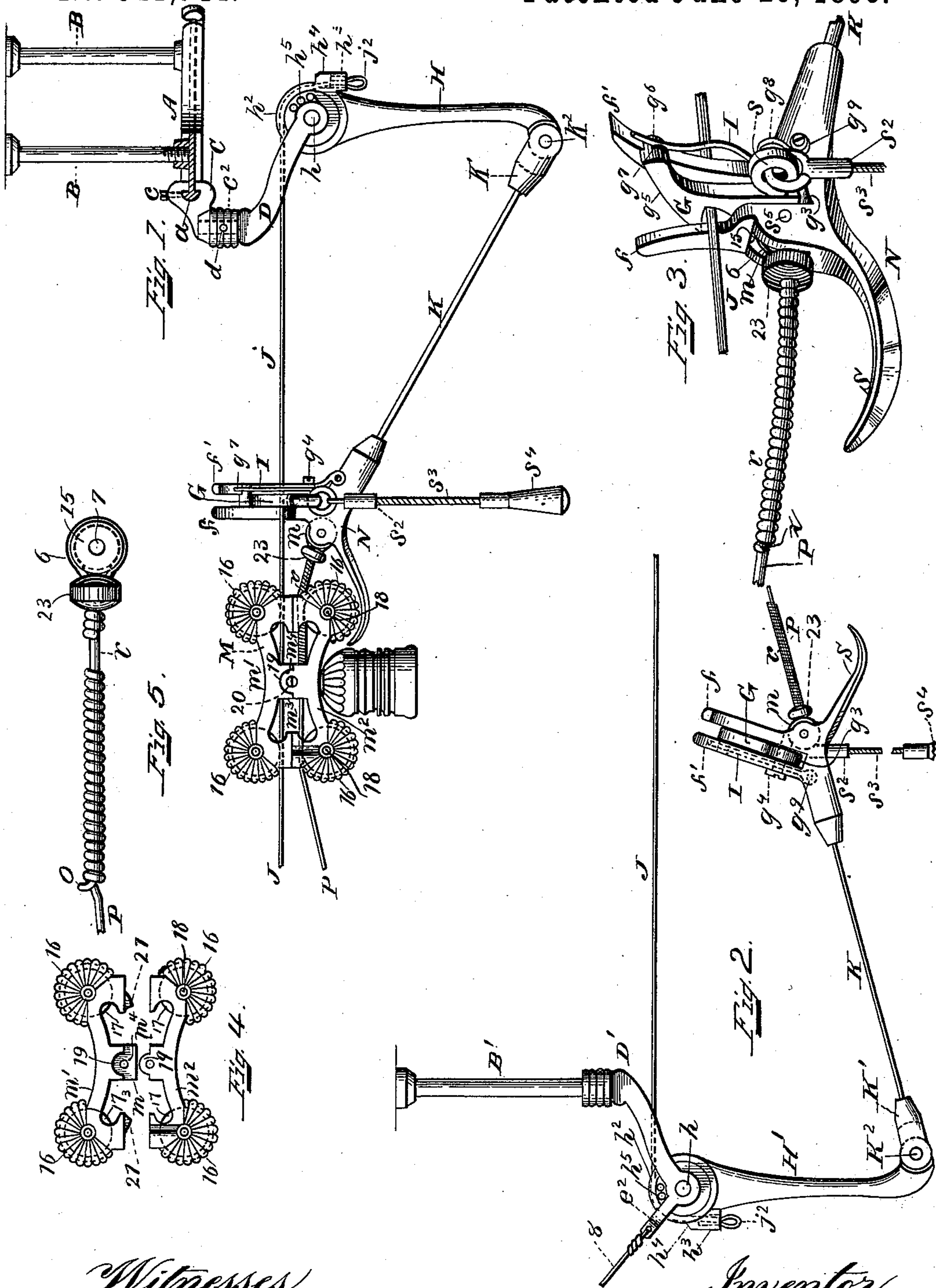


(No Model.)

J. H. GOODFELLOW.
STORE SERVICE APPARATUS.

No. 541,744.

Patented June 25, 1895.



Witnesses.
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STORE-SERVICE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 541,744, dated June 25, 1895.

Application filed March 22, 1894. Serial No. 504,615. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. GOODFELLOW, of Lowell, county of Middlesex, and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Store-Service Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it ap-
10 pertains to make and use the same.

In the accompanying drawings, Figure 1 represents a side elevation of the apparatus, showing the carrier in position at the cashier's desk. Fig. 2 is a side elevation of the appa-
15 ratus at the salesman's end of the way, showing the position of the propelling-wire after the carrier has been dispatched toward the other end of the way. Fig. 3 is a detail view in perspective of the arresting-stop and latch
20 device. Fig. 4 is a detail view of the carrier with cash-cup omitted. Fig. 5 is a detail view of a modified form of construction for supporting the way at the end.

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

One object of my invention is to provide means for manipulating and propelling a carrier by a longitudinal extended impulse along a way consisting of two wires, one of which
30 is the supporting or track wire and the other the propelling wire, to impart an impulse to the carrier.

Another object is to arrest the carrier without shock at each end of the way and prevent
35 its rebound.

Another object is to provide means for locking and unlocking the propelling wire to and from the supporting wire, and another object is to provide an improved arrangement of con-
40 necting the track and propelling wires to their respective supports.

These and other objects are accomplished by the constructions hereinafter described and shown in the drawings.

45 My invention consists of certain novel features, arrangements and combinations hereinafter described and particularly pointed out in the claims.

50 The curved plate A, shown in section, is made of suitable material and is formed with an enlarged rib *a* extending around its outer

edge, and it is supported by one or more hangers B B depending from the ceiling over the cashier's desk, and B' is a similar hanger at the salesman's end of the way. The clamp C
55 is adapted to fit around the rib *a* of the plate A, and is secured in its adjusted position by means of the set screw *c*. The forward portion of this clamp C is provided with a screw threaded shank *c*² into which the bifurcated
60 lever-bracket D is fitted, and a set screw *d* serves to hold said bracket in any desired radial position so as to adjust it in line with the way. The bracket D' is screwed, or otherwise
65 fastened, to the end of the hanger B', and at the other end of this bracket there is located an arm *e*² to which a guy rod 8 is connected to draw the hanger B' backward and take up the slack of the apparatus.

Between the lower ends of the bi-furcated
70 brackets D D' there is respectively pivoted or journaled the levers H H', by suitable pins *h*. These levers are enlarged in a circular form around their pivots *h*, and above the pivot around its periphery is made a suitable groove
75 *h*², and in rear of the pivot the lever is provided with an off-set *h*³ through which a hole *h*⁴ is made parallel with the length of the lever and in line with the groove *h*². The hole *h*⁴
80 is made of a sufficient size at its upper end to receive the track wire, and its other end is counterbored or enlarged to receive the end of said wire when bent back upon itself to form a loop knot *j*² of the supporting wire J. By attaching the track wire to the levers H
85 H' the wire is kept taut, irrespective of the positions of the said lever. A series of holes *h*⁵ are adapted to receive a suitable stop pin to regulate the forward or backward movement of the levers, and these holes may be used in
90 connecting up the line, as the arm may be swung inward to put the supporting wire under the desired tension, and by inserting the stop pin in the proper hole the lever will be held in its adjusted position and after this
95 the propelling wire and connecting parts measured and adjusted with little trouble. The lower ends of the levers are provided with a curved portion, to which there is pivotally connected the latch arm K by a bi-furcated
100 head K' and pivot pin K² passing through the same. To the other end of the arm K there is

secured the latch and stop device N, in which f and f' represent two outwardly and upwardly curved guards, arranged upon the device N so that they will straddle the under side of the supporting wire J when moved upwardly in position to be latched to said wire, and they are also placed apart from each other and the latch G is pivoted between them in the recess g^3 by the screw or pin g^4 . The latch portion is so shaped that its latch lip will pass over the track wire and back of the guard f , and from this point it curves upwardly and outwardly to form the cam face g^5 , and at the extreme upper end there is a stop g^6 which projects outwardly at right angles to contact with the guard f' . In this stop g^6 there is a recess g^7 which provides a guide for the free end of the spring I, the other end of which is provided with a suitable coil g^8 and an eye g^9 in its end, which is fastened in position by a suitable rivet or screw to the body of the latch, as shown.

To the latch G and at one side of its pivot there is an arm having an eye ring s in its outer end, to which a suitable screw eye is fastened, and s^2 is a ferrule covering the end of the pull cord s^3 , and it is screwed upon the screw portion of the said screw eye, and at the terminating end of the pull cord there is a suitable handle s^4 .

m represents a recess in one end of the latch device N, and is so shaped that it will receive a wheel 15. s^5 represents a hole passing through the wheel of this recess, and when a pin is entered and the wheel 15 is in position the pin passes through the hole 7 in the wheel, thus forming a pivotal connection, and 6 is a groove cut in the rim of the wheel, as shown in Fig. 3. The terminating end of the propelling wire is wrapped around the wheel and then coiled very closely about itself, as shown at r , thereby enlarging and stiffening the end of the propelling wire, and which should be of sufficient length to penetrate well into the body of the carrier. The wrapped end is cut off as shown at x .

The propelling wire P, by reason of its long leverage connection, is maintained yieldingly taut and provides a reciprocating movement of the latch N to and from the supporting wire, whereby said carrier, as it moves toward the latch device, raises the propelling line and latch up to the way, and as the latch device receives the momentum of the carrier the latch is locked to the way and the propelling line is held in the position shown in Fig. 1.

The curved guard S, projecting from the latch device N, prevents the recoil or rebound of the carrier and extends upward toward the carrier, which, being constructed to co-operate with it, is firmly gripped and automatically released during the operation of the apparatus.

The carrier M herein shown and described is especially adapted where a propulsion given to the carrier is by a separation of the wires,

which operate against the carrier as a moving wedge to propel it from one end to the other. This carrier consists of the upper part m' and the lower part m^2 , and which are similar in shape. Each part has cases 16 at its outer ends, within which are inclosed the wheels. The construction of the cases around the wheels, as shown, prevents the oil, which lubricates the wheels, from being thrown off by centrifugal force as the carrier travels on the supporting wire. The wheels 17 are held in their places by screws 18 entering into one side of the case and screwed into a nut in the opposite side of the case. The upper and lower halves of the carrier are separable from one another without disturbing the wheels, and this construction is accomplished by forming two depending lugs m^3 upon the upper half m' of the carrier, and when the two halves are matched together the shoulders 19 of the lower half fit into the recesses m^4 of the lugs m^3 , and a hole in the lugs and shoulders register with one another, and a screw 20 passes through the same and secures the parts together. By this it will be seen that the upper half and lower half can be made separate and put together on the way. In order to keep the matching center and end portions in line and guard against displacement, I construct depending lugs 21 on the top half of the carrier, and these project down on the inner side of the lower portion m^2 , and bear against the inner walls of the opposite matching half; or these lips could be constructed on the lower half and project up against the inner sides of the upper half, as may be desired. These parts are all proportioned and arranged in relation to each other so that the space between the carrier body shall have sufficient room for the passage of the wheels and the propelling and track wires.

In Fig. 5 is shown a modification of the reinforcement connection at the end of the propelling wire. In this modification a piece of stiff, spring, steel wire is formed around the wheel 15 and secured by being twisted sufficiently to make fast. The other end, after the length of the propelling line has been decided upon, is bent at right angles substantially as shown at o , and upon this stem the end of the propelling wire is coiled tightly and closely around the same. The advantage of this adjustment is understood when we assume that the connection or length of the propelling wire is to be taken up and shortened; thus by cutting off a few rounds of the wire the propelling wire may be forced farther upon the stem r and wound upon it until the whole is covered like that shown in Fig. 3; the bend o preventing its slipping off. A rubber cushion similar to the cushion 23 shown in Fig. 3 may be used with this arrangement to take up the momentum of the carrier.

The operation of the aforesaid construction is as follows: Assuming that the carrier is in the position shown in Fig. 1 the operator, by

pulling down on the handle s^4 , will pull the latch G back and thereby release the latch device N from the track J. A continued pull downward on the handle s^4 will move the guard S away from the carrier body and at the same time bring the propelling wire P into play, forming a wedge force against the rear of the carrier, and this continued pull will also cause the levers H and H' to vibrate forward and backward as the strain is increased or diminished. This action causes the upper wheels of the carrier to be held firmly against the track J, while the propelling wire P is forced downwardly and obliquely against the rear lower wheels of the carrier, which is thereby rapidly moved forward by the dividing line or leverage exerted against the rear lower wheels of the carrier. This action against the rear of the carrier is kept up by the operator pulling down on the handle s^4 until the carrier has reached about the middle of the way, and by the impulse which it has thus attained the forward lower wheels of the carrier will gather up at the other end the propeller. The reinforced portion r being more rigid than the connecting wire will lift the latch body end upward and force the cam g^5 against the bottom of the track, thus moving the latch G back, and when above the wire the spring I moves it in position to lock it with the track, and at the same time that this is being done the guard stop S is raised up under the lower curved case 16 of the carrier and holds it against rebound. The connection of the carrier with the stop N causes it to slide backward slightly, and the levers vibrating the track wire J backward and forward as the shock is transmitted through them to the way.

I do not limit myself to the exact arrangements and constructions shown as the same may be varied without departing from the spirit of my invention.

Having thus ascertained the nature and set forth the construction of my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a store service apparatus, a supporting-wire, a propelling wire, and movable connections between the supporting-wire and propelling wire, whereby the movement of the propelling wire is communicated to the supporting-wire, said wires having a relatively fixed relation to each other.

2. In a store service apparatus, a supporting-wire, a carrier adapted to travel thereon, a propelling wire, and pivoted levers to which the respective ends of the said wires are attached, and by which the movements of the propelling wire are controlled.

3. In a store service apparatus, a supporting wire, a carrier adapted to travel thereupon, means for propelling the carrier, and a latch device for connecting said propelling means to the supporting wire.

4. In a store service apparatus, a supporting wire, a carrier adapted to travel there-

upon, means for propelling the carrier, and a latch device operated by the carrier for connecting said propelling means to the supporting wire.

5. In a store service apparatus, a supporting wire, a carrier adapted to travel thereupon, means for propelling the carrier, and a latch device connected to the propelling means and adapted to be latched to the said supporting wire by the momentum of the carrier, and means operated by the attendant for releasing said latch device from the supporting wire and propelling the carrier toward the other end.

6. In a store service apparatus, a supporting-wire, a carrier adapted to travel thereupon, means for propelling the carrier, a latch device connected to the propelling means and adapted to be latched to said supporting-wire by the momentum of the carrier, and a guard secured to said latch device adapted to prevent the rebound of the carrier.

7. In a store service apparatus, a supporting-wire, a carrier adapted to travel thereupon, a propelling wire adapted to propel the carrier along said supporting-wire, a latch device, to which said propelling wire is connected, adapted when actuated by the momentum of the carrier to latch the propelling wire to the supporting-wire, and pivoted levers supporting the said wires at one end and having their opposite ends connected to the said latch device as shown and described.

8. In a store service apparatus, a supporting wire, a carrier adapted to travel thereupon, a propelling wire adapted to propel the carrier along said supporting wire, and a latch device, to which said propelling wire is connected, adapted when actuated by the momentum of the carrier to latch the propelling wire to the supporting wire, said wire at the point where connected with the latch device being wrapped upon itself to form an enlarged and stiffened end which is adapted to enter the body of the carrier as it approaches the latch device from the opposite end of the supporting wire.

9. In a store service apparatus, a supporting wire, a carrier adapted to travel thereupon, and a propelling wire adapted to propel the carrier along said supporting way, said carrier having its frame constructed of an upper and lower part separable from each other, and having one set of wheels mounted in the upper part and another set mounted in the lower part, and between which wheels the supporting way and propelling wire pass.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 20th day of March, 1894.

JOHN H. GOODFELLOW.

Witnesses:

SAML. E. KIMBALL,
ETTA M. COURTNEY.