

(No Model.)

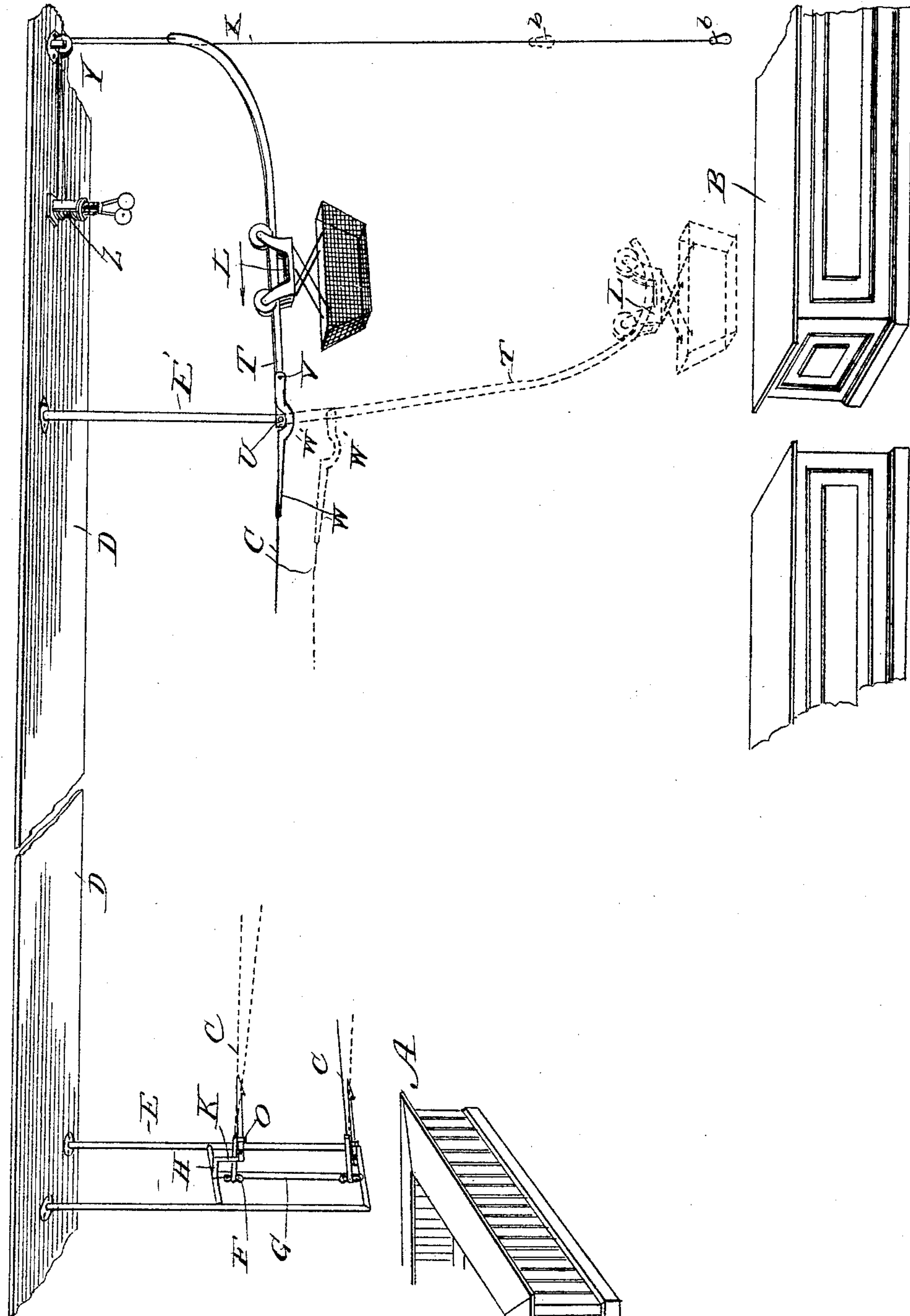
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C. W. McCORMICK.  
STORE SERVICE APPARATUS.

No. 437,931.

Patented Oct. 7, 1890.

*Fig. 1.*



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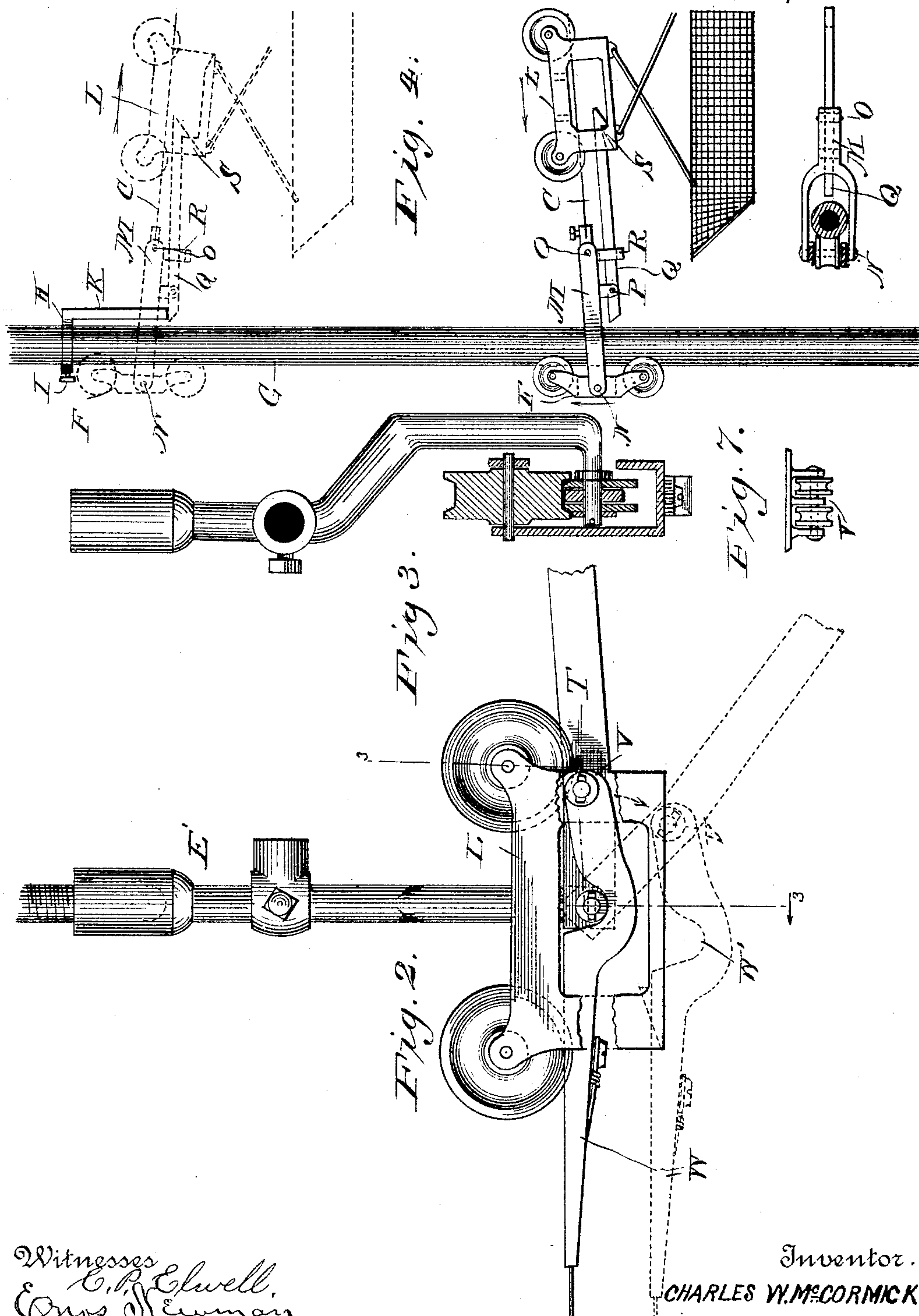
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(No Model.)

3 Sheets—Sheet 3.

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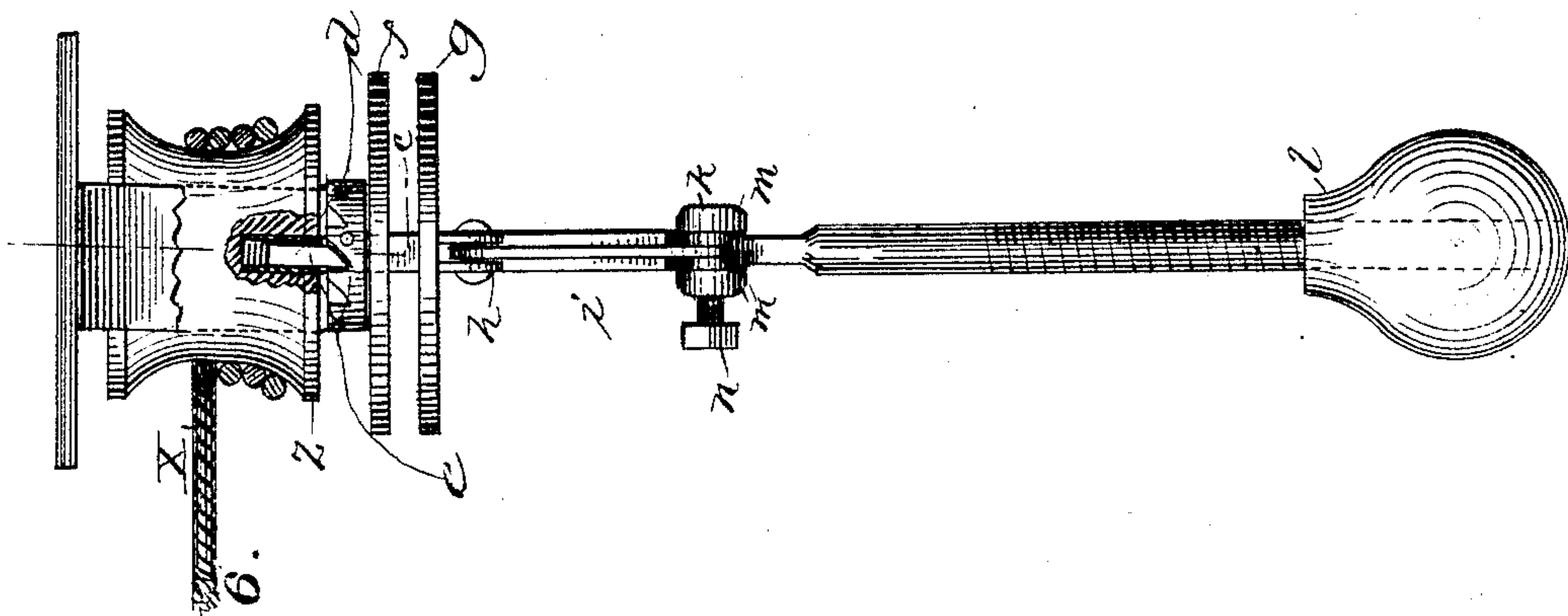


Fig. 6.

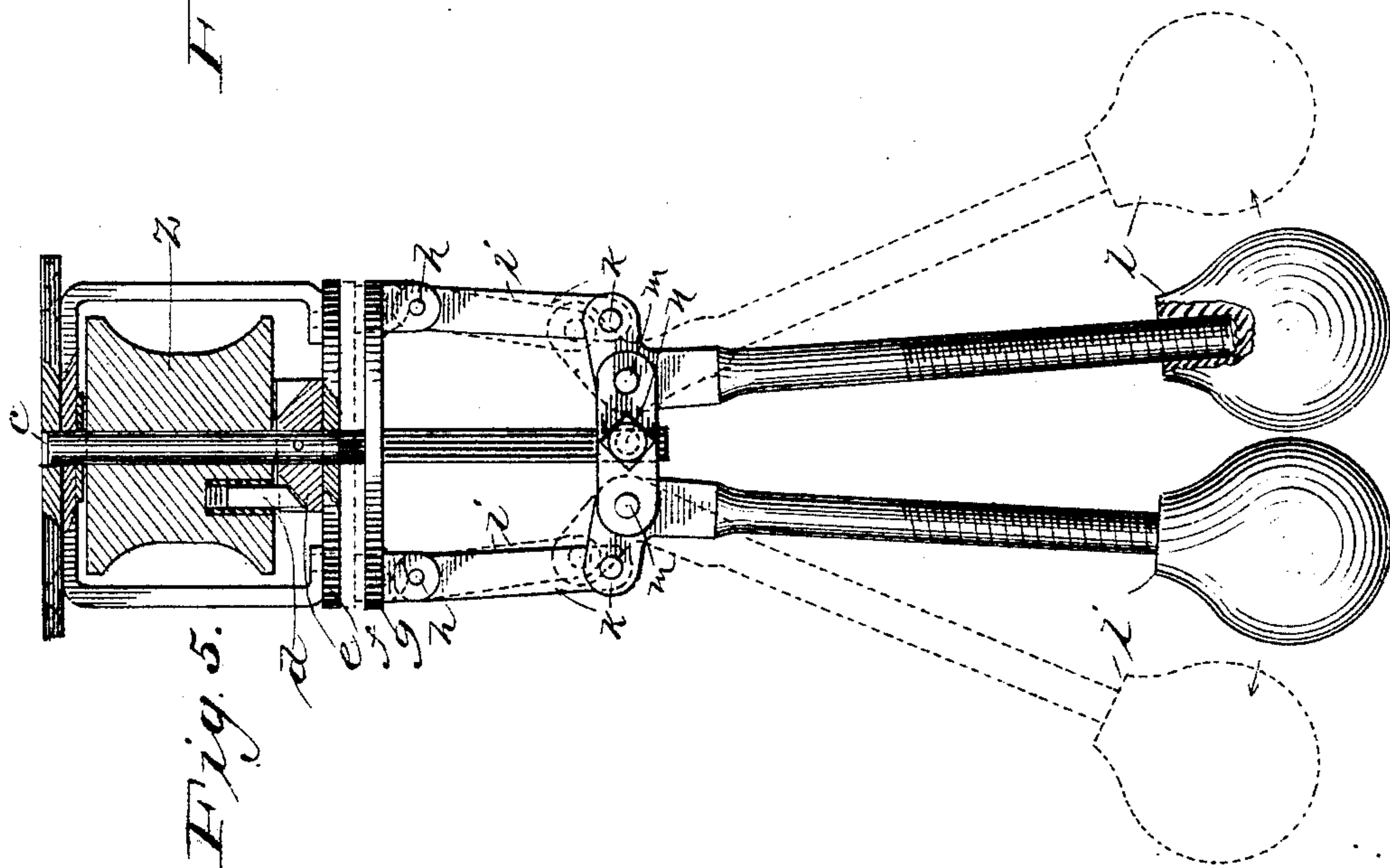


Fig. 5.

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# UNITED STATES PATENT OFFICE.

CHARLES W. MCCORMICK, OF EMPORIA, KANSAS.

## STORE-SERVICE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 437,931, dated October 7, 1890.

Application filed April 10, 1890. Serial No. 347,343. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES W. MCCORMICK, of Emporia, in the county of Lyon and State of Kansas, have invented certain new and useful Improvements in Store-Service Apparatus, of which the following is a specification, reference being had to the accompanying drawings.

My improvements relate to that class of store-service apparatus in which a wire track is suspended at each end to support a car which traverses the track back and forth by force of gravity. In that class of store-service apparatus it is usual to provide for raising and lowering one or both ends of the track.

The object of my invention is to provide a track movable up and down, principally at one end, and having at the opposite end mechanism for delivering the car below what I will call the "fixed" end of the track, and in the operation of so delivering the car to automatically release and lower the movable end of the track.

In the accompanying drawings, Figure 1 is a perspective diagrammatical view giving a general idea of the positions of the different parts in operation in a store. Fig. 2 is an elevation of the car-lowering mechanism at the fixed end of the track, the dotted lines indicating changes of positions of the parts in operation. Fig. 3 is a section on the line 3 3 of Fig. 2. Fig. 4 is a side elevation of the parts at the movable end of the track, the full lines indicating the track lowered and the dotted lines indicating it raised. Fig. 5 is a view of a friction-brake attachment applied at the fixed end of the track to control the speed of descent of the car in being lowered. Fig. 6 is another view of the friction-brake mechanism shown in Fig. 5. Fig. 7 is a top view of a horizontal ratchet-wheel detached.

Referring to the letters upon the drawings, A in Fig. 1 indicates what may be assumed to be a cashier's desk and wrapper's counter, which is under the movable end of the track.

B indicates what may be assumed to be the salesman's counter, which is under what I will call the "fixed" end of the track, although it has some little movement up and down.

C indicates the track, and D the ceiling, to which the track-supports E and E' may be assumed to be fixed.

F indicates a vertically-moving trolley, to which the movable end of the track is secured.

G indicates a hanger, constituting a vertical track for the trolley, which is provided with suitable mechanism for holding the trolley up at its upper end automatically when the trolley is raised to that place, and then automatically releasing it when the tension of the track is relaxed. This mechanism is best shown in Fig. 4; but it forms no part of my present invention, and has been claimed by me in a former application.

H indicates a ring, which is placed around the upper end of the vertical track G and provided with a set-screw I, by which it can be secured in any desired position on the vertical track above the limit of upward movement of the trolley.

K indicates a finger projecting downward from the ring to act as a stop to limit the upward movement of the movable end of the track, and also to unlatch the latch mechanism connected with the car L.

M indicates a bar which is bifurcated so as to straddle the vertical track, and is pivoted at N to the trolley.

O indicates where the movable end of the track is secured to the bar M.

P is a downwardly-projecting lug or piece on the bar M, forming a pivot for the latch Q.

R indicates a slotted downwardly-projecting piece, forming a keeper, secured to the bar M, through which the latch Q passes. This slotted piece serves to limit the upward and downward movement of the latch. The latch has an inclined end, and the car-frame has an incline at S, so that as the car approaches the movable end of the track the latch will ride up, as indicated in the dotted lines in Fig. 4, and then fall to the position shown in the full lines and hold the car.

When the parts described are in the position indicated in full lines in Fig. 4, and the trolley is afterward raised to the position indicated in the dotted lines, the outer end of the latch will impinge, as shown in dotted lines, against the lower end of the finger K and release the car, which will immediately



move by force of gravity to the fixed end of the track. When the latch is raised to release the car, its upper surface will bear against the upper part of the slot in the downward projection R, so that the finger operates, as above stated, not only to release the latch, but also as a stop to limit the upward movement of the track and trolley.

Referring to the parts at the fixed end of the track, T indicates a bar pivoted at U to the support E' and curved at its outer end, as shown in Fig. 1. To this bar is pivoted at V a bent track-holder W. When the bar T is raised at its free end to the position shown in the full lines, Figs. 1 and 2, the pivot V will be above the pivot U, so that the tension of the track will tend to keep the bar T elevated, so as to form an extension of the track in line with the upper surface of the holder W. The bent part of the holder W forms a yoke at W', which bears on the under side of the pivot U and serves as a stop, and the tension of the track tends to keep it up against the under side of the pivot. When the car comes to the fixed end of the track and passes over the pivot and its weight bears on the bar T, it will force down the bar and the pivot V below the level of the pivot U, when the tension of the track will at once join with the gravity of the car and the bar T to carry down the bar and the car to the position shown in dotted lines in Fig. 1.

In order to permit the car to pass by the support E', the support is bent, as shown in Fig. 3, and the car is provided with a side opening, as shown in the same figure, so that it will ride over the pivot U without obstruction.

In order to prevent the car from descending too rapidly to the position indicated in the dotted lines in Fig. 1, in which case it might ride off the bent end of the bar T, I provide a friction-brake mechanism in connection with the mechanism for elevating the bent end of the bar T.

X indicates a cord pendent from a pulley Y, secured in a suitable block to the ceiling. This cord passes over the pulley and is wound three or four times around a spool Z. Then it returns over another pulley a, thence downward, and its end is secured to the bent end of the bar T. A pull upon the handle b will raise the bar T to the position shown in the full lines in Fig. 1. By that action the holder W and the track will be raised a short distance, as indicated in Figs. 1 and 2, and the tension of the track will be increased. The spool Z is grooved, so that its surface, viewed from end to end, presents a curved line. The result is that as the cord is wound spirally around the spool several times it will not only have frictional contact sufficient to rotate the spool, but the tendency of the cord to travel on the spool, on account of its being spirally wound on it, will be prevented, because the curved form of the groove in the spool will cause the wound portions of the

cord constantly to slip toward the center of the spool, and thus preserve their position while the cord is being operated. The spool rotates freely on a perpendicular shaft c, and is provided with a gravity-pawl d, adapted to engage with a disk-ratchet e, secured to the shaft. By this means the spool will turn freely in one direction, while when it moves in the other direction it will be engaged with the ratchet and will rotate the shaft c.

f indicates a fixed plate, which forms a part of the block for supporting the spool, and may be integral with it or attached to it. Beneath this fixed plate is a movable plate g, connected by pivot-links h with the short arms of the levers i, pivoted at k and provided with weights l, forming an ordinary rotary governor mechanism.

m indicates a block secured by a set-screw n or otherwise to the lower end of the vertical shaft and forming the pivot-support for the weighted governor-levers.

As soon as the car has passed off the track and beyond the pivot V and has released the bar T and the bar begins to descend, the end of the cord attached to the bar will receive the strain of the bar T and holder W, and will rotate the spool Z in the direction for engagement of its gravity-pawl with the ratchet beneath. The ratchet being fixed to the perpendicular shaft c, will cause it and the movable plate g and the governor mechanism to rotate. As soon as a certain suitable velocity is reached, the movable plate will be raised by the action of the governor mechanism so as to come in frictional contact with the fixed plate f and check the velocity of descent of the bar T and the car. The result will be that the car will be lowered in the position indicated in the dotted lines, Fig. 1, at a suitable velocity.

When it is desired to raise the car and start it on its way to the cashier's desk, it is only necessary to pull the handle b and raise it to the position indicated in the full lines, Fig. 1. When the car and bar T and connected parts are in this elevated position, the trolley at the movable end of the track will always be down.

Without describing the mechanism at the movable end of the track for automatically securing the trolley in its elevated position and automatically releasing it and letting it fall to its lowest position by means of changing the tension of the track, it will be sufficient to say that when the cashier raises the trolley and the movable end of the track the parts at the fixed end of the track will always in practice be in their most elevated position, as indicated in the full lines, Fig. 1. When the car reaches the fixed end of the track and has passed the pivot V and descended to the position where it is delivered over the salesman's desk, the tension of the track will have been so diminished that the trolley will have been released and will have descended to its lowest position, carrying down the movable end of the track. Thus the car is automati-



cally lowered after having reached the fixed end of the track, and by that action the movable end of the track is also automatically lowered. The cashier and the salesman alike have nothing to do except to respectively raise the track ends, and such action will make all the necessary adjustments of the parts to cause the car to reach its destination in either direction.

10 What I claim is—

1. The combination, with a wire track and a car, of a bar pivoted to the end support E' of the wire track, and also pivoted to the track-holder W, whereby the weight of the car will move the bar downward on its pivot and reduce the tension of the track, substantially as set forth.

2. The combination, with a wire track and a car, of a bar pivoted to the end support E' of the wire track, and also pivoted to the track-holder W, and a pull-cord, pulleys, and brake mechanism, substantially as set forth.

3. The combination of the pull-cord and the bar T, of the pulleys Y and a, the spool Z, the pawl d, ratchet e, shaft c, and governor mechanism applied to the shaft, substantially as set forth.

In testimony of all which I have hereunto subscribed my name.

CHARLES W. McCORMICK.

Witnesses:

MARCUS S. HOPKINS,  
ENOS NEWMAN.