

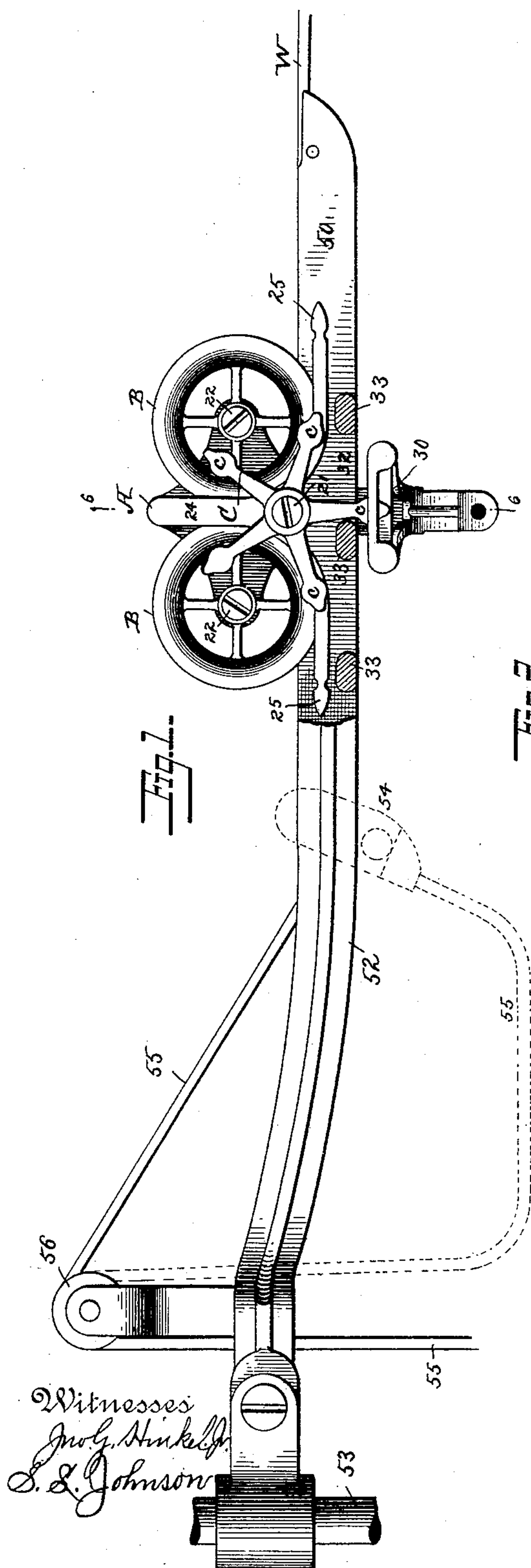
(No Model.)

2 Sheets—Sheet 1.

G. KEYSER.  
STORE SERVICE APPARATUS.

No. 395,332.

Patented Jan. 1, 1889.



Witnesses  
Jno. G. Hinkley  
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Fig. 2.

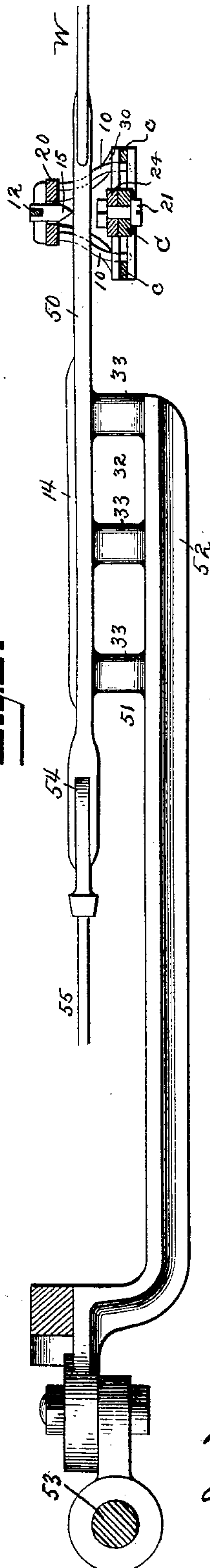
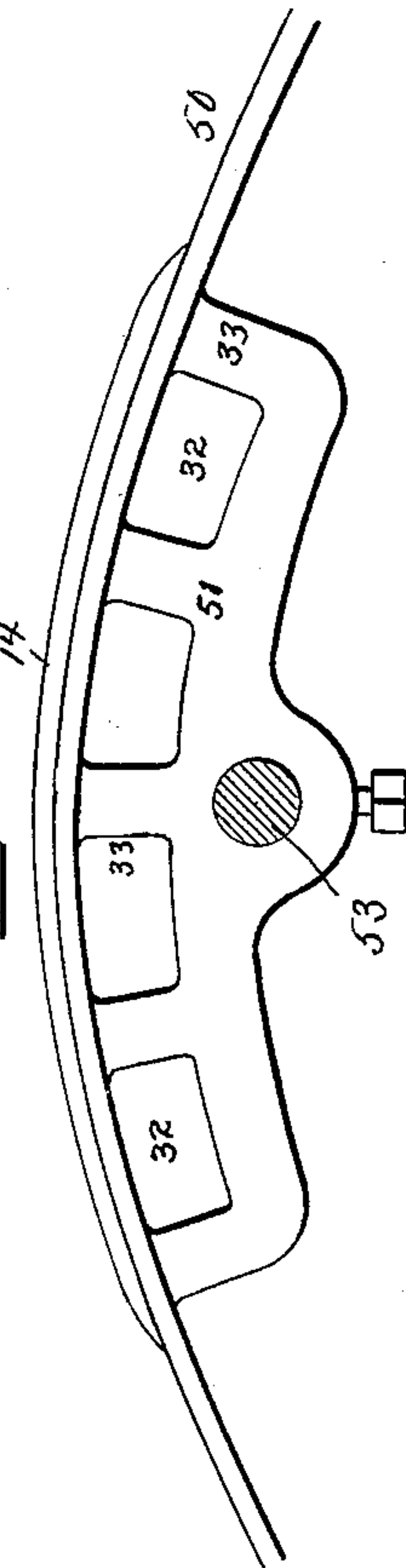


Fig. 3.



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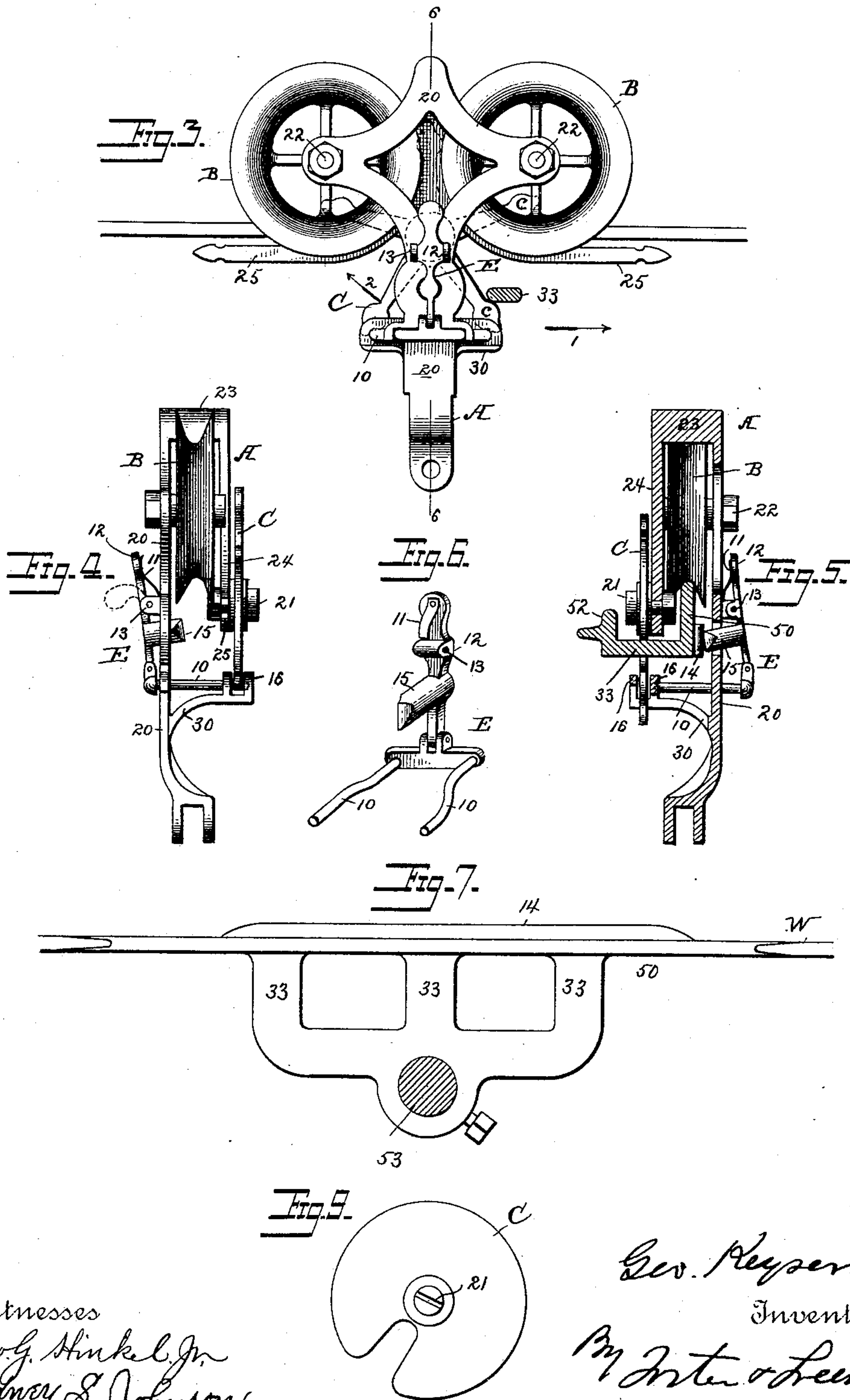
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# UNITED STATES PATENT OFFICE.

GEORGE KEYSER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE  
LAMSON STORE SERVICE COMPANY, OF BOSTON, MASSACHUSETTS.

## STORE-SERVICE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 395,332, dated January 1, 1889.

Application filed April 11, 1888, Serial No. 270,312. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE KEYSER, a citizen of the United States, residing in Philadelphia, Philadelphia county, Pennsylvania, have invented certain new and useful Improvements in Store-Service Apparatus, of which the following is a specification.

The present invention relates generally to store-service apparatus, and particularly to that class of such apparatus wherein the carrier by its own gravity or by the aid of some propulsive force traverses a wire or other way stretched between distant points in a store, warehouse, or the like, as, for instance, between the cashier's desk and one or more salesmen's stations; and it consists in the novel features hereinafter fully set forth.

In the drawings, Figure 1 is a side elevation of a portion of a track of a store-service apparatus, showing, particularly, one end thereof illustrating a car on the track and having a portion of the supporting-bracket broken away. Fig. 2 is a plan view thereof, showing, also, a horizontal section of a car-frame. Fig. 3 is an enlarged elevation of a trolley or car embodying some of the features of the invention and a portion of a track, and Fig. 4 is an end elevation thereof. Fig. 5 is a vertical sectional elevation taken on the line 6 6 of Figs. 1 and 3. Fig. 6 is a perspective view of the lock. Figs. 7 and 8 are plan views of a bracket, illustrating its employment with a straight and a curved track at points thereon intermediate of its ends; and Fig. 9 is a modified form of the rotatable guard.

The improvements are illustrated in connection with that class of store-service tracks or ways patented to Clark and to Cowley, as instanced by Letters Patent No. 309,197, December 16, 1884, wherein the way near its end is supported and provided with a flexible continuation, constituting an elevator and capable of being moved with respect to said other portions, so that the carrier in moving onto it may be lowered to the desk or salesmen and afterward elevated to the way and in such manner as to impart an initial impulse to the carrier to aid in forwarding the same over the way.

In Figs. 1 and 2 the way W terminates at and is secured to the outer end of a rail, 50,

that is supported by a laterally-extending web, 51, projecting from a bracket, 52, that projects from and is secured in any suitable manner to a support, 52. The rail 50 forms a portion of the way, and at its inner end is provided with a movable tongue, 54, pivoted to the rail and having connected to it one end of a flexible cord, 55, that passes over a pulley, 56, preferably mounted in a plane higher than the surface of the way, and thence down within reach of the cashier or salesman. This flexible cord 55, as is well known, bridges the space between the end of the way and the pulley 56, and is adapted to permit the carrier to run onto it for the purposes of lowering it in position to be accessible to the cashier or salesman, and to be drawn up again in position to be returned to the way and forwarded thereon.

It is essential in practice that the carrier be incapable of accidental displacement from the way, so that there be no danger of its falling therefrom, and as this is best insured by surrounding the way by a portion of the carrier-frame in such manner as to leave no space for the passage of the way that would permit the carrier to be freed therefrom, except purposely, many retaining devices have been proposed by which the accidental displacement is insured and yet enable the carrier to be removed from the way at will. It is also requisite in the class of store-service tracks or ways above described, and, indeed, in all such tracks that are supported at their ends or intermediate thereof by some supporting means, that such retaining devices should be movable with respect to the trolley, so as to enable it to pass freely such supports without liability of stoppage or of opening a passage in the frame for the track to permit the car to leave the way.

In the present case this is accomplished by providing the carrier with a frame, A, composed of an upright, 20, provided with a pair of studs, 22, upon which the wheels B are journaled, and having a laterally-extending bracket, 30, extending under the flanged tread of the wheels, and a second upright, 24, extending from and secured to the upright 20 by a cross-bar, 23, which upright 24 stops short of the end of the bracket 30, so as to



leave an opening between them upon one side of the wheels, as seen in Figs. 1, 4, and 5. This opening is closed by a rotatable guard, C, having a plurality of arms, *c*, mounted to rotate upon a stud, 21, projecting from the side of the upright 24 in such manner that one or more of said arms are constantly in position to guard the said opening and prevent the accidental displacement of the carrier from the way. So far as the guard itself is concerned it might be formed of a disk, as seen in Fig. 9, having in its edge a recess to enable it to pass a support for the way when said recess is in proper position; but in order to enable the carrier to pass a plurality of supports aiding in sustaining the track the armed guard will be generally employed. To effect this, the laterally-extending web or flange, as 51, which connects the track-rail 50, or other means of continuing the track beyond its support, is formed by a series of bars, 33, separated a proper distance apart by openings 32, into which one or more of the arms of the guard may extend as one or more of them are struck in contacting with the bars 33, as seen in Fig. 1, from which it will be seen that, supposing the guard to meet the first bar 33 in the position it occupies in Fig. 3 in moving in the direction of the arrow 1, one of its arms *c* will be struck thereby and cause the guard to be rotated in the direction of the arrow 2, so that the succeeding arm *c*, following that struck by the bar, will be propelled to the other side of said bar, and thus if it be the only connection between the track and the support or bracket the carrier will have passed it without forming at any time an opening between its arms and the bracket 30 sufficient to enable the carrier to be displaced from the track. The track, therefore, may be supported at any intermediate point or points along its length by brackets or other means connected with the track by a bar or bars 33, as seen in Fig. 7, and the track may be provided with a curved portion, as in Fig. 8, similarly connected with a supporting-bracket by a plurality of bars 33.

In order that the operative side of the guard or the free ends of its arms *c* may better withstand any sudden strain that they may be subjected to, to prevent the falling of the carrier, the edge of the bracket 30 is turned up to provide flanges 16, extending upon opposite sides of the guard, and between which its arms pass as it rotates. It is also desirable to provide a lock, E, for the guard, so as to prevent its rotation only at the times it is to pass a track-support. This lock may partake of many different forms. One form found effective in practice is illustrated. It consists of one or more rods, 10, adapted to normally stand in the path of one or more of the arms of the guard C to prevent its rotation. These rods 10 slide in openings in the upright 20 and bracket 30, and are properly guided by either or both in their movements to free or lock the guard.

They are connected to the end of an operating-arm—as, for instance, a lever, 12, pivoted at 13—that is constantly pressed in one direction to lock the guard by means of a spring, 11, (see Figs. 4, 5, and 6,) or by weighting its end, as indicated by dotted lines in Fig. 4.

In order to automatically disengage the lock to free the guard as the carrier is to pass a track, I arrange adjacent to the track—as, for instance, upon one side of the rail 51—a contacting-piece, 14, that contacts with the operating-arm or a projection, 15, thereof and rocks said arm sufficient to withdraw the ends of the rods 10 out of the path of the guard and permit its free rotation as its arms are contacted by the bars 33, as before explained.

The frame A of the carrier may also be provided with longitudinally-extending fingers 25, which lie along the track in opposite direction in close proximity with the lower faces of the wheels and extending a distance beyond them, as in Figs. 1 and 3, so that any tendency of the flexible cord 55 to override the flanges of the wheels as the carrier is passing onto or from it is obviated.

What I claim is—

1. The combination, with the frame of a carrier having a side opening, of a rotatable guard, C, closing said side opening in the frame, substantially as described.

2. The combination, with the frame of a carrier having a side opening, of a rotatable guard composed of a plurality of arms, *c*, closing said side opening, substantially as described.

3. The combination, with a track or way connected with a track-support by one or more bars, 33, of a carrier provided with a guard comprised of a plurality of arms adapted to be rotated by contacting with said bars to pass said track-support, substantially as described.

4. The combination, with a track or way connected with a track-support by one or more bars, 33, of a carrier provided with a rotatable guard having a plurality of arms, a lock for securing the guard against rotation, and a contacting-piece for moving the lock to free the guard, substantially as described.

5. The combination, with a track-wire, 50, its supporting-bracket, and connecting-web having a plurality of bars, 33, of a carrier provided with a rotatable guard, C, having a plurality of arms, *c*, adapted to contact with said bars in passing said supporting-bracket, substantially as described.

6. The combination, with a track-rail, 50, its supporting-bracket, and connecting-web having a plurality of bars, 33, and a contacting-piece, 14, at the side of said rail, of a carrier provided with a rotatable guard having a plurality of arms, *c*, and a lock for securing the guard in a fixed position, having a tongue adapted to contact with said contacting-piece

to move the lock to free the guard, substantially as described.

7. The combination, with a carrier, a rotatable guard mounted thereon, and a lock for  
5 holding the guard against rotation, of a contacting-piece to operate the lock, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE KEYSER.

Witnesses:

WM. S. DARLINGTON,  
N. C. LANE.