the upper end of the rod, a line-wire support adapted to travel upon the rod, a swinging hook mounted in the aforesaid frame and adapted to engage and support the line-wire support in an elevated position, a movable intermediate support for arresting the downward movement of the line-wire support, an operating-rod for the swinging hook, a trip-wire connected to said rod, a slide-bar to which the trip-wire is attached, said slide-bar being located at the other end of the line from the movable line-wire support, and a carrier traveling upon the line-wire and adapted to operate the slide-bar; together with a cord or flexible connection attached to the line-wire support and extending therefrom over a guide pulley and through an eye on the intermediate support for the line-wire support, substantially as shown and for the purpose set forth.

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