

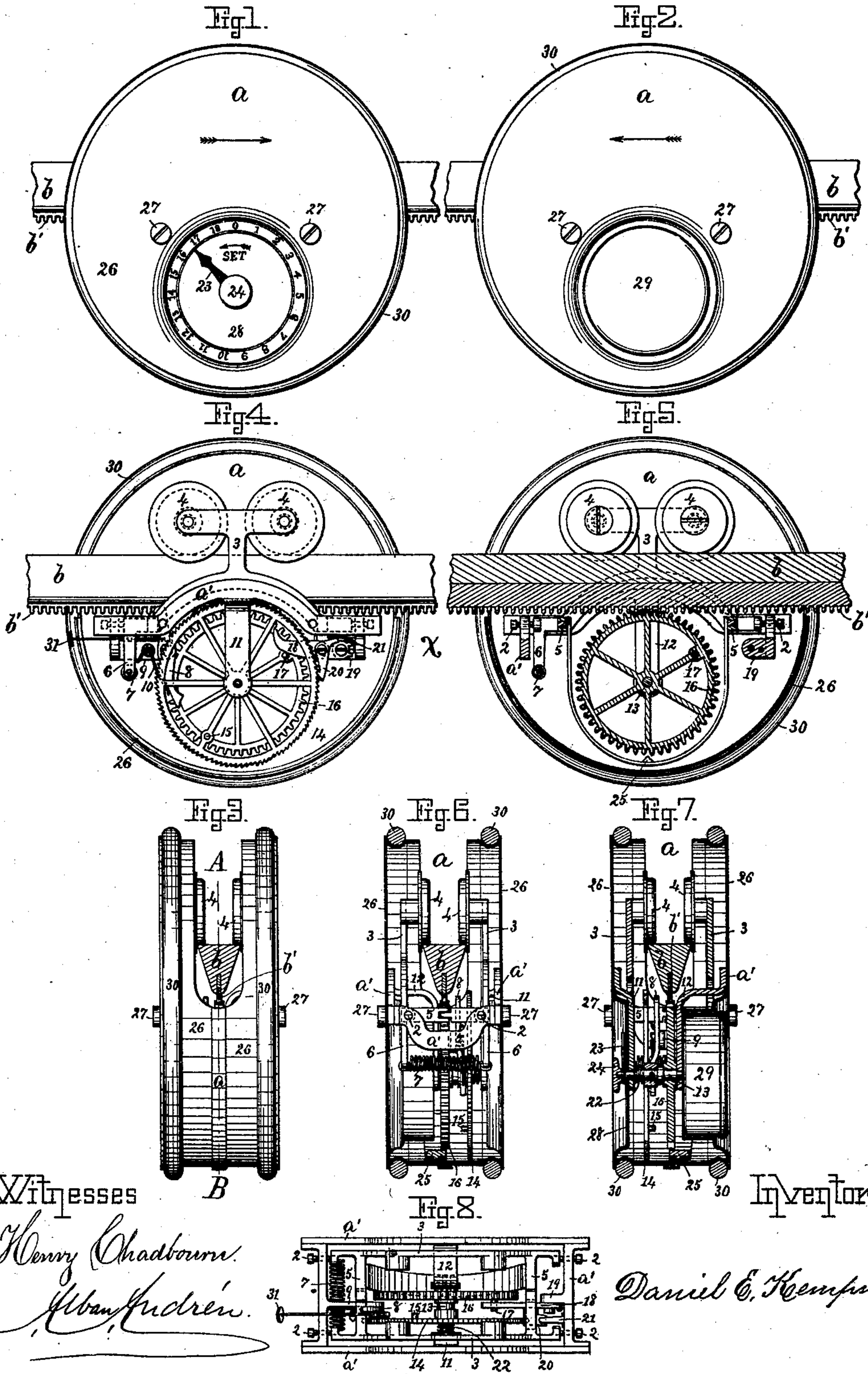
(No Model.)

3 Sheets—Sheet 1.

D. E. KEMPSTER.  
CASH CARRYING APPARATUS.

No. 361,295.

Patented Apr. 19, 1887.



(No Model.)

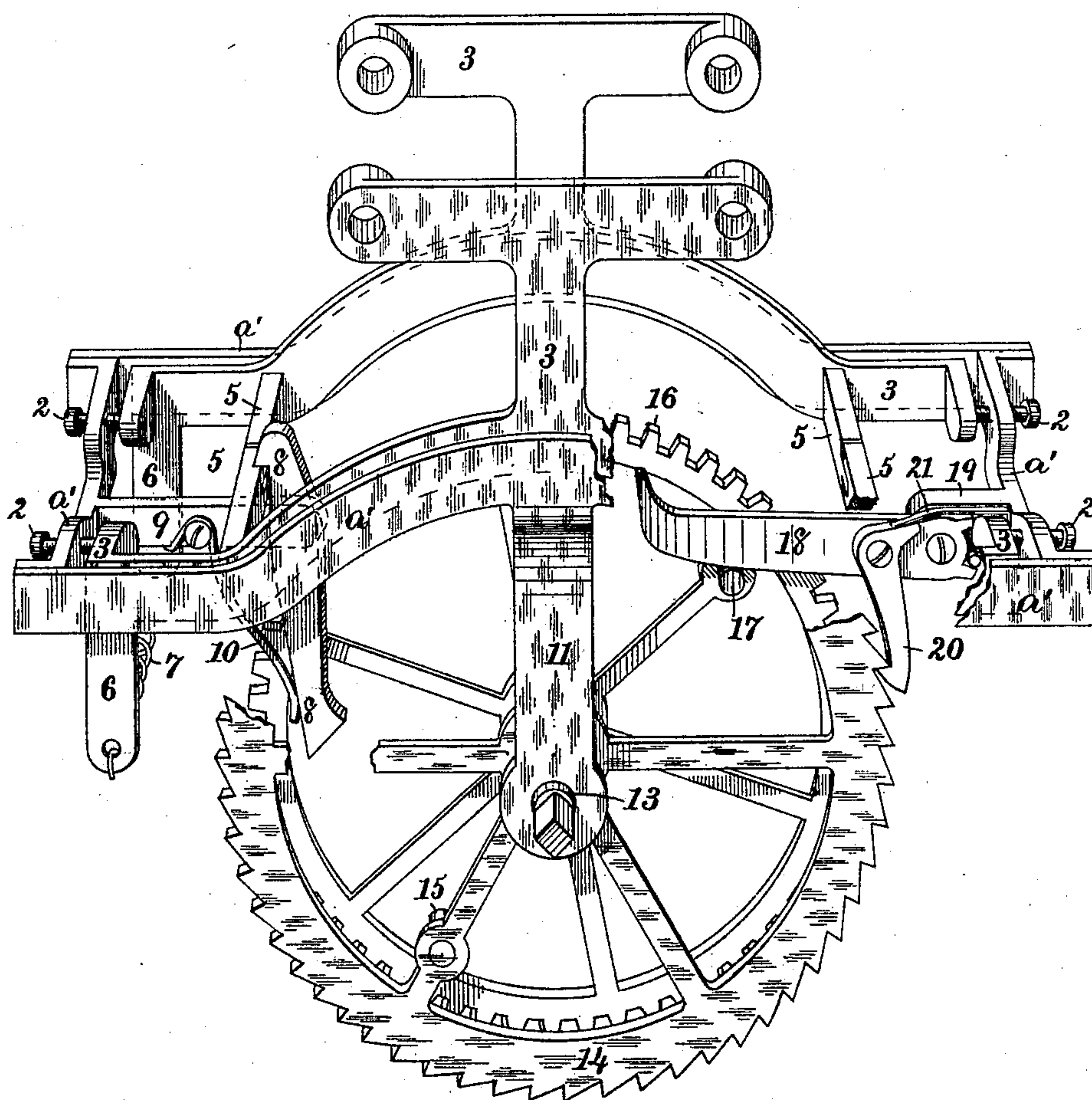
3 Sheets—Sheet 2.

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Fig. 9.



Witnesses

*Charles H. Fogg.*

*Henry Shadbourne.*

Inventor

*Daniel E. Kempster.*



(No Model.)

3 Sheets—Sheet 3.

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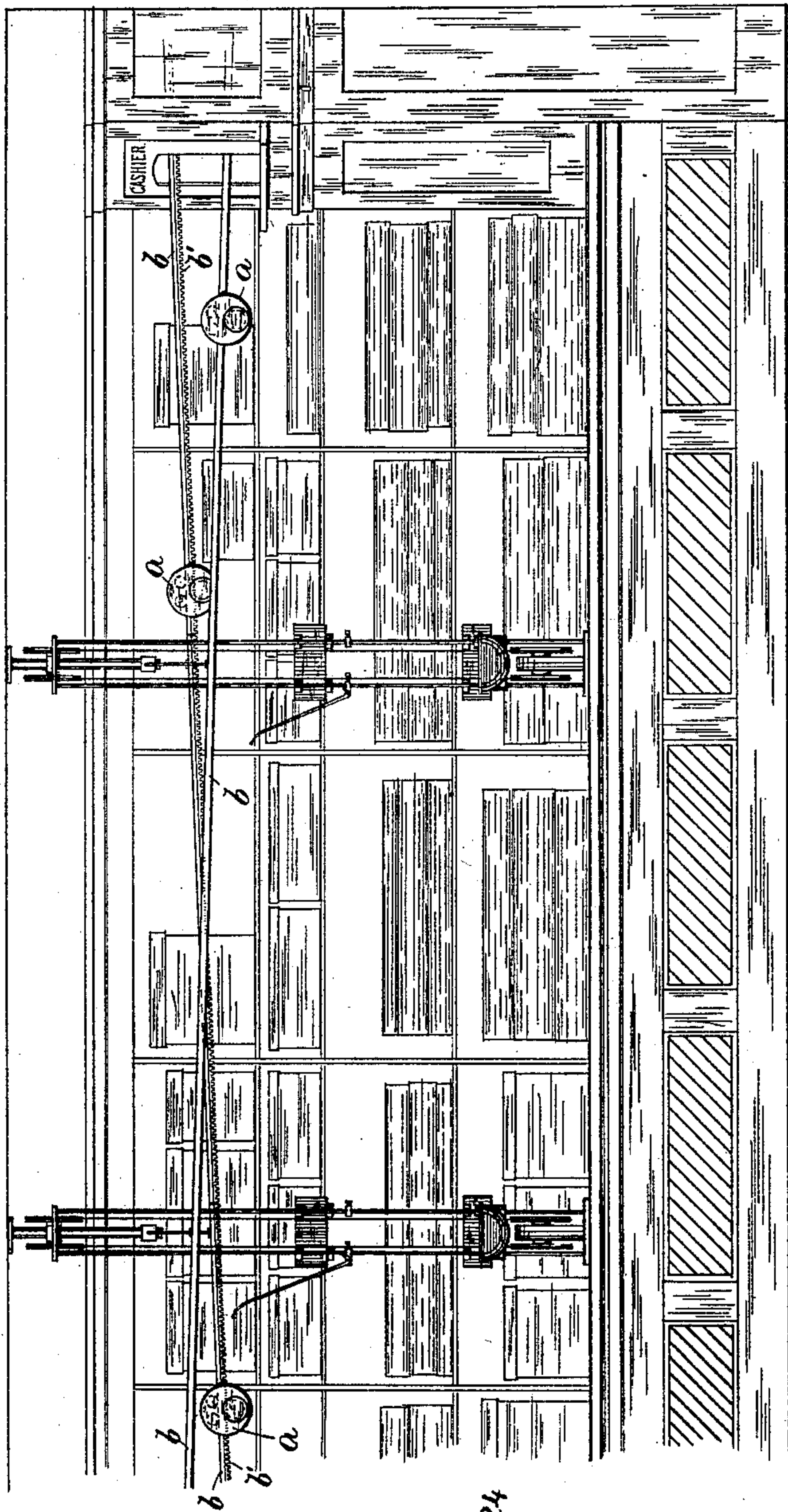


Fig. 11.

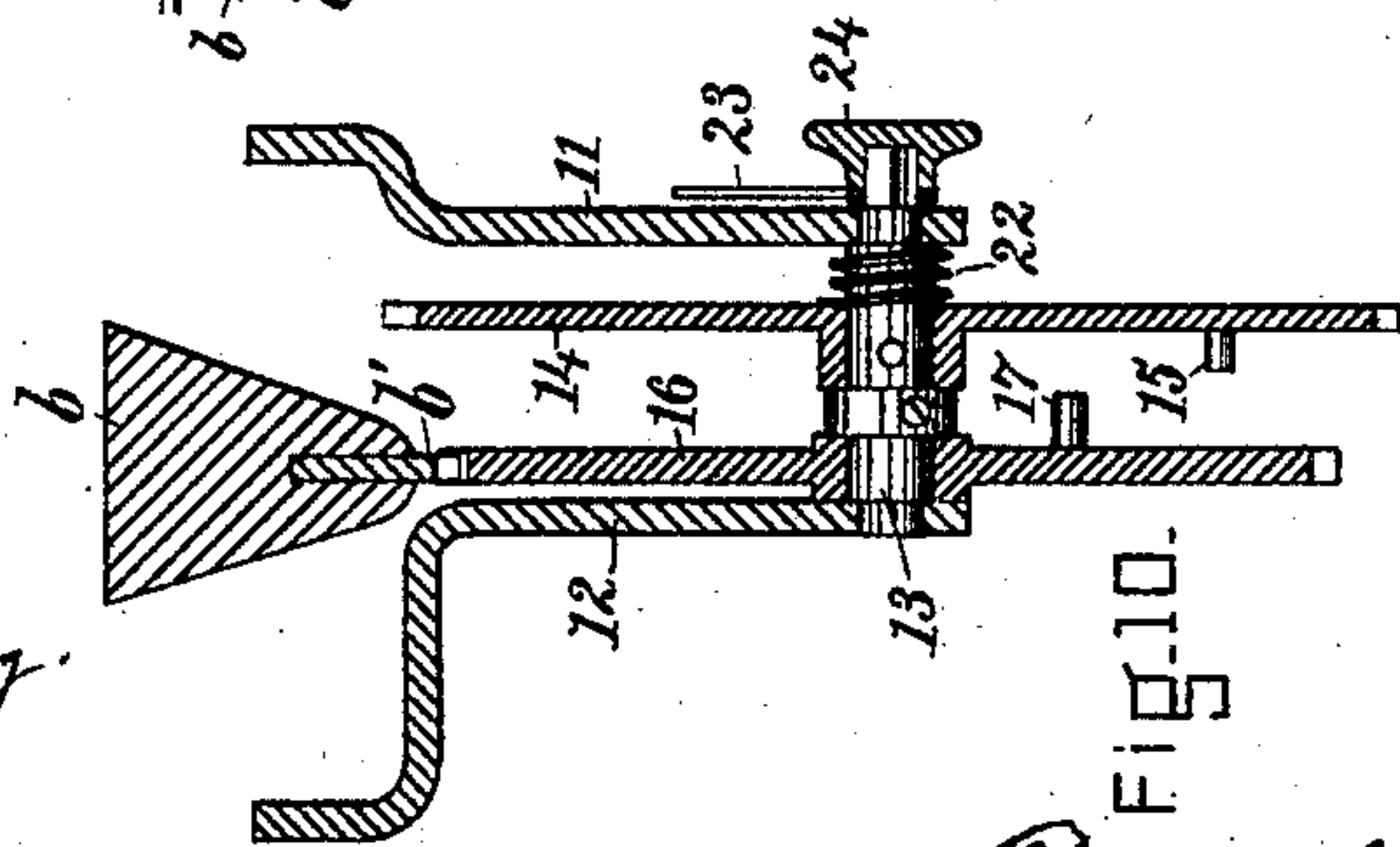


Fig. 10.

WITNESSES.

*Charles H. Fogg.*

*Henry Chadbourne.*

INVENTOR,

*Daniel E. Kempster.*



# UNITED STATES PATENT OFFICE.

DANIEL E. KEMPSTER, OF BOSTON, MASSACHUSETTS.

## CASH-CARRYING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 361,295, dated April 19, 1887.

Application filed March 13, 1886. Serial No. 195,052. (No model.)

*To all whom it may concern:*

Be it known that I, DANIEL E. KEMPSTER, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Cash and Parcel Carrying Apparatus; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to cash and parcel carrying systems for store-service, &c., in which elevated or overhead rails, tracks, or ways may be used, extending from a central station or cashier's desk in the store to the different clerks or attendants, for the passage of wheeled carriages thereon from one station to the other. The rails or tracks may be arranged horizontally, and mechanism employed to give the carriages an impetus to start them over the tracks to their proper stations. One form of such impelling device is shown in Patent No. 332,085, granted to me December 8, 1885. I prefer to arrange the said tracks or ways in oppositely-inclined positions, being a well-known manner of arranging them, one rail or track descending toward the central station or cashier's desk and constituting a common forwarding-way from all the salesmen's stations on the line, and the other rail or track inclined in the opposite direction from said central station and constituting a return track or way common to all said salesmen's stations, as shown in Figure 11. If preferred, for small stores, a single line or track may be used as a combined forwarding and return way and be placed horizontally, or be made capable of inclining alternately in opposite directions.

My improvement has for its object, first, to provide a complete practicable system for store-service in which the rails or tracks are entirely free from any and all graduated devices, switches, shunts, or traps at the stations, the line or way presenting to the cars or carriages an unbroken rail or track of uniform construction from end to end; second, to provide such rails or tracks with cars or carriages, all of uni-

form size and construction, each capable of transporting cash or parcels to or from any and all stations on the line or tracks, and each capable of dropping off from the rails or tracks and passing down on the elevator to the attendant or clerk at any station on the line desired.

With my construction of uniform tracks and carriages for all lines and stations I entirely avoid all "graduated systems" in which the cars or carriages are arrested at their respective stations by devices graded in length, size, or position. Furthermore, I am able to produce a more perfect and reliable service for stores, &c., than heretofore in use, with the economical advantage of their manufacture under the duplicate or interchangeable system now adopted in the manufacture of guns, watches, and many other articles.

I will now proceed to more fully describe the construction and operation of my invention, one way of carrying it out being shown in the accompanying drawings, in which—

Fig. 1 is a front view. Fig. 2 is a rear view. Fig. 3 is a side view seen from *x* in Fig. 4. Fig. 4 is a front view with front of case removed. Fig. 5 is a section on line A B in Fig. 3. Fig. 6 is a side elevation seen from *x* in Fig. 5. Fig. 7 is a central cross-section seen from *x* in Fig. 4. Fig. 8 is a plan view of internal mechanism with the case and wheels removed. Fig. 9 is a perspective view of the carriage and parts of its internal mechanism, the outer case and carrying-wheels being removed. Fig. 10 is a sectional view of the carriage-adjusting mechanism and rail or track. Fig. 11 is a view of the apparatus as applied to a store, showing the elevators referred to hereinafter.

Similar letters and figures of reference on the drawings indicate similar parts in all the views.

*a* is a carriage composed of the following parts: a suitable frame, *a'*, the longer sides of which are curved upward about midway of their length and are provided with ears 11 and 12, extending downward. (Shown in Figs. 8 and 9.) The shorter sides of said frame are curved downward and are provided with ears 9 and 19, extending inwardly, and said shorter sides of this frame *a'* have screws 2, which pivotally attach therein two bell-crank



yoke-shaped levers, 3, having pivoted on their upright portions the flanged wheels 4. Said levers have projections formed on the ends of their shorter or horizontal arms, 5, (seen best in Figs. 6 and 8,) which intermesh, and thereby insure both of the levers operating together. Said levers 3 also each have at one end a downward-extending arm, 6, to which are attached the ends of a spiral spring, 7, which tends to draw said arms 6 toward each other and swing the levers 3 on their pivots 2, and thus separate their upright portions and their flanged wheels 4, so they freely clear and will allow the passage between them of the triangular-shaped track *b*, this being the normal position of the pivoted levers and their wheels when the carriages are not in use on the rail or track.

When the carriages are on the track and the pivoted levers upright, as shown best in Figs. 6 and 7, the wheels 4 are prevented from leaving said track by reason of the levers being held in this position by the hooked end of a lever, 8, which is pivoted on an inwardly-extending ear, 9, on the frame *a'*. (Seen best in Figs. 4, 8, and 9.) The upper end of said lever hooks over the arms 5 of the pivoted bell-crank levers, being pressed over and held by the spring 10 on the ear 9. This spring, however, might be dispensed with, and the lever 8 so weighted as to act as desired.

On the frame *a'*, at about its center and extending downward and inward, are two ears, 11 and 12, (seen best in Figs. 7, 8, 9, and 10,) through which pass a shaft, 13, free to revolve therein, and having fast thereon a ratchet-wheel, 14, which has extending from its side a pin or projection, 15, (seen best in Figs. 4, 9, and 10,) located in a position (as the ratchet-wheel revolves) to engage the inclined face of the lower end of the hooked lever 8; also, on said shaft, loosely mounted, but held in a central position against the ear of the frame by the shaft-collar, is a gear-wheel, 16, which meshes with uniform projections or rack *b'* on the bottom of the return track or rail *b*. (Shown plainly in Figs. 5 and 10.)

The gear-wheel has extending from its side a pin or projection, 17, located in a position, as the gear-wheel revolves, to engage the inclined face of a lever, 18, pivoted on the inwardly-extending ear 19 of the frame *a'*. Said lever 18 is limited in its swinging movement by suitable stops thereon engaging with a pin in the ear 19, and said lever also has pivoted thereon a pawl, 20, which engages with the ratchet-wheel 14. Said pawl and its lever are held in proper working position by the spring 21 bearing on the extended tail of the former, as shown in Figs. 4 and 9.

The spring 21 might be dispensed with, and the tail of the pawl so weighted as to work as desired.

On the shaft 13 is a coiled spring, 22, (seen best in Figs. 7, 8, and 10,) for the purpose of exerting a pressure, and producing sufficient

friction on the ratchet-wheel 14 to prevent it from being thrown ahead more than a single tooth by the pawl 20 under a very rapid movement of the carriage. The shaft 13 has on its outer end a pointer, 23, held fast thereon by the knob 24.

It will be observed that the ratchet-wheel 14 and the pointer 23 are both made fast to the shaft 13, and also that the pin or projection 15 on said ratchet is in such position thereon in relation to the pointer that when the pointer is placed over the zero-point on the dial 28 said pin or projection is in position to engage the highest point of the inclined face of the lower end of the hooked lever 8, which releases and holds the hooked lever from engagement with the arms 5 of the carrying-wheel levers 3, when the spring 7 assists in drawing toward each other the arms 6 of said levers, whereby the carrying-wheels 4 are removed and held from the track *b*, and the carriage falls therefrom and descends by its own gravity. It will also be noticed that the gear-wheel 16 runs loosely on the shaft 13, and that the projection 17 on said wheel will upon every revolution of the latter engage the inclined face of the lever 18, and thereby cause the pawl 20, pivoted on said lever, to move the ratchet-wheel 14 one tooth. Therefore, when the pointer 23 is set over a number on the dial representing or corresponding to a station on the line, and the carriage is placed on the inclined return-track having the uniform devices or projections *b'*, Fig. 11, the carriage is caused to travel thereon by gravity, and as the gear-wheel 16 on the carriage intermeshes with the projections on the rail said wheel is caused to revolve, and in every revolution the projection 17 causes the pawl 20 to move the ratchet-wheel 14, thus moving the pointer one point on the dial, or one step nearer the zero-point on the dial, and such movement being continued the pointer reaches the zero-point of the dial when the mechanism operates as before described, limiting the travel of the carriage on the rail, from which it falls automatically, as already stated.

It is apparent that the number of teeth in the ratchet-wheel 14 should bear a proper relation to the number of stations on the line indicated by corresponding figures or numbers on the dial and to the revolutions of the wheel 16 by means of the projections on the return-track, and that the ratchet and pointer fastened to shaft 13 move step by step by means of the gear-wheel and pawl.

The pointer is constructed to rotate or move over the face of the dial, (marked or numbered at the proper points to represent or correspond to the different stations on the line,) and with its connected mechanism may be set to limit the travel of the carriage on the return-way simply by turning the pointer until it rests over the number or figure on the dial indicating or corresponding to the station the carriage is desired to return to, which also adjusts



the mechanism and sets the ratchet-wheel in such position that it will require the carriage to travel a certain distance on the return-way in order to revolve the gear-wheel sufficiently to operate the pawl 20 and turn the ratchet-wheel until its projection 15 engages and un-hooks the lever 8 and the carriage falls from the rail at the station indicated by the pointer on the dial.

10 The arms 5 on the bell-crank levers 3 have attached thereto and hanging in a loop or bight (seen best in Figs. 5 and 6) a metal band having a projection, 25, which, when the carriage leaves the track or rail, is raised by the arms 5, so that the projection 25 enters between the teeth of the gear 16, and thus securely locks it in position until the carriage is again placed upon the track. Said loop and its projection also form a stop to limit the motion or swing of the bell-crank or yoke-shaped levers 3 under the influence of the spring 7.

The frame, together with its levers, wheels, and all working parts, is inclosed in a case, 26, preferably made in circular form and of two parts, and having a slit or aperture through its top for the passage of the rail or track, (shown plainly in Figs. 3, 6, and 7,) the two parts of the case being held together and onto the frame *a'* by screws 27. The case may be made of metal, hard rubber, paper, or any suitable material, and, as shown in Figs. 1 and 7, the front side of the case has a circular depression sufficiently deep to contain the pointer and its operating-knob, and has on its face a dial, 28, provided with characters to represent the stations which may be reached by said carriages. The rear side of the case has a circular depression and also a circular cavity of smaller diameter containing a cash-box, 29, held therein by friction or any suitable catch devices. The circular depression gives ample room for the fingers to grasp the flanged or beaded edge of the cash-box for removal.

It is shown that all the working parts of the carriages are securely protected from injury by being incased, and the edges of the cases are grooved to receive rubber tires 30, placed thereon, and thus prevent any noise or abrasion when the carriers derail or collide with each other on the track.

Should it be desirable at any time to remove a carriage from its rail or track before it arrives at its station to correct any mistake in its contents, it can be readily done by pressing the button 31, to which is attached a wire connecting with the upper end of the hooked lever 8, so that a slight pressure on the button removes the hook from off the arms 5 and allows the wheels 4 to be removed from the track by the spring 7. (For button 31 see Figs. 4 and 8.)

I prefer to make the rail or track of wood, the carriages making less noise than upon metal, and, besides, are cheaper to make and put up. I prefer the triangular or V shape for the rails or tracks as being economical to

saw out, and that form gives better clearance to the wheels when the carriage is elevated onto the track. The forwarding-track has no projections, but the return-track is provided with uniform projections on the bottom; but I do not confine myself to any specified length, size, or shape of them or to the distance between them.

The carriage is provided with a dial that may rotate or be fixed in position and a pointer or index connected with mechanism adapted to adjust the limit or extent of travel of the carriage on the return-track, and this feature permits the carriages to be used interchangeably for any station by adjusting or changing the position of the pointer or index on the dial—a substantial and important advantage in this system for store-service over any other. This is accomplished by placing the index or pointer over the proper number on the dial to represent the station the carriage is to be sent from to the central station, which is then placed on the forwarding-track, where it runs freely to the central station without change in the position of the index on the dial, or of the dial if that be made to rotate. When the carriage is transferred to the return-track at the central station for the station indicated as its destination and proceeds on its journey, the index or pointer is made to rotate or change its position on the face of the dial until the index reaches zero on the dial, when the carriage will have come to its destined station, and will then stop, and automatically leave the track and descend to its proper place by means of the elevator, referred to herein. Therefore, in practical use, when the salesman at any station on the line desires to forward the proceeds of any sale to the cashier or central station, he places the same in the cash-box 29 in the carriage, then sets the pointer 23 on the number of his station upon the dial, and, by an elevator similar to that patented by me by Letters Patent No. 332,085, dated December 8, 1885, raises the carriage until the bottom of the forwarding rail or track is struck by the arms 5 on the carriage, when said arms are depressed and the carrying-wheels 4 are swung over onto the rail or track, where they are locked or held in position by the lever 8 hooking over the arms 5. The elevator then descends, giving the carriage a slight push as it leaves it to start it on its way down the track, and on reaching the cashier or central station the carriage may be removed by pressing the button 31. The necessary change in the contents of the cash-box is made and replaced in the carriage, and the number of its station may be noted, if desired, by the pointer on the dial; but this is not necessary or important, for nothing is required to be done by the cashier but to place the carriage on the return-track, and as it travels along on its return the toothed wheel or gear 16 is revolved by the uniform teeth *b'* on the track. Every revolution of said gear causes the ratchet-wheel 14 to be moved one notch until



the pointer 23 reaches the zero-point on the dial, when the carriage will have arrived at the station for which it was set and from which it was sent when first started; but the carriage would return to any station whatever on the line desired if the pointer were placed on the proper number on the dial at the central station when the carriage is sent back from that station on the return-track irrespective of the station from which it came, and in all cases will drop automatically from the track at any station on the return-track desired when indicated by the pointer on the dial, by reason of the pin 15 on the ratchet causing the lever 8 to release the arms 5, and thus unlock the carrying-wheels 4, which are caused to separate and leave the track by the spring 7, and to be automatically transferred down to the salesman's counter by the elevator before referred to.

It is seen that the cashier has no trouble about setting the carrier, as it is already set when it reaches him, to return to the station and salesman who sent it.

It is apparent that the uniform projections on the track might be dispensed with, and the tripping device on the carriage be operated by frictional contact with the rail, or the carrying-wheels might be connected to said tripping device, so as to register and operate the latter; but I prefer the uniform projections as more positive and not liable to slip, and thus get out of time.

I construct the carriage-case circular in form, so it can roll, and the carriage may be dropped off the main line onto a branch beneath and roll to its destination.

I claim—

1. In a conveying apparatus for store service, the combination, substantially as set forth, of a continuous return track or way provided with non-graduated projections or devices, wheeled cars or conveyers of uniform construction adjustable and interchangeable for any station for traversing said way, each having a toothed wheel to intermesh with said projections, a dial and pointer to indicate the limit or extent of travel of the conveyer on the way, and means, substantially as shown, for removing the conveyer from the rail or way and stopping it at any desired point, substantially as described.

2. In a cash or parcel carriage for store-service, the hooked lever 8, connected and combined with the releasing-button 31, substantially as described and shown.

3. In a store service apparatus, a track or way of triangular shape in cross-section with its point or apex placed downward and its opposite face upward to form the tread of the car-wheels running thereon, substantially as described and shown.

4. In a cash or parcel carriage, the shaft 13, having a pointer thereon, combined with the toothed wheel 16 and connected mechanism, substantially as described, for adjusting and

limiting the travel of such carriage to any desired station on the rail, as set forth.

5. In combination, the movable levers 3, with arms 5, and band having stop or projection 25 thereon, for causing said stop to lock the wheel 16 and hold it in position, substantially as described.

6. In a store-service apparatus, a single return-rail provided with uniform devices or projections, in combination with a wheeled carriage provided with a gear-wheel to mesh with said projections and connected mechanism, all arranged and operated substantially as described, for the purpose set forth.

7. In a carrier for store-service, the laterally-swinging pivoted levers 3, with arms 5, connected so as to operate together, and the flange-wheels 4, combined with connected mechanism, substantially as described, for locking and releasing said levers, for the purpose set forth.

8. In combination, the frame *a'*, shaft 13, toothed wheel 16, having cam or projection 17, lever 18, having pawl 20, ratchet 14, having projection 15, hooked lever 8, and pivoted levers 3, having the carrying-wheels 4, substantially as shown and described.

9. The frame *a'*, shaft 13, toothed wheel 16, having projection 17, hooked lever 8, and pivoted levers 3, having carrying-wheels 4, all arranged and combined substantially as described.

10. In a carrier or conveyer for store-service, the laterally-swinging levers pivoted in a vertical position, having carrying-wheels pivoted thereon, combined with a spring to speed and insure the fall of the carriage from the track, substantially as shown and described.

11. In a store-service apparatus, the carriage provided with carrying-wheels, in combination with laterally-swinging pivoted levers and the connected mechanism, substantially as described, for controlling and operating said levers, whereby they are caused to swing, and thus make said wheels approach or recede from each other, so they may be placed upon or removed from the track or way, as set forth.

12. In a carrier for store service, provided with a dial, a shaft having an index thereon, substantially as shown, combined with the toothed wheel 16 and the rail having uniform projections or teeth *b'*, for adjusting and limiting the journey of the carrier over the return-way and rendering it interchangeable for any station, substantially as shown and described.

13. In a store-service apparatus, a triangular return-way provided with uniform non-graduated projections or devices, substantially as described and shown, in combination with a carrier having a gear-wheel meshing into said projections, and mechanism for operating the pointer, substantially as described, and for the purpose set forth.

14. In a conveying apparatus for store-service, an adjustable carrier to run interchange-



ably between different stations and automatically stop and leave the return-way at any desired point, substantially as described, the same consisting of a frame, levers having  
5 wheels thereon, a bent or hooked lever to lock and hold the same in position, a shaft having a toothed wheel thereon, said wheels and connected mechanism, substantially as described, provided with means, substantially as set forth,  
10 to set and adjust said mechanism to limit and indicate the travel of the carrier and cause it to leave the return-way at any desired point, all arranged and combined substantially as described, for the purpose set forth.  
15 15. In a store-service apparatus, a single return-way inclined from a central station, said way having uniform projections thereon, substantially as described, in combination with a conveyer having a toothed wheel meshing with  
20 said projections, said conveyer being supported

by wheels thereon capable of moving laterally on and off such way, and mechanism for causing and controlling such movement, substantially as described.

16. The frame *a'*, levers 3, and lever 8, arranged and combined substantially as shown and described, for the purpose set forth.

17. In a carrying apparatus for store-service, a return-way having non-graduated devices or projections *b'*, in combination with a  
30 carrier having the toothed wheel or gear 16, for revolving the shaft 13, with its connected wheel 14, substantially as described, for the purpose set forth.

In testimony whereof I affix my signature in  
35 presence of two witnesses.

DANIEL E. KEMPSTER.

Witnesses:

ALBAN ANDRÉN,  
HENRY CHADBOURN.