

(No Model.)

2 Sheets—Sheet 1.

G. R. ELLIOTT.  
STORE SERVICE APPARATUS.

No. 378,499.

Patented Feb. 28, 1888.

Fig. 1.

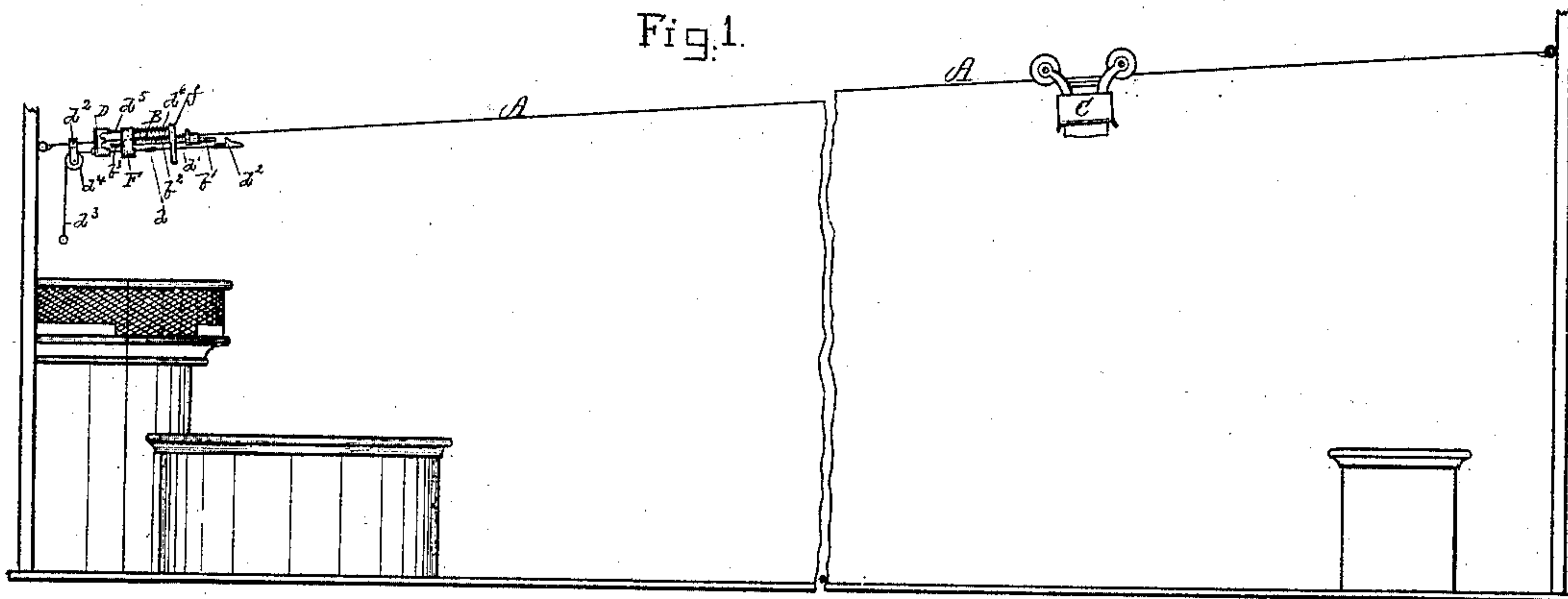
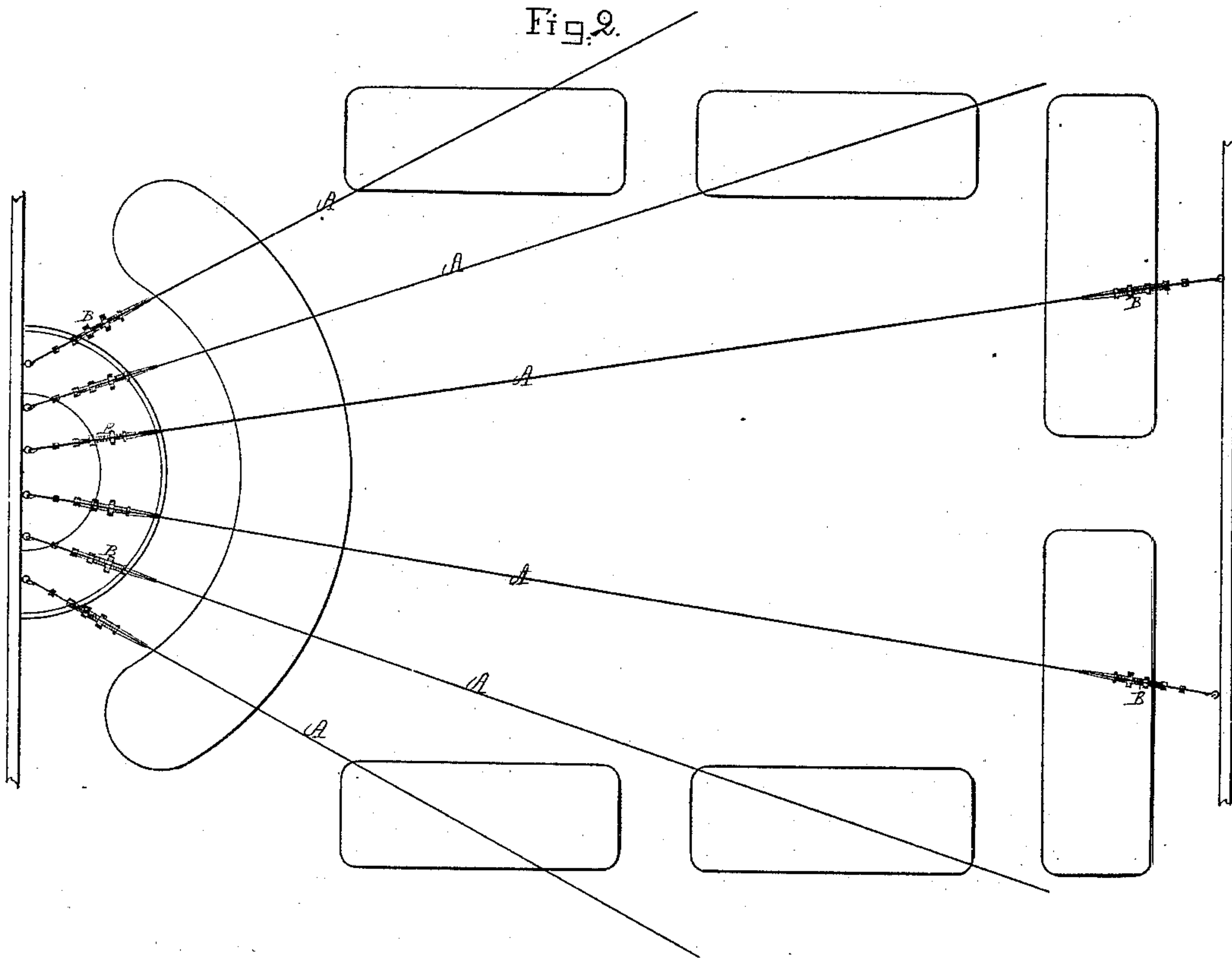


Fig. 2.



Witnesses.

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att'y.

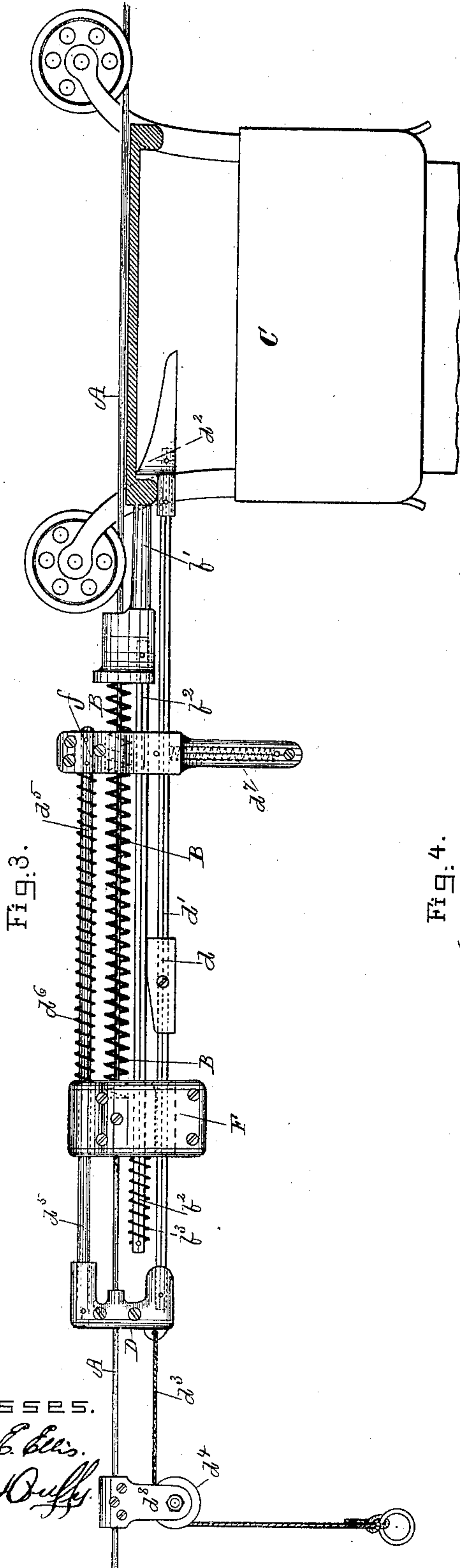
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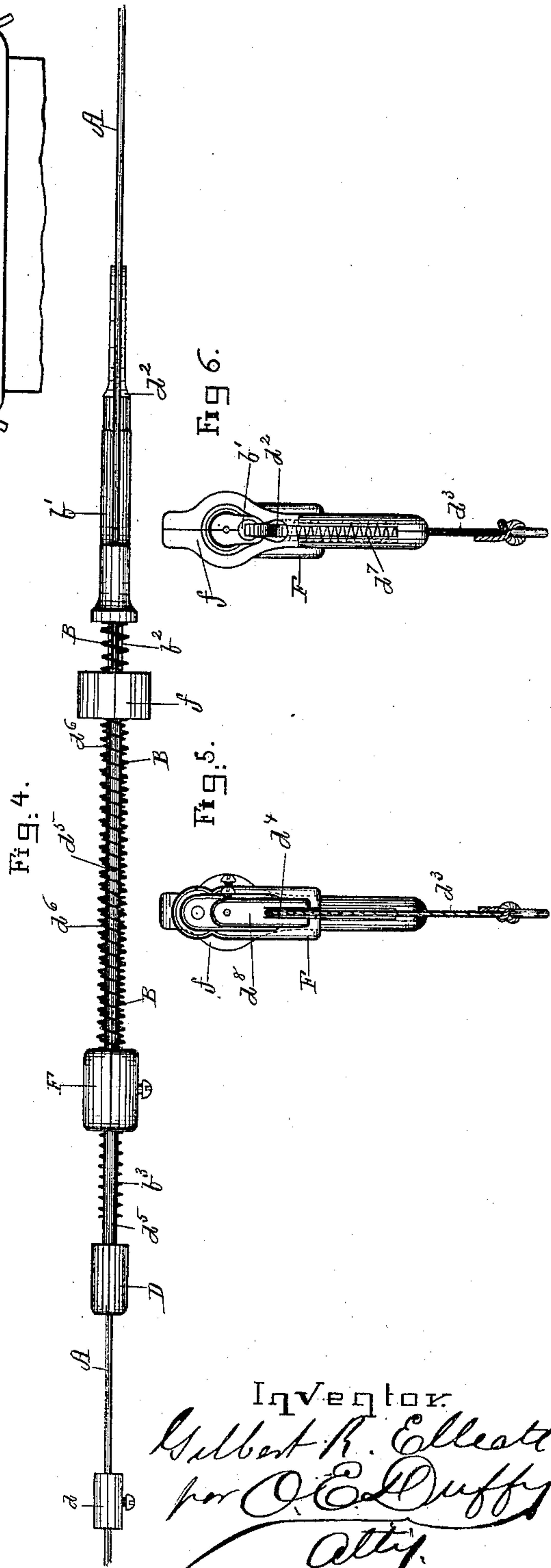
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Witnesses.

Edward C. Ellis.

A. Leo Duffy



Inventor

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Atty.



# UNITED STATES PATENT OFFICE.

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## STORE-SERVICE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 378,499, dated February 28, 1888.

Application filed October 1, 1883. Serial No. 107,846. (No model.)

*To all whom it may concern:*

Be it known that I, GILBERT RUGGLES ELLIOTT, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Store-Service Apparatus, of which the following is a specification, reference being had to the accompanying drawings, making a part hereof.

In my Letters Patent No. 279,862, June 19, 1883, and No. 283,088, August 14, 1883, I have described two store-service apparatus, in both of which wires are used as tracks upon which travel carriers, and in one of these systems the wires are horizontal, practically, while in the other the wire is inclined, so that in the first the carrier requires a push to make it travel over the wire, while in the other the incline of the wire makes the push optional.

My present invention relates to apparatus of this class; and it consists, generally, in the construction, with the track and its carrier, of a spring capable of being put under tension and released to give the carrier an impulse to cause it to travel over its track, a hook for engaging the carrier, and a releasing device for releasing the carrier when the impelling-spring has been sufficiently compressed.

One practical advantage of my present invention is that the wire may be put up with both ends fixed and without any care as to its being substantially horizontal; or it may be purposely inclined so that the spring will throw the car when it is to be sent from the lower to the upper end of its track, while gravity alone may be relied upon to bring it back, or gravity aided by a push of the hand or the spring. In case of a wire fixed at both ends and inclined but one spring is necessary at the lower end of the wire; but in most cases, including not only horizontal wires fixed at both ends, but also inclined wires fixed at both ends and wires one end of which is fixed, the other movable, to cause them to incline first in one direction and then in the opposite direction, as well as wires in which both ends are movable vertically, it is desirable to use a spring at each end of the wire, the tension of the spring for throwing the carrier up the incline being of course greater than that of the spring for quickening the speed of the carrier while traveling down the incline, while the

tension of each spring is substantially equal when two are used, one at one end, the other at the other end of a wire substantially horizontal.

Figures 1 and 2 of the drawings illustrate an apparatus embodying my invention; and Figs. 3, 4, 5, and 6 show the best form of device now known to me for giving the desired impulse to the car, and also for arresting the car as it reaches its destination, Fig. 3 being a side elevation, Fig. 4 a plan, and Figs. 5 and 6 end views.

The wires A A may be put up in the store in the usual way, with each end attached to its fixed support, or with one end attached to a movable support and the other end attached to a fixed support, or with a movable support at each end.

Near one end of the wire is a spring, B, adapted not only to act as a buffer, but also adapted to be put under tension in such a manner that when released it will propel the car over the wire. I have shown in the drawings two springs, B, for each wire A, one at each end, as in Fig. 2, and this is desirable in all cases, as above explained. Each spring B is so arranged that it is made tense when the carrier C is forced against it, and this is best effected by means of the stem  $b'$ , which bears against the free end of the spring B, and also against the carrier C. The stem  $b'$  is guided by means of the wire A, and also by means of the rod  $b^2$ , which serves, also, as a stop to limit the outer motion of stem  $b'$ . The rod  $b^2$  is made an elastic stop by means of the short spring  $b^3$ .

From the above it will be clear that when carrier C is forced back far enough to make spring B tense and then released the tension of said spring B will react upon the carrier C and propel it over wire A, the propelling force depending upon the tension of spring B. Consequently it is desirable in practical use that adjusting means be used, so that the tension of spring B just before it acts to propel the carrier C should be adapted to the weight of the carrier C and the length and also the incline of the wire, if the wire be inclined. To this end I use an adjustable block,  $d$ , on rod  $d'$ , by which the hook  $d^2$ , which takes hold of carrier C, is connected with the retractor D. This retractor D is pulled back by means of



the cord  $d^3$  and pulley  $d^4$  until the block  $d$  is so far depressed by contact with the abutment F as to release hook  $d^2$  from carrier C, whereupon stem  $b'$  is thrown forward by the spring B, and thus the spring propels the carrier C over the wire A, the propelling force of the spring being varied as desired by simply adjusting block  $d$  on rod  $d'$ .

The retractor D is guided by the rod  $d^5$ , and the spring  $d^6$  serves to return the retractor and its rods to position to receive the carrier again on its return. The rod  $d'$  also serves to some extent as a guide for retractor D. The small spring  $d^7$  holds rod  $d'$  in position for its hook  $d^2$  to seize and hold carrier C until the rod  $d'$  is forced against spring  $d^7$  (to release hook  $d^2$ ) by the action of the adjustable block  $d$ . This spring  $d^7$  is supported by collar  $f$ , fastened to rod  $d^5$ .

The abutment F is shown as clamped upon the wire A, as is also the hanger  $d^8$  for pulley  $d^4$ , and this is a convenient way of arranging them, although stays or the like (not shown) are desirable to prevent them from getting out of true. This abutment F is provided with apertures for the reception of wire springs, &c., and also with a flaring-mouthed aperture to receive and operate block  $d$  of the tripping mechanism, as will be obvious to all skilled in the art.

The wire is shown in Fig. 1 as fastened between two fixed supports, one sufficiently higher than the other to allow the carrier to be propelled in one direction by gravity, which may be aided by a push of the hand to quicken the motion of the carrier. Only one spring B

is requisite in this arrangement of my system, one of the usual stops being used at the upper end of the wire to arrest the carrier when it reaches that end, as described in my patents above named. This arrangement of an inclined wire with a spring at its lower end adapted to propel the carriage up the incline, in combination with a retractor and an automatic releasing device, is also new with me, and is valuable on account of its cheapness and simplicity.

The incline may of course be from the clerk's desk to the cashier's desk, instead of as shown.

What I claim as my invention is—

1. In a store-service apparatus, the combination, with a track, A, and a carrier mounted thereon, of springs B  $d^6$ , a retractor, a hook for engaging with said carrier, a releasing-block, and an abutment contacting therewith, substantially as set forth.

2. The combination, in a store-service apparatus, of the abutment F, block  $d$ , rod  $d'$ , hook  $d^2$ , and operating mechanism, substantially as described, whereby the carrier is released and permitted to receive its initial impetus, as set forth.

3. In a store-service apparatus, the combination of a track, a carrier mounted thereon, the hook  $d^2$ , rod  $d'$ , and collar  $f$ , having spring  $d^7$ , whereby the carrier is received and held in position at the end of the track, as described.

GILBERT RUGGLES ELLIOTT.

Witnesses:

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JOHN R. SNOW.