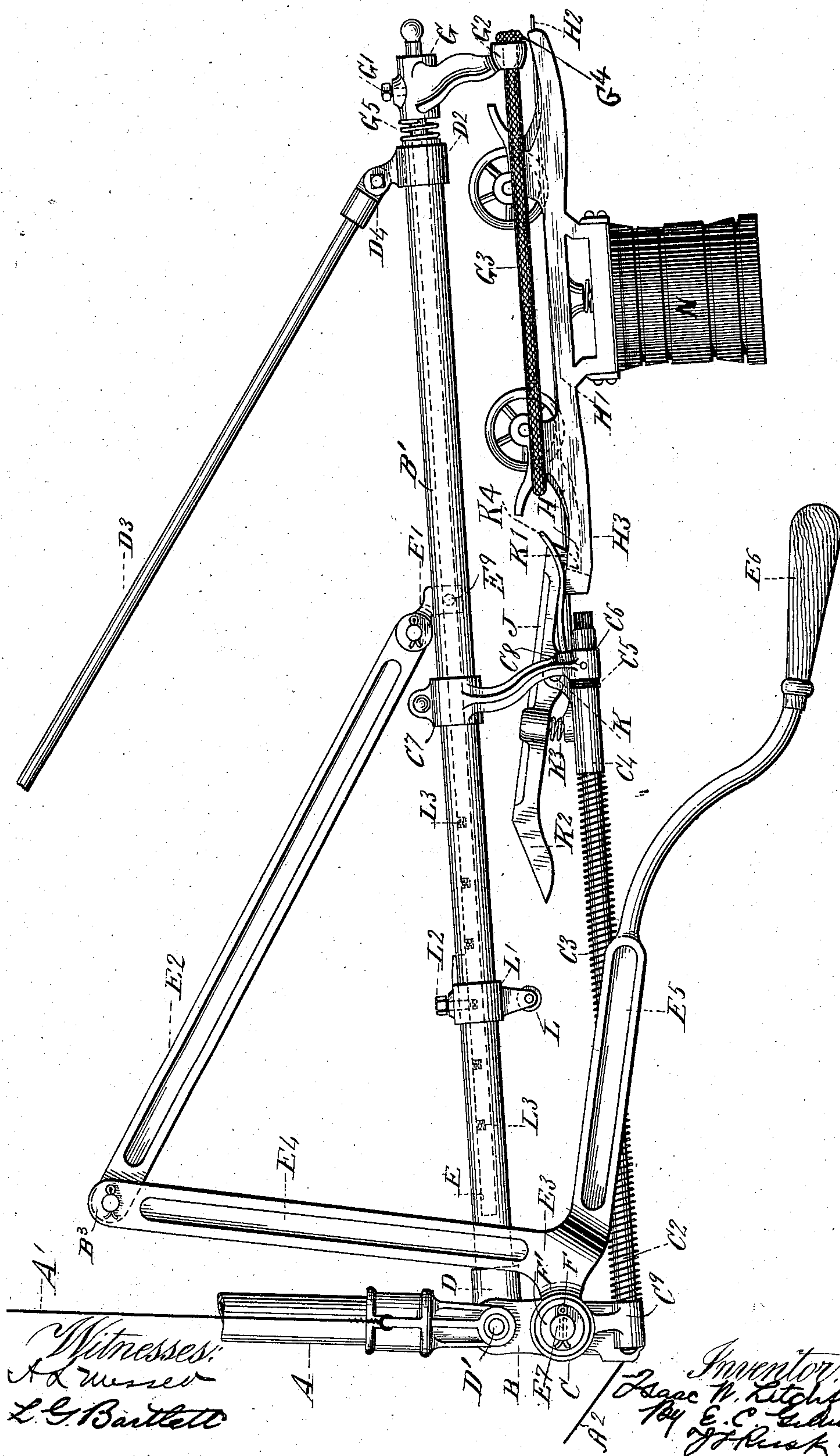


No. 881,699.

I. W. LITCHFIELD. PATENTED MAR. 10, 1908.
STORE SERVICE APPARATUS.
APPLICATION FILED SEPT. 1, 1905.

2 SHEETS—SHEET 1.



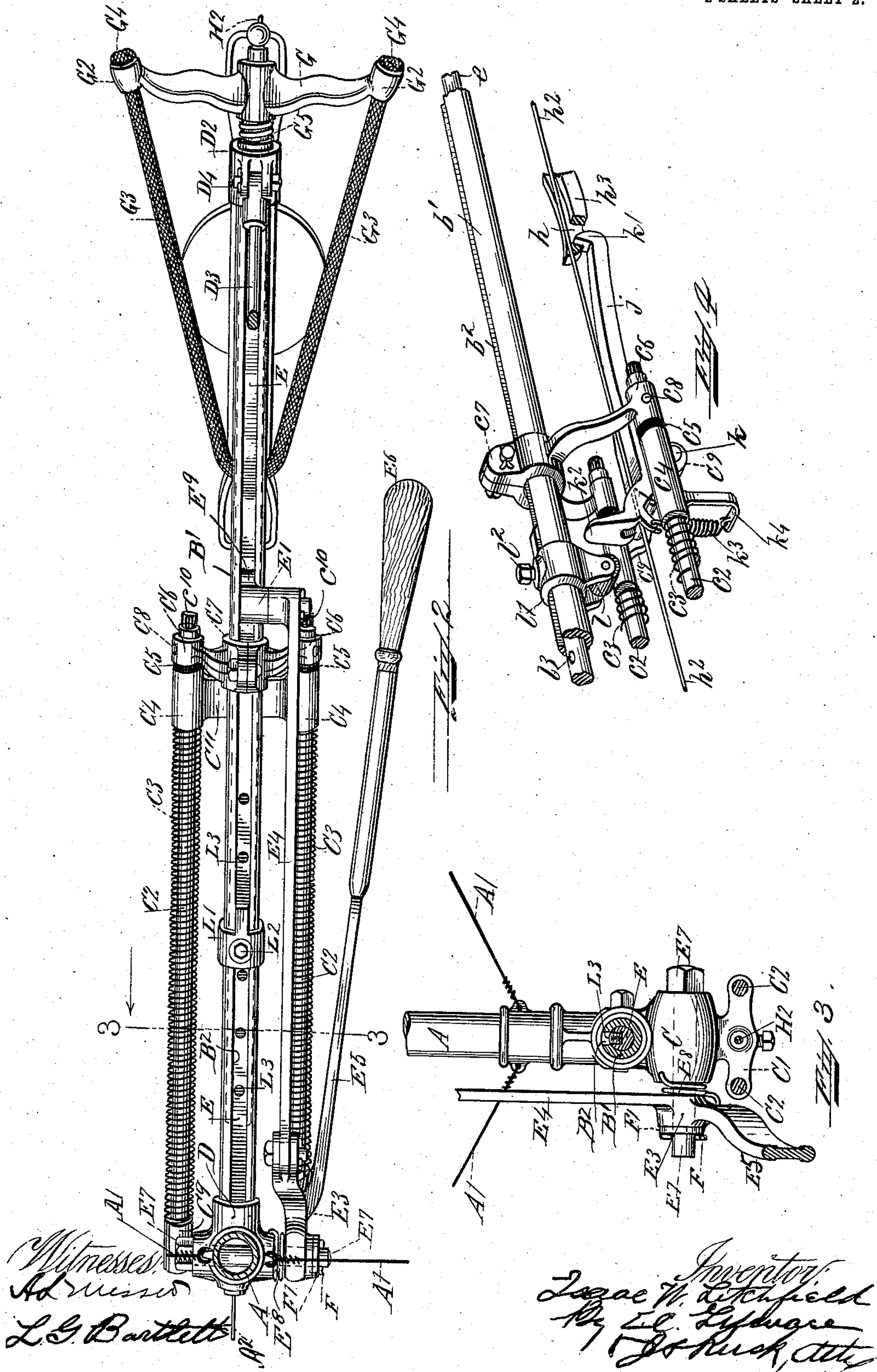
Witnesses:
Adm. Sec.
L. E. Bartlett

Inventor:
Isaac W. Litchfield
By E. C. Litchfield
J. H. Risk, Atty.

No. 881,699.

I. W. LITCHFIELD. PATENTED MAR. 10, 1908.
STORE SERVICE APPARATUS.
APPLICATION FILED SEPT. 1, 1905.

2 SHEETS—SHEET 2.



UNITED STATES PATENT OFFICE.

ISAAC W. LITCHFIELD, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO LAMSON CONSOLIDATED STORE SERVICE COMPANY, OF NEWARK, NEW JERSEY, A CORPORATION OF NEW JERSEY.

STORE-SERVICE APPARATUS.

No. 881,699.

Specification of Letters Patent.

Patented March 10, 1908.

Application filed September 1, 1905. Serial No. 276,679.

To all whom it may concern:

Be it known that I, ISAAC W. LITCHFIELD, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Store-Service Apparatus, of which the following is a specification.

My invention relates to that class of store service apparatus in which the power to propel the carrier is stored by stretching a spring in contact with the carrier and then releasing the carrier whereby the tension of the spring propels the carrier to the opposite end of the line.

The object of my invention is to provide certain improved devices hereinafter fully described and whereby this method of stored spring propulsion is carried into effective and efficient operation and also to provide for the ready adjustment of the power to the result to be produced.

In the accompanying drawings which illustrate a construction embodying my invention, Figure 1 is a side elevation of one end of the improved store service apparatus showing a car in its locked position ready to be despatched. Fig. 2 is a top plan view of the same. Fig. 3 is a cross sectional view on the line 3—3 Fig. 2 looking in the direction indicated by the arrow. Fig. 4 is a modification of the releasing device hereinafter fully described.

Like letters of reference refer to like parts throughout the several views.

The hanger A usual in store service apparatus is suitably suspended from the ceiling and brace wires A' A² are attached to the lower end of the standard to assist in supporting the apparatus at both ends of the way. Secured to the lower end of the standard A on the shaft D' is a suitable casting B having a suitable hub C in which is mounted the shaft E' shown in Figs. 2 and 3 and on this shaft is mounted at one side the bell crank lever E³ held on the shaft by the washer F' and pin F. Extending outwardly from the upper end of the casting B is the boss D to which is secured the hollow arm B' having a suitable continuous slot B² in its upper side. Located within the arm B' is a rod E to the outer end of which is secured the bracket G by the set screw G' and between said bracket G and the outer end of the arm B' is a suitable spring G⁵ to cushion the re-

turn of the carrier upon its contacting with the rubber propelling spring G³ on its return from the opposite end. This rubber spring is secured by knots G⁴ to the eyes G² on the ends of the bracket G and normally rests on the wire H² in position to be engaged by the incoming carrier.

H' is a carrier of the usual construction having the box N adapted to be attached to and detached from the main body of the carrier (in the usual manner of store service systems) and said carrier is provided with a recess H in one end H³, and with said recess is adapted to engage the finger K' on the lever J pivoted at K to the cross bracket C¹¹ having two opposite sleeves C⁴ free on the opposite rods C², the outer ends of which rods C² are supported and held respectively by the collars C⁶ and pins C⁸ on the bracket C' fixed fast on the arm B'. This finger K' is normally kept in the downward position by the spring K³ which normally holds the opposite end K² of the lever J in an upper position as shown. The springs C³ located around the rod C² bear at one end against the free sleeves C⁴ and at their opposite ends against the fixed sleeve C⁹ on the casting B. These springs are for the purpose of cushioning the impact of the carrier as it enters one end of the line and strikes the end of the lever J, the rebound of the sleeves C⁴ being relieved by cushions C⁵. The inner ends of the forked spring K⁴ are secured in the opposite sides of the bracket C' and extend forward and press down on the end H³ on opposite sides of the finger K' and hold the carrier from swinging when the finger K' is raised for the despatch of the carrier.

The end E' of the link E² is secured at E⁹ to the rod E as shown and the opposite end of the link E² is pivotally secured at B³ to the arm E⁴ of the bell crank lever E³ and said lever is provided with a lower arm E⁵ to which is secured the operating handle E⁶. Located around the arm B' and movable thereon is a trip L' having anti-friction roller L at its lower end and adapted to be adjusted along the arm E' to engage any one of the holes L³ in the rod E and to be held fast to said rod by the set screw L². The adjustment of trip L' along the arm is to regulate the extent to which the carrier is propelled and the speed of the car will depend on the distance to which the trip L' travels with the

rod E prior to releasing the carrier and this distance can be varied by locking the trip in any one of the recesses L^3 .

With the parts in the position shown in Fig. 1, the operator taking hold of the handle E^6 pulls down the same which moves the bell crank lever and with it the link E^2 moving outwardly the rod E in the arm B' . The continued pulling on the handle E^6 will bring the trip L' over the end K^2 of the lever J and as the friction roller L moves up the incline on the end K^2 , it will depress same and raise the finger K' from engagement with the recess H allowing the carrier to be despatched by the stored inertia of the spring G^3 , as said spring is put under tension by the outward movement of the bracket G carried by the rod E and this tension of the spring G^3 upon the upward movement of the finger K' will despatch the car to the opposite end of the line. Upon the despatch of the carrier, the operator releases his hold upon the handle E^6 when the spring E^8 (Fig. 3) having one end bearing against the hub C and the opposite end against the under side of the arm E^5 , will move the bell crank lever E^3 and the rod E back to their normal positions shown in Fig. 1. The return of the rod E is cushioned by the spring G^5 . By mounting the casting B on the shaft D' , the arm B' secured to the boss D can be tilted to any desired angle and held by means of the collar D^2 pivoted at D^4 to the supporting rod D^3 , which is common in store service apparatus, and is secured to the standard A by a suitable collar. This adjustment of the arm B' to any desired angle for different heights of cashiers' stations is advantageous and does not interfere with the operation or construction of said device.

Fig. 4 illustrates a modified form of device for holding the car at the end of the line. b' represents a hollow arm in which is mounted the rod e which is adapted to slide in a manner similar to that described for the rod E in Figs. 1 and 2. Around this arm b' is secured the bracket c^7 provided with sleeves c^6 to which are secured the rods c^2 by suitable pins c^8 . The impact of the carrier as it enters one end of the line and strikes the end of the lever j is cushioned by the springs c^3 , the rebound of the sleeves c^4 being relieved by the cushions c^5 . Collars c^4 are mounted on the rods c^2 and against said collars one end of the springs c^3 bear and are adapted to take up the blow of the carrier entering a station. From the collars c^4 extend the lugs c^9 which form a bearing for the shaft k of the lever j which at its outer end is provided with a lip k' adapted to engage the recess h on one end h^3 of the car which is adapted to travel on the way h^2 ; to the opposite end of the lever j is secured the spring k^3 and the opposite end of said spring is secured to the bracket k^4 mounted on the lower side of one of the

collars c^4 and said spring normally holds the finger k' in position to engage the car entering the station. When it is desired to propel a car, the operation is identical to that described for Fig. 1, and as the rod e moves outward, the roller l on trip L' contacts the upper end k^2 of the lever j and pushing on the same forces the finger k' out of engagement with the recess h of the car when the car is propelled along the line. The rod e is provided with recesses l^3 for the adjustment of the trip L' as previously described for Figs. 1 and 2.

The following advantageous features are embodied in the device hereinbefore described: Avoiding the use of cord common in spring cash carriers. Stretching of the actuating spring from the fork end thus giving an auxiliary push to the car. The toggle joint arrangement by means of which the power necessary to operate the device is equalized at every point of the actuating spring; that is to say, when the toggle joint arrangement is making speed at the expense of power, the actuating spring is at its weakest point and when the said joint arrangement is making power but little speed, the actuating spring is at its greatest tension. The method of adjusting the device so as to give more or less tension to the spring. The lightness of the parts to which the latch is pivoted so that there is little inertia to be overcome by the incoming car when it strikes this part. The offsetting of the upper member of the bell crank lever so that brace wires can be attached to the standard at a very low point.

Having thus described the nature of my invention and set forth a construction embodying the same, what I claim as new and desire to secure by Letters Patent of the United States is:

1. In a cash or parcel carrier, a track or way, a carrier adapted to travel on said track or way, a spring adapted to propel said carrier along said track or way, sliding means for applying tension to said spring, and a toggle joint for equalizing the power to be applied to said sliding means to produce any degree of tension in said spring.

2. In a cash or parcel carrier, a main support, a track or way fixed to said support, a carrier adapted to travel on said track or way, a hollow bar pivoted to said support and adapted to be adjusted in parallelism with said track or way, a sliding rod adapted to fit in said hollow bar and move longitudinally therein, a spring attached to the outer end of said rod and adapted to propel said carrier, a bell-crank lever pivoted to said main support, a connecting rod pivoted to and connecting said bell crank lever and said rod, said bell-crank lever adapted to apply tension to said spring, a pivoted catch adapted to hold said carrier while tension is being applied to said spring, and adjustable

means on said sliding rod for engaging said pivoted catch and releasing said carrier at any desired tension of said spring.

3. In a cash or parcel carrier, a track or way, a carrier adapted to travel on said track or way, a spring adapted to propel said carrier on said track or way, a bracket supporting said spring, a sliding arm to which said bracket is secured, propelling means for moving the said arm along said track or way, and connections between said propelling means and said arm for operating said arm for applying tension to said spring to propel the carrier.

4. In a cash or parcel carrier, a track or way, a carrier adapted to travel on said track or way, a spring adapted to propel said carrier on said track or way, a bracket supporting said spring, a sliding arm to which said bracket is secured, propelling means for moving the said arm along said track or way, connections between said propelling means and said arm for operating said arm for applying tension to said spring to propel the carrier, a catch adapted to hold said carrier while said

spring is under tension, and a trip for engaging said catch to release said carrier.

5. In a cash or parcel carrier, a track or way, a carrier adapted to travel on said track or way, a spring adapted to propel said carrier on said track or way, a bracket supporting said spring, a sliding arm to which said bracket is secured, propelling means for moving the said arm along said track or way, connections between said propelling means and said arm for operating said arm for applying tension to said spring to propel the carrier, a catch adapted to hold said carrier while said spring is under tension, and an adjustable trip for engaging said catch to release said carrier.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses, this thirtieth day of August, A. D. 1905.

ISAAC W. LITCHFIELD.

Witnesses:

FRANK A. SEIB,
GEORGE W. ECKER.