(No Model.) 5 Sheets—Sheet 1.

W. H. GILMAN.

CASH AND PARCEL TRANSMITTING APPARATUS FOR STORE SERVICE.

No. 318,719. Patented May 26, 1885.

Fig. 1.

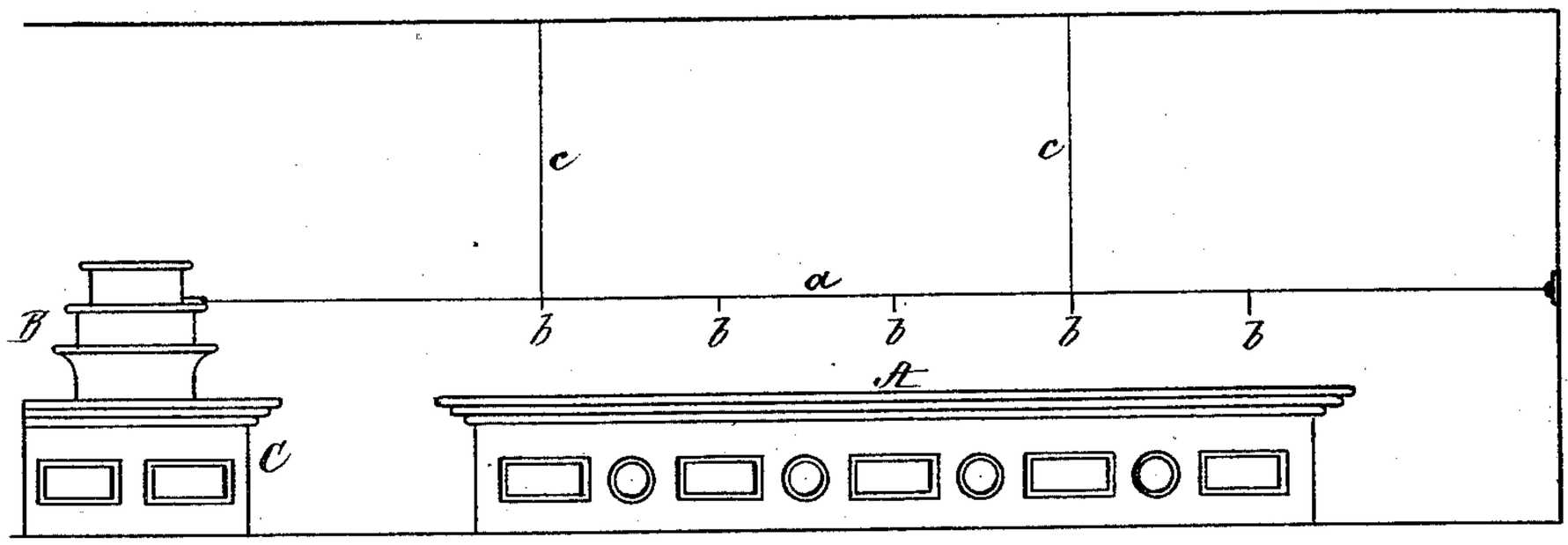


Fig. 2.

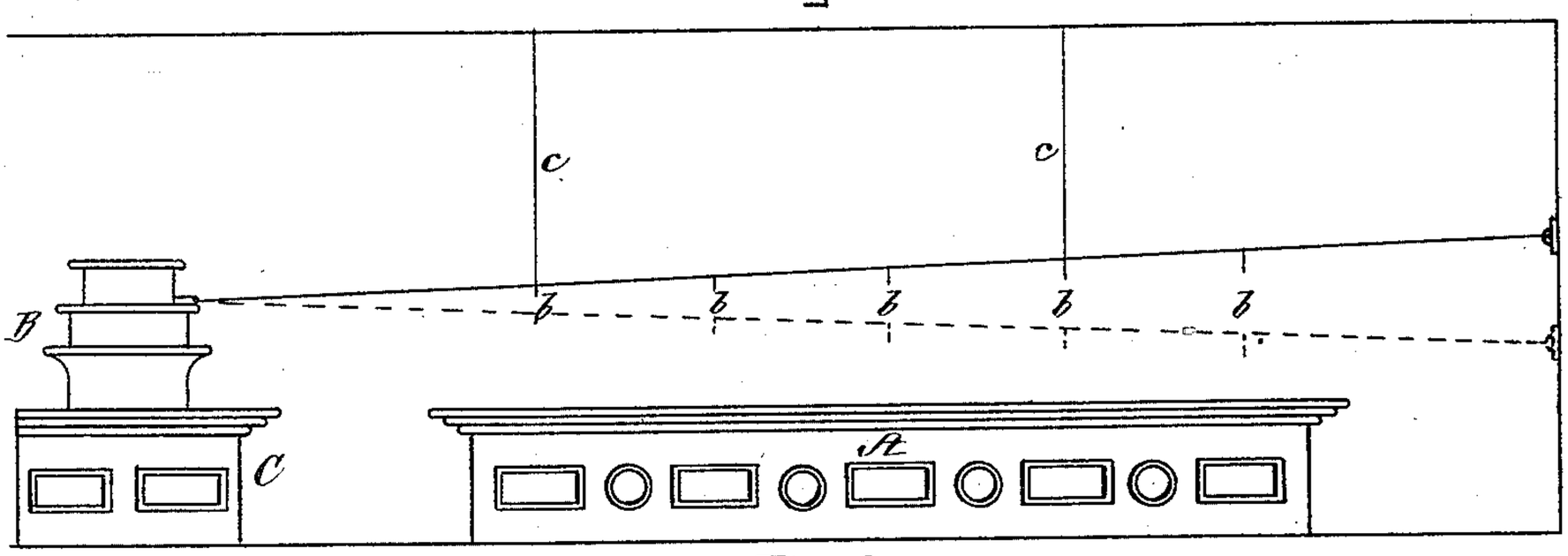
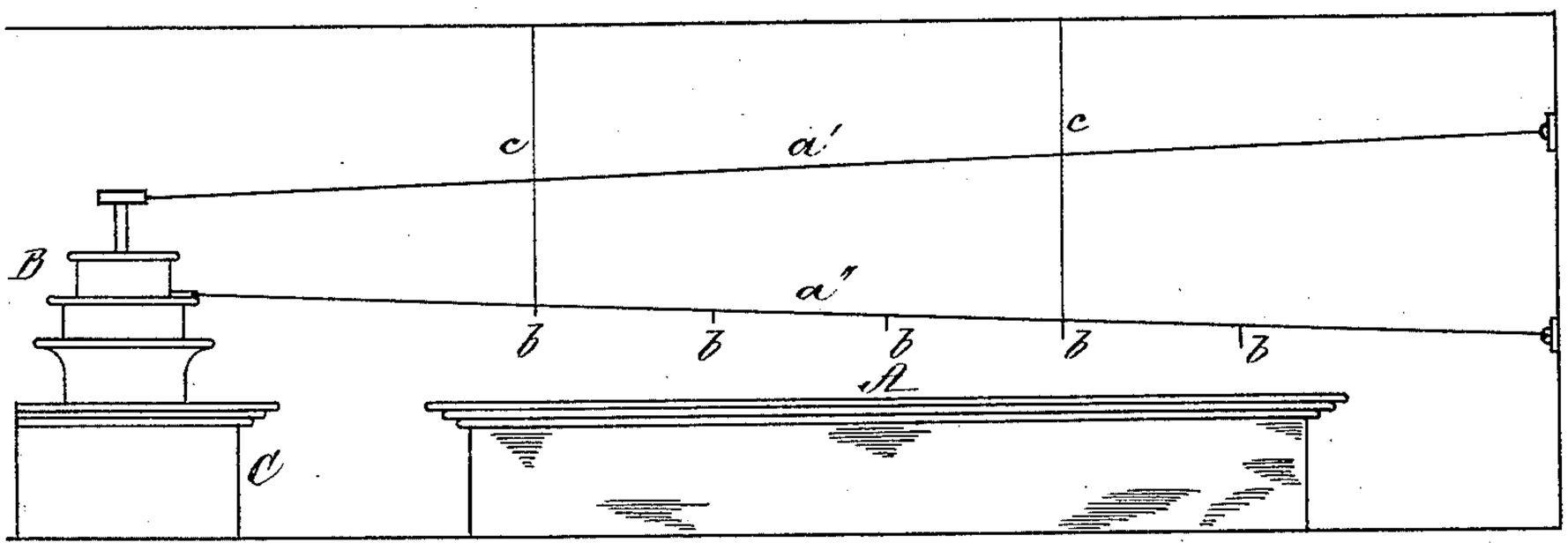


Fig. 3.



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H. W. Stearns

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pr Norman W. Stearns,
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(No Model.) 5 Sheets—Sheet 2.

W. H. GILMAN.

CASH AND PARCEL TRANSMITTING APPARATUS FOR STORE SERVICE.

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Fig. 4.

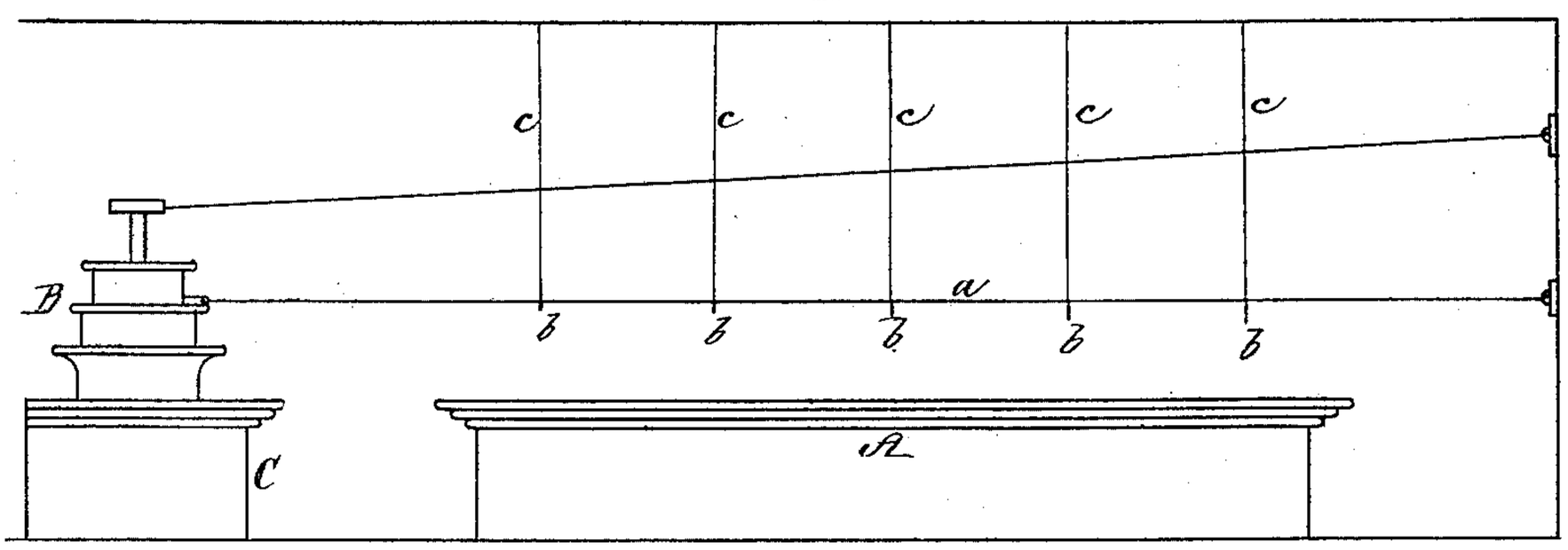
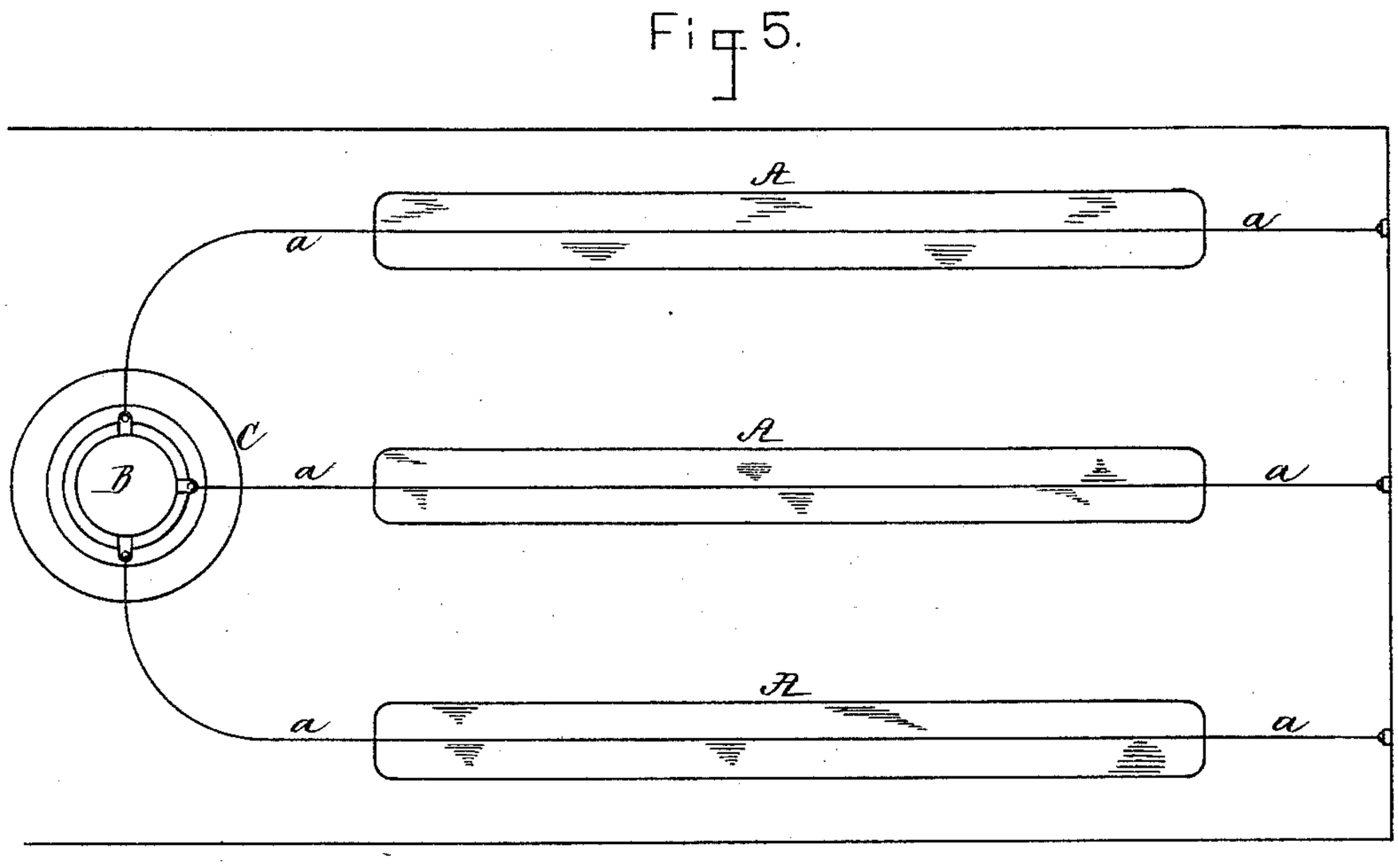


Fig. 5.



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CASH AND PARCEL TRANSMITTING APPARATUS FOR STORE SERVICE.

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Fig. 6.

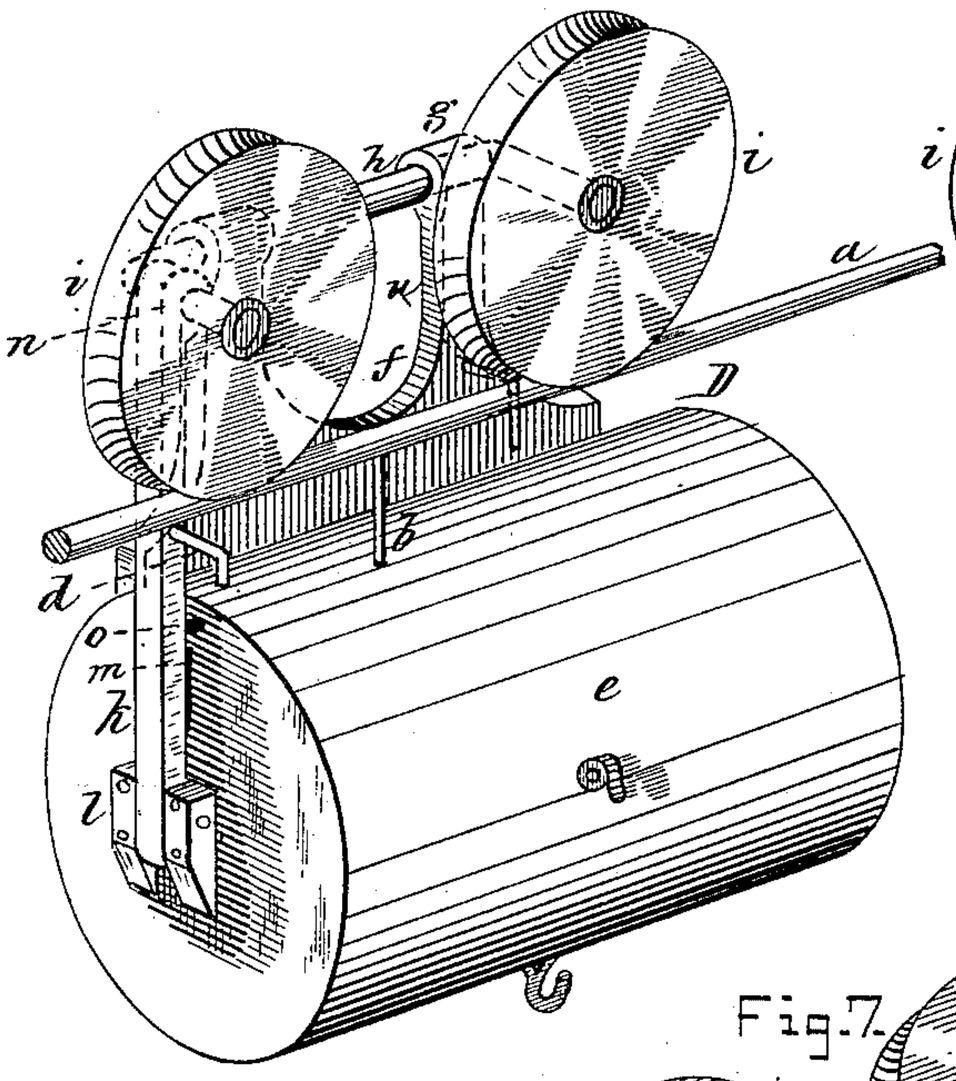


Fig. 9.

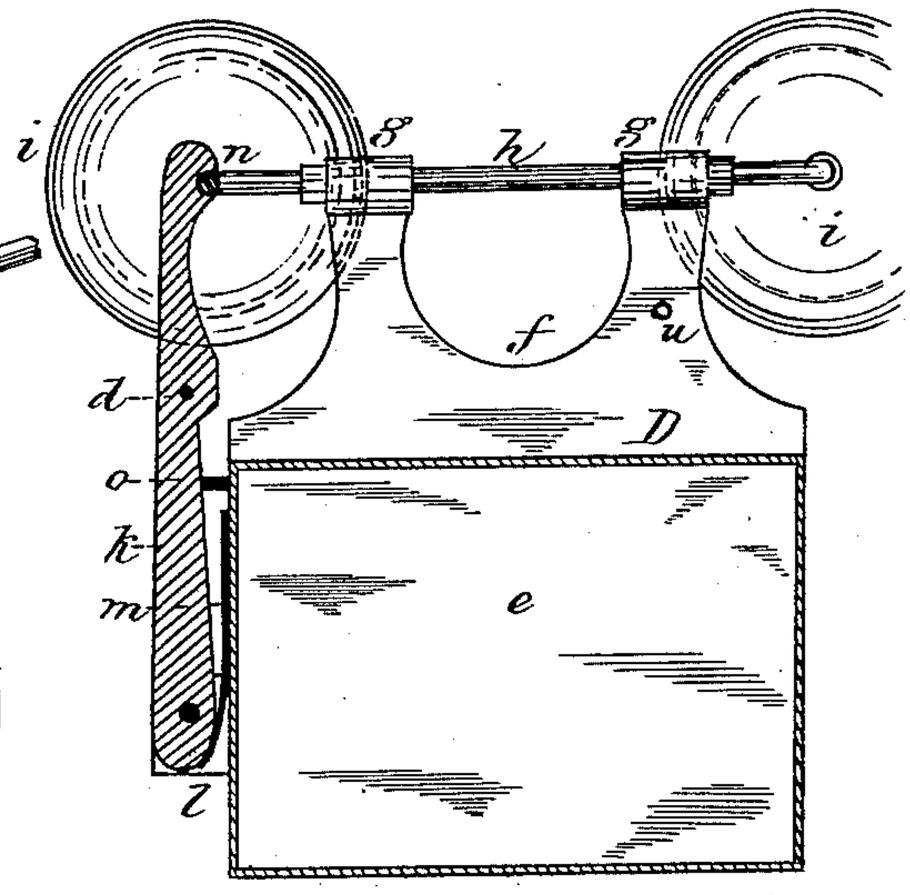
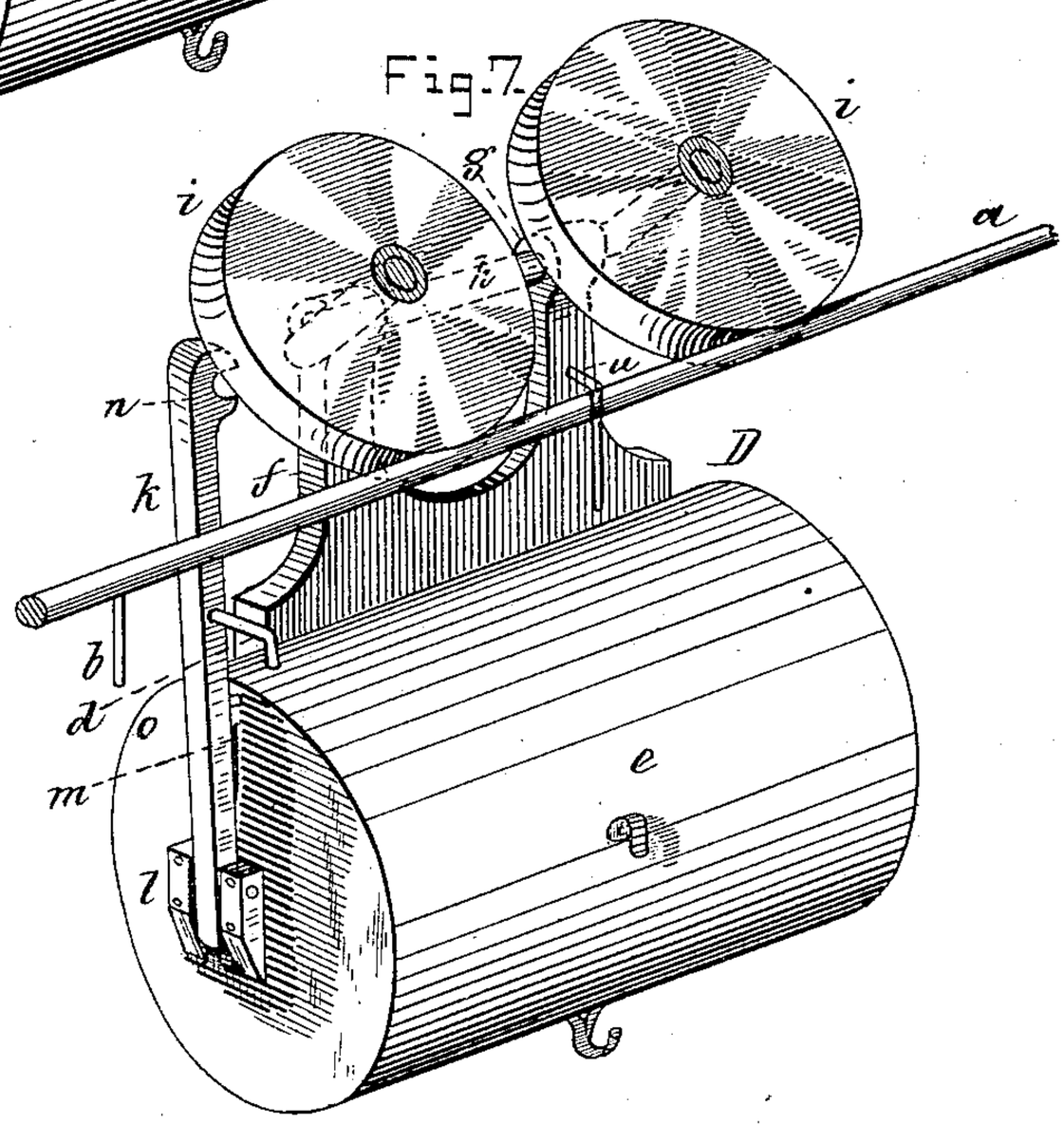


Fig. 7.



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CASH AND PARCEL TRANSMITTING APPARATUS FOR STORE SERVICE.

No. 318,719. Patented May 26, 1885.

Fig. 8.

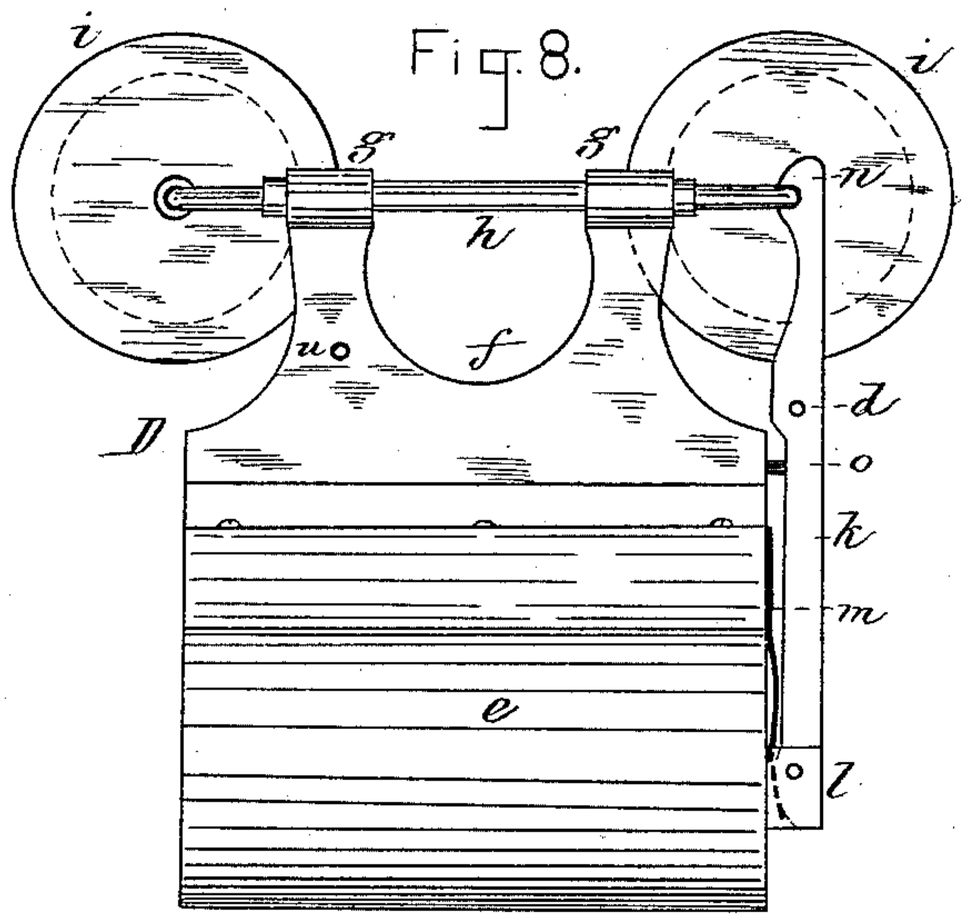


Fig. 10.

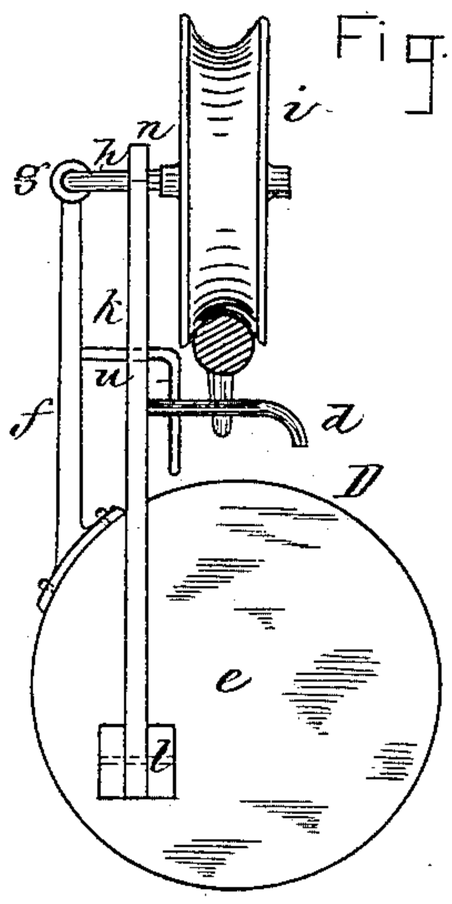


Fig. 12.

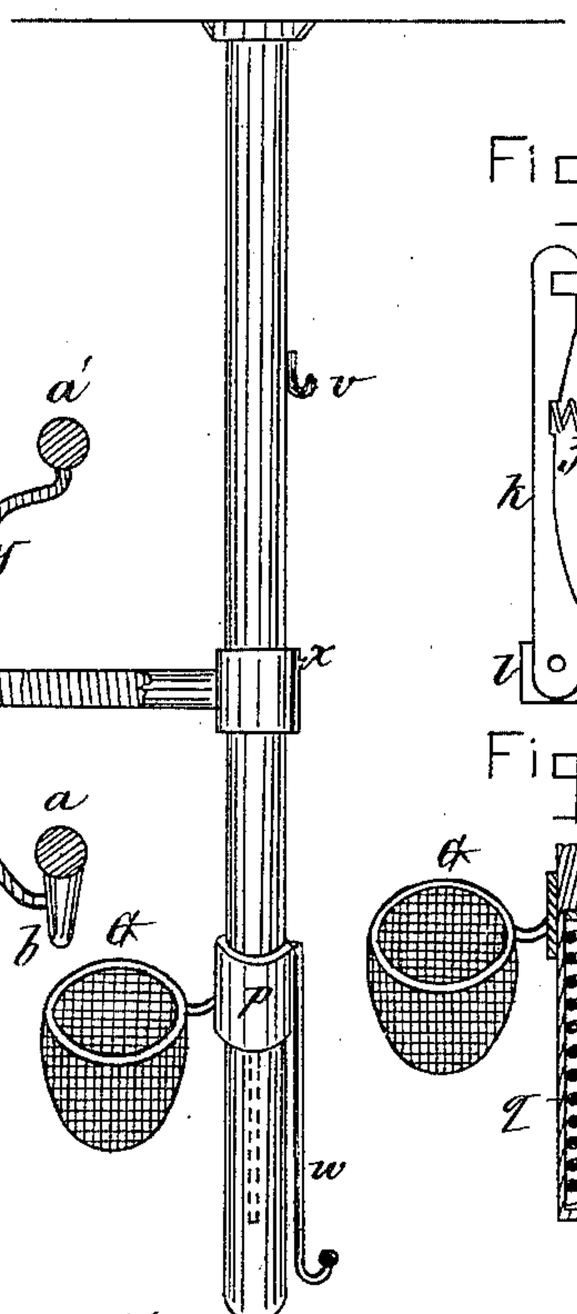


Fig. 14.

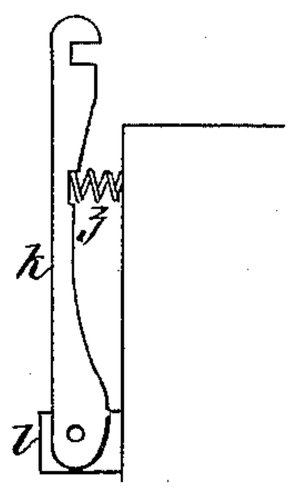


Fig. 15.

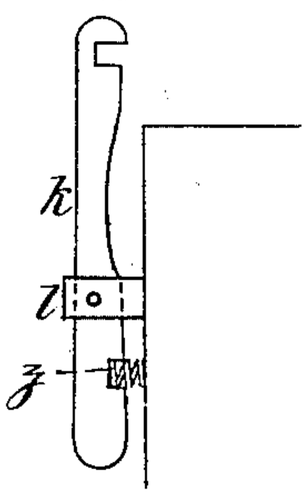


Fig. 16.

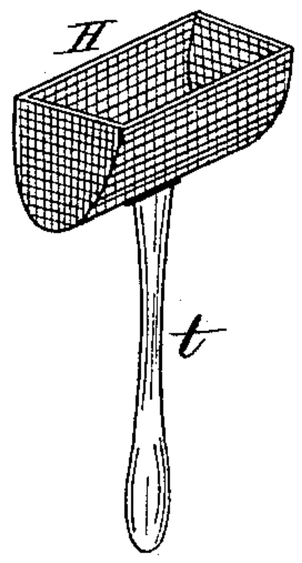
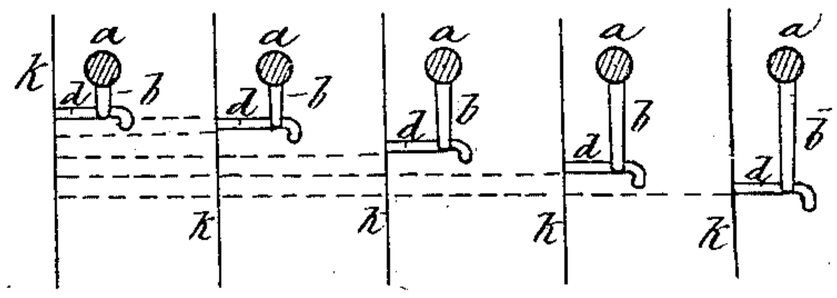


Fig. 13.

Fig. 17.



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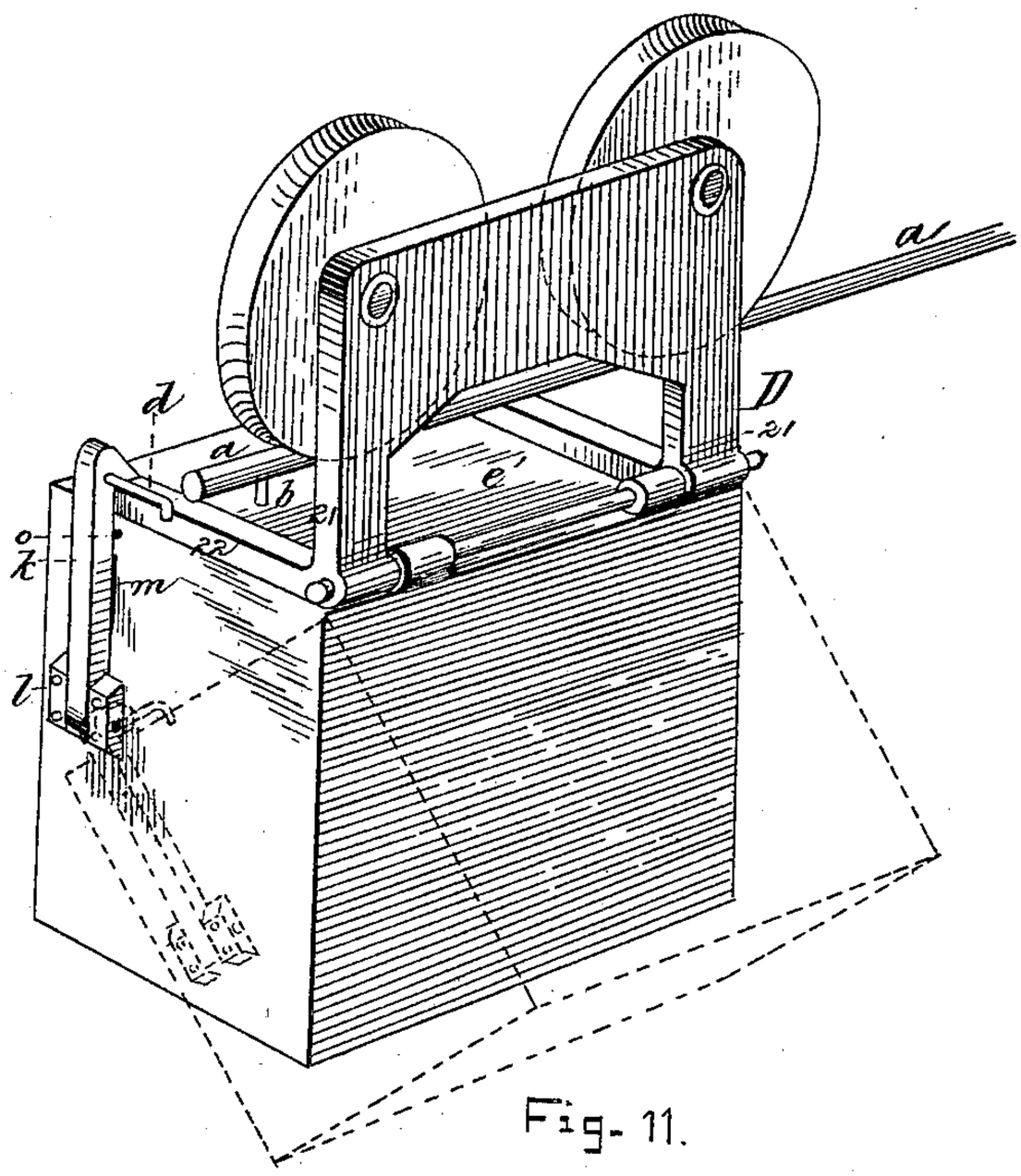

Fig. 11.

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UNITED STATES PATENT OFFICE.

WILLARD H. GILMAN, OF BOSTON, MASSACHUSETTS.

CASH AND PARCEL TRANSMITTING APPARATUS FOR STORE-SERVICE.

SPECIFICATION forming part of Letters Patent No. 318,719, dated May 26, 1885.

Application filed April 27, 1885. (No model.)

To all whom it may concern:

Be it known that I, WILLARD H. GILMAN, of Boston, in the county of Suffolk and State of Massachusetts, have invented a Cash and Parcel Transmission Apparatus for Store-Service, &c., of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 represents a permanently-fixed horizontal way, consisting of a single-wire track extending from the cashier's desk over a sales-counter for the common use of the several salesmen there stationed, the said single way serving as a combined forwarding and return way, and for that purpose being provided with certain graduated devices, which form an important feature of this invention. Fig. 2 also represents a single-wire way having one end capable of being raised or lowered to alternately incline the way in opposite directions, and having my graduated devices applied thereto to adapt it for the purposes above referred to. Fig. 3 represents two oppostely-inclined fixed single-wire ways, the lower one only, being provided with my said graduated devices; Fig. 4, two single-wire ways permanently located, the upper one being inclined down to the cashier's desk, and the lower one horizontal and having my said devices applied thereto. Fig. 5 is a plan of my improved store-service system, having a single way and referred to in the descriptions of Figs. 1 and 2. Fig. 6 is a perspective view of a carrier embodying one form of my invention, said carrier being represented in its normal position on the track; Fig. 7, a perspective view of the same carrier in the position it assumes when being derailed; Fig. 8, an elevation of said carrier, looking from the salesman's side; Fig. 9, a longitudinal section of the same; Fig. 10, an end elevation of the carrier; Fig. 11, a perspective view of another carrier embodying a modification of my invention. Fig. 12 represents the manner of supporting the ways when two independent single-wire tracks (one for forwarding and the other for returning the carriers) are employed, the receiver for the derailed carrier being also shown; Fig. 13, detail in section of lower end of track-support on which receiver slides; Figs. 14 and 15, modifications of the spring-tripping device of the carrier. Fig. 16 is a perspective view of one form of the device I employ for locating the carrier and its contents upon the common single track when used for forwarding the carriers with their contents to the cashier. Fig. 17 represents the arrangement of the tripping devices of a series of carriers.

My present invention has special reference to cash and parcel carrier systems for store-service, in which one or more single wire or rail tracks extend between the cashier's and salesmen's stations for the passage thereon of a wheel-carrier; and one of the leading features of this invention consists in a single wire or rail, either horizontal or capable of being alternately inclined in opposite directions, provided with a series of graduated tripping devices, in combination with and for automatically derailing a series of wheel-carriers, also provided with graduated tripping devices which are actuated by contact with the tripping devices of the track, said single track being employed as a common forwarding and return way for all the carriers of a number of salesmen, each carrier with its contents having an uninterrupted passage from the salesman's station to the cashier, and being so constructed as to maintain its normal position—upright—on the track until its return to its proper station, when the center of gravity of each carrier is moved to one side of its previous location, and thus being unsupported by the track is free to descend into a receiver at the station to which it belongs and from which it started, the carriers descending the track by gravity when the track is inclined in either direction, and being actuated on a horizontal track by a spring or other suitable well-known motive power, my aforesaid common forwarding and return single-rail track being particularly adapted for the joint use of a number of salesmen in stores of ordinary size, where many are not required to transact its limited business.

My invention also consists in an inclined single-rail forwarding-track for common use and a single-rail return-track provided with a series of graduated tripping devices for common use, in combination with a series of carriers, also provided with graduated tripping devices, and so constructed as to automatically lose their equilibrium and be derailed at their

proper stations, this latter embodiment of my invention being adequate for the transmission of cash and parcels in large stores having numerous sales-stations.

My invention also consists in a certain receptacle for receiving and lowering the carrier of each station, the receiver descending by the weight of the carrier, and when the latter is removed returning automatically to its elevated position for the reception of the carrier when it again returns to the same station; and my invention also consists in a convenient device for conveying and locating the carrier with its contents upon the forwarding-track, the details of the construction of which, together with that of the carriers and track or tracks with their tripping devices, will be fully herein explained and claimed.

To enable others skilled in the art to understand and apply my invention, I will proceed to describe the manner in which I have carried it out.

To comprehend the first portion of my improved apparatus, in which a single-wire way is employed as a common forwarding and return way for a number of salesmen, reference will be had to Figs. 1, 2, 5, 6, 7, 8, 9, 10, 11, 14, and 15, in which figures A represents the sales-counter, where a number of salesmen are stationed; B, the cashier's desk, and C the packing-counter below and in front of the same.

a represents a horizontal taut wire extending from the cashier's desk longitudinally over a sales counter, A, to the side wall of the store opposite the cashier, both ends of the wire being permanently fixed.

b b are a series of projections extending down from the track *a* at points designed to be vertically above the several stations from which the carriers are forwarded and returned, each station being for the use of one salesman or common to two or more salesmen contiguous thereto.

c c are rods depending from the ceiling, the bottom of each rod being preferably connected with a projection, *b*, of the track. These projections are of varying length, the shortest being at the station nearest the cashier and gradually increasing in length to the most remote station, these graduated projections serving the office of tripping devices, with which come in contact a series of similarly-graduated tripping devices, *d d*, secured to the carriers D D, each station having its individual carrier for the exclusive use of that station, and bearing some distinguishing mark, color, or character, if desired. The tripping devices *d d* of the carriers are so located at varying distances that when the carriers are on the track the tripping device of the carrier belonging to the first station occupies a position nearer the under side of the track than that of the tripping device of the carrier belonging to the next station, this distance of the location of the tripping devices *d d* below the track increasing slightly with each successive carrier to the last one belonging to the most remote station, (see Fig. 17,) by which arrangement this last carrier, whose tripping device, *d*, is situated the greatest relative distance below the track, is free to pass all of the tripping devices *b* of the track-stations except the last one, where it belongs, the length of the last tripping device *b* of the track being such as to oppose its passage. One form of carrier and tripping device, therefore, embodied in my present invention, will now be described.

e, Figs. 6, 7, 8, 9, 10, is a cylindrical receptacle for receiving the cash and parcel and record of its sale. From the cylindrical surface of this receptacle rises an upright standard, *f*, which serves as a truck, having bearings *g* for a horizontal axis, *h*, the ends of which project beyond the bearings, and are bent at right angles to the main or central portion of the axis, the bent ends also being horizontal when the carrier is in its normal position. This axis, when free, may be swung or rotated in its bearings, and carries at its ends a pair of grooved wheels, *i i*, adapted for the size of the wire or rail on which it is to travel, the wheels running loosely on the axis.

To keep the wheels and their axis in their normal position to allow of the movement of the carrier on the track, I provide the following means for locking the axis and prevent its rotation in the bearings:

k is an upright arm pivoted at its lower end between a pair of lugs, *l*, projecting from one end of the receptacle, and between the inside of the arm and outside of the receptacle is located a spring, *m*, represented in Figs. 8 and 9 as being flat, the upper end of the spring resting against the end of the receptacle and the bottom of the spring pressing outwardly against the heel of the arm *k* below where it is pivoted, which causes the upper hooked end, *n*, of the arm to be locked over the contiguous bent end of the axis, Figs. 6, 8, 9, and 10, a short stop, *o*, being provided to limit the pressure of the spring and thereby prevent the undue friction of the hooked end upon the axis, the several parts remaining in this position during the passage of the carrier and contents over the track to the cashier, and during the return of the same carrier until it arrives at the station to which it belongs, where it is to leave the track, which is effected by the graduated tripping device *b* of the track at this station being struck by the tripping device *d* of the carrier, which device being secured to the arm *k*, causes the latter to be pressed outwardly against the resistance of its spring *m*, until the upper hooked end, *n*, of the arm is disengaged from the axis *h*, which (as the center of gravity of the carrier is shifted to one side of the vertical plane of the longitudinal axis of the track) is then free to swing over into the position seen in Fig. 7, and the wheels being unsupported the equilibrium of the carrier is destroyed, and it descends into a receiver, G, thereunder, Fig. 12. This receiver consists of a receptacle (preferably of wire) projecting from the side of a sleeve, *p*, sur-

rounding the track-supporting rod *c*, the lower portion of which is hollowed out for the reception of a spiral spring, *q*, the base of which rests on the closed bottom of the rod *c*. This tubular portion of the rod *c*, Fig. 13, has a vertical slot, *r*, for the reception of a pin, *s*, projecting from the inside of the sleeve, said pin extending across the tube and serving as a bearing for the upper end of the spring, the tension of which is carefully adjusted in order that it may be compressed, and allow the receiver, when the return-carrier is contained therein, to descend within convenient reach of the salesman, who then removes the carrier and locates it in a holder or conveyer, H, preferably of wire, (of the form shown in Fig. 16,) and provided with a handle, *t*. The receiver on being relieved of the weight of the carrier is elevated to its former position under the tripping device *d* of the station by the expansion of the spring. With this conveyer H the salesman replaces the carrier with the cash and parcel of the next sale upon the forwarding-way a slight distance in front of the tripping device *b* contiguous to his station, this operation being readily performed by facing the front of the carrier outward, and moving it forward till the wheels reach the vertical longitudinal plane of the axis of the track, when a projection, *u*, extending from the standard *f* at one end of the carrier, Figs. 6, 7, 8, 9, and 10, and the locking device *k* at its other end serving as stops, coming into contact with the rail, the holder is slightly depressed, leaving the carrier in its upright or normal position on the forwarding-way in advance of the device *b* at this station.

Should the spring under the receiver refuse to act as promptly as desired, the latter may be drawn down within reach of the salesman by pulling on the hook-rod *w* connected with the sleeve *p*.

The second form embodying my invention is shown in Figs. 3 and 4, in which two independent tracks, *a' a''*, each consisting of a single wire, are employed, the upper track, *a'*, being permanently inclined and used as a common forwarding-way for a number of salesmen, and the lower track, *a''*, as a return-way, also common to them, the latter track only being provided with graduated tripping devices similar to those *b*, and actuating the tripping devices of carriers of any construction which are adapted to be derailed thereby, this second form of my invention being better suited for large stores. My device for supporting the two tracks shown in Fig. 12 consists in the rod *c*, depending from the ceiling, with a sleeve, *x*, adjustable thereon, and having a T-shaped projection extending horizontally out therefrom, the upper and lower tracks being supported by the bifurcations *y* of said projection.

It will frequently happen where one way only is employed for forwarding and returning the carriers that the height of the wire will be within convenient reach of the salesmen, and also that where two ways are employed, both in the same vertical plane, one way for forwarding and one for returning, that the latter can also be easily reached, in which case the receiver may be stationary and the carrier be removed therefrom by hand. Where two tracks located side by side are employed, both may be accessible to the salesman without the use of a movable receiver or of a conveyer for the carriers; and should the inclined forwarding-way be beyond the reach of the hands of the salesman when standing on the floor, one or more portable steps may be used for the salesman to stand on when replacing the carriers with their contents on said forwarding-way, said step or steps being located under the counter when not in use, in which case, also, the conveyer H may be dispensed with.

Where an inclined track is employed in connection with my improvements, the lower terminal point of the track is provided with a suitable cushioning device—for instance, a rubber tube or spiral spring surrounding said end of the wire—and where a horizontal wire or track is used each end thereof may be provided with such cushion, and also a hook or other device, for retaining the carrier; or the carrier itself may be so provided with both cushion and retaining device. The within-described improvements have reference only to a single track or a pair of tracks in which each track consists solely of a single wire or rail, said rail being of metal or wood; or a single line, cord, or cable of hemp, &c., may be employed; but I prefer wire, on account of its lightness, strength, and the limited space it occupies.

Another description of carrier embodied in my present invention consists in a receptacle, *e'*, of parallelogram shape, and pivoted at its upper rear corner to the bottom of an upright standard or truck, 21, each wheel having a short independent axis, the locking-arm *k* hooking over a foot-piece, 22, projecting from the standard at right angles to and integral therewith, the tripping devices of the carriers and track being constructed and operated in a manner similar to the first form of carrier previously described, the receptacle, when unlocked by said tripping devices, swinging freely on its pivot into the dotted position, Fig. 11, the location of the center of gravity being thereby changed and the equilibrium of the carrier destroyed, causing it to be derailed and to fall into a receiver, as before explained.

Instead of a flat spring *m*, as shown in Figs. 8, 9, and 10, a spiral spring, *z*, Figs. 14 and 15, may be employed for keeping the hooked end of the arm *k* engaged in its normal position, the spring shown in Fig. 14 being distended and drawing the arm into its locking position, and the spring in Fig. 15 being compressed and exerting a constant pressure outwardly on the heel to effect the same result.

The receiver and one or both tracks may be supported by a rod rising from the floor or by a bracket secured to a post.

The assemblage of the several features of my invention herein enumerated constitute a practical organized system for store-service, which combines and insures rapid transit, convenience of manipulation, reliability of action, exceeding simplicity, and economy of construction, besides being noiseless in its operation and occupying but little space.

I do not allege to be the inventor of a single-rail track or of two tracks each having a single rail, but lay claim only to a return-track having a single rail or wire provided with graduated tripping devices in connection with a series of wheel-carriers having corresponding tripping devices, said carriers being automatically derailed thereby.

I claim—

1. An organized cash and parcel transmission apparatus for store-service, in which a track consisting of a single wire or rail embodies the following features, viz: a common forwarding and return way—*i. e.*, a single way employed for both of said purposes—one way common to a number of salesmen's stations, and such way constructed substantially as described, in order to promptly insure the automatic derailment of a series of carriers at the respective stations to which they belong, for the purpose desired.

2. A way common for both the forwarding and return of the carriers for a number of salesmen, said way consisting of a single wire or rail either permanently horizontal or capable of being alternately inclined in opposite directions and having a series of graduated tripping devices connected therewith or located contiguous thereto, in combination with a series of carriers so constructed as to engage therewith for the purpose of being automatically derailed at their proper stations, substantially as set forth.

3. A single wire or other single rail track having graduated tripping devices, and a series of carriers having tripping devices adapted to engage therewith and effect the automatic derailment of the carriers at their proper stations when said carriers are moving in one direction, and allow of the uninterrupted passage of the carriers when moving in the opposite direction, constructed and arranged to operate for the object desired.

4. A single rail or wire track having a series of graduated tripping devices, and a series of carriers provided with devices to engage therewith in such manner that each carrier on arriving at its proper station may be liberated from its normal upright position on the track and have its center of gravity changed so as to destroy its equilibrium in order that the carrier may assume an inclined position and be free to be automatically derailed and removed, the coacting parts being constructed to operate substantially as described.

5. A continuous unbroken track having a single wire or rail forming a straight line, or a line partly straight and partly curved, for the common use of a number of salesmen, as a combined forwarding and return way, and provided with a series of tripping devices, in combination with carriers provided with tripping devices to engage therewith, said carriers being so constructed that their equilibrium will be automatically destroyed, and the carriers automatically derailed at their respective stations on their return from the cashier, for the purpose enumerated.

6. A continuous track without switches, having a single wire or rail forming a straight line, or a line partly straight and partly curved, as a combined forwarding and return way for the common use of a number of salesmen, and having a series of graduated tripping devices, in combination with a series of carriers provided with tripping devices which, when the carriers are moving on the track, occupy positions under the same at graduated distances, increasing from the carrier of the first station to the carrier of the last station, and so constructed that the carriers will lose their equilibrium and be automatically derailed at their respective stations on their return from the cashier, for the purpose set forth.

7. In combination, a forwarding-way consisting of a single wire or rail, a return-way consisting of a single wire or rail, the latter provided with a series of graduated tripping devices, and a series of carriers having tripping devices to engage therewith, all constructed and arranged to destroy the equilibrium and insure the automatic derailment of the carriers at the stations to which they respectively belong.

8. A single wire or rail inclined downward to the cashier's station and used by the salesmen as a common forwarding-way, and a single wire or rail provided with graduated tripping devices and extending either horizontally or inclining down from the cashier's station to the several stations of the salesmen, and constituting a common return-way, in combination with carriers provided with tripping devices, as and for the purpose explained.

9. A carrier having one or more wheels the axis of which is so hung in bearings that the wheel or wheels are capable of being swung over and automatically derailed from a return-way provided with graduated tripping devices, the carrier leaving the track only at the station to which it belongs, as set forth.

10. A carrier having one or more wheels, an axis supported in bearings and free to swing or rotate therein, a device actuated by a spring for locking the axis in its normal position, a tripping device connected with the carrier, and a single-rail track having a tripping device for actuating the carrier-tripping device and releasing the spring-locking device, all constructed and arranged to cause the automatic derailment of the carrier, in combination with a receiver located at its station, for the purpose specified.

11. The receptacle *e'*, pivoted to the truck or standard in which the axis of the carrier-wheel or wheels bear, in combination with the device for locking and retaining the receptacle in its normal or upright position, and devices for tripping and unlocking the same to allow it to swing on its pivot and automatically leave the track on its return from the cashier, substantially as herein shown and described.

12. A carrier having one or more wheels, an axis, *h*, and the bearing or bearings *g*, in which it is adapted to rotate, a hooked arm, *k*, pivoted to the carrier, and its spring *m*, for pressing it into a position for locking the axis, a tripping projection, *d*, connected with the carrier, and a single-rail track having a graduated tripping device, *b*, extending out into the path of the carrier-tripping device *d*, all combined and arranged to operate substantially as set forth.

13. A wheel-carrier, an axis, an upright bearing, 21, having a foot-piece, 22, integral therewith or secured thereto, a receptacle, *e'*, pivoted to the lower end of the bearing, a spring-actuated hooked arm, *k*, and a tripping device, *d*, projecting therefrom, in combination with a track having a single wire or rail, and a tripping device projecting therefrom, as described.

14. In combination with a single rail or wire forwarding-track and a single wire or rail return-track, a series of supports common to both ways, as specified.

15. A receptacle for receiving the carrier when derailed from the return-way, in combination with and secured to the track-supports *c c*, and a spring for automatically allowing of the gradual descent of the receiver when the carrier, &c., is contained therein, and for automatically elevating the receiver, when empty, to a position contiguous to and under the carrier-station, as described.

16. The carrier-receiver G, its sliding sleeve *p* and spring *q* thereunder for automatically raising the same to its receiving position, and the rod *w*, for depressing it, in combination with the track-supporting rod *c*, as set forth.

17. A device for conveying the carrier and its contents to its position on the forwarding-way, said device consisting of a receptacle, H, of a shape adapted for holding the carrier, and a handle, *t*, for elevating the same, substantially as set forth.

18. A carrier-conveying device, in combination with a track-support having a hook, *v*, as and for the purpose described.

Witness my hand this 25th day of April, 1885.

WILLARD H. GILMAN.

In presence of—
N. W. STEARNS,
H. W. STEARNS.