(No Model.) 2 Sheets—Sheet 1.

H. H. HAYDEN.

STORE SERVICE APPARATUS.

No. 303,158. Patented Aug. 5, 1884.

Fig. 1.

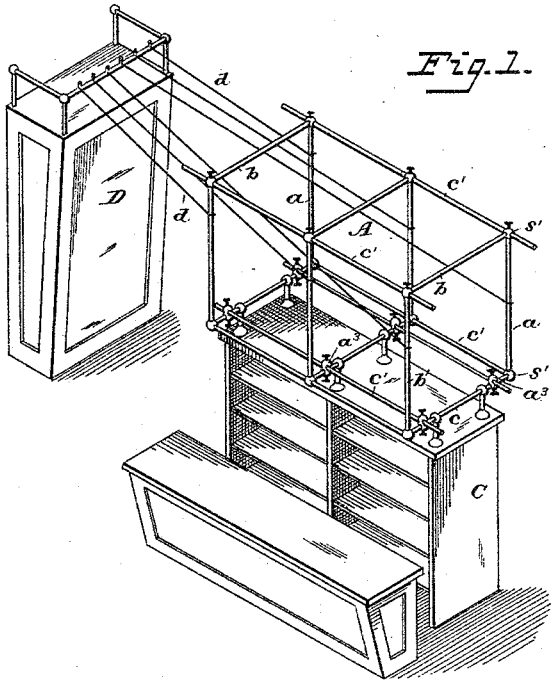


Fig. 2.

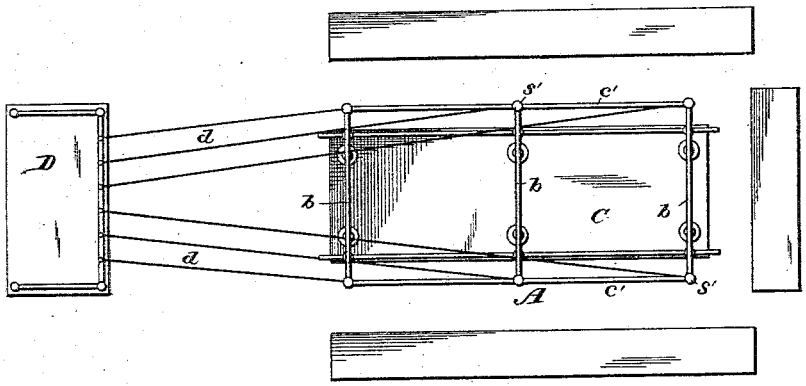
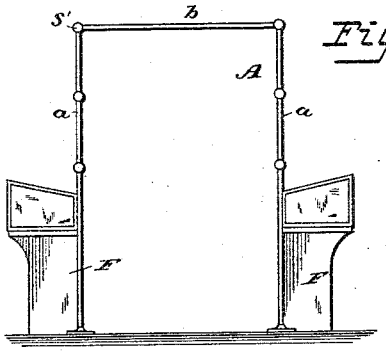


Fig. 3.



Attest:
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H. C. Hansmann

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By Foster & Freeman
Attorneys.

(No Model.) 2 Sheets—Sheet 2.

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STORE SERVICE APPARATUS.

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Fig. 4.

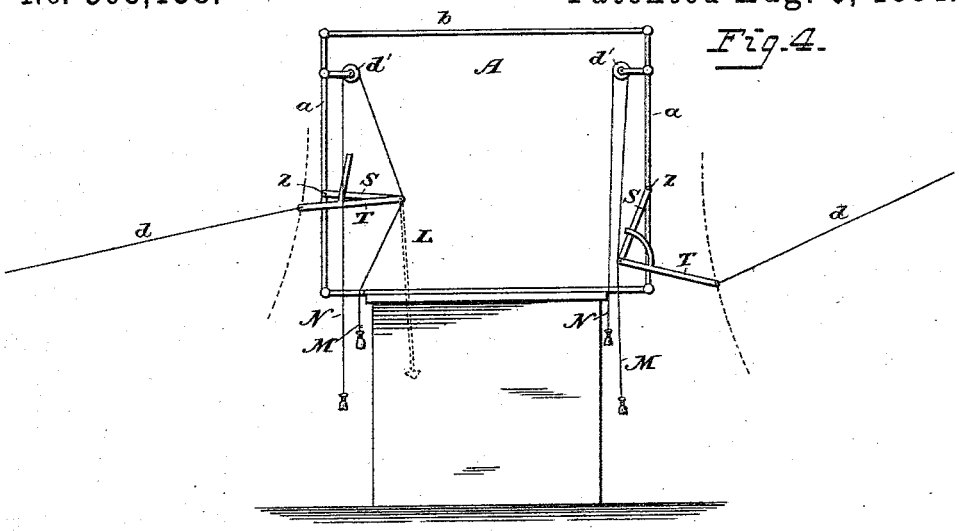


Fig. 5.

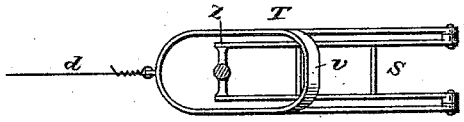
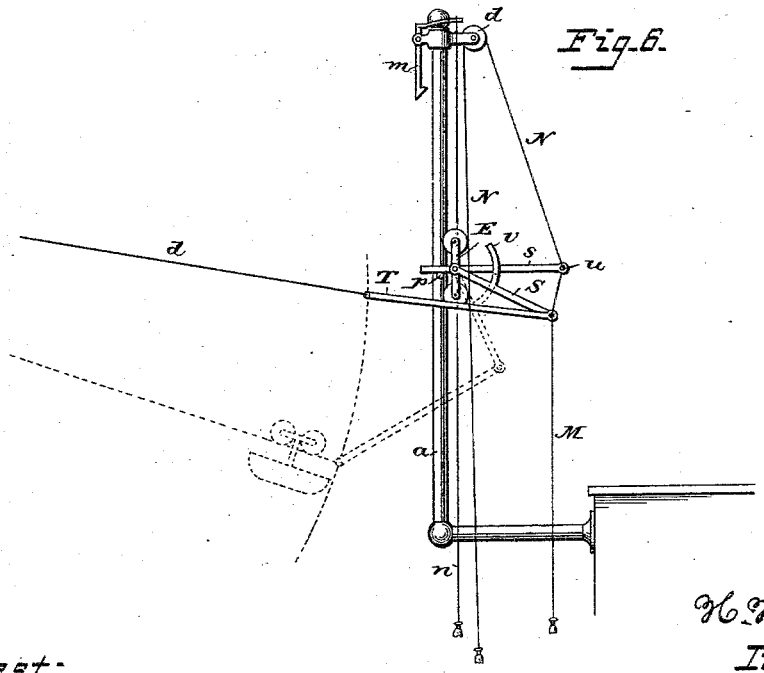


Fig. 6.



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H. H. Hayden,
Inventor:
By Foster & Freeman
Attorneys.

UNITED STATES PATENT OFFICE.

HARRIS H. HAYDEN, OF NEW YORK, N. Y.

STORE-SERVICE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 303,158, dated August 5, 1884.

Application filed July 12, 1884. (No model.)

To all whom it may concern:

Be it known that I, HARRIS H. HAYDEN, a citizen of the United States, and a resident of the city, county, and State of New York, have invented certain new and useful Improvements in Store-Service Apparatus, of which the following is a specification.

My invention relates to that class of store-service apparatus in which carriers are caused to move upon wires or ways by altering the inclination of the latter; and my invention consists in means, fully described hereinafter, for supporting the movable ends of the ways, for raising and lowering the latter, and for maintaining a practically uniform tension upon each way whatever may be its position.

In the drawings, Figure 1 is a perspective view showing the arrangement of desk, counter, shelving, and supporting-frame in connection with the wire ways of a store-service apparatus. Fig. 2 is a plan of Fig. 1. Fig. 3 is an end elevation showing two counters and a modified arrangement of frame. Fig. 4 is a view illustrating the movable support and connections for the wires. Fig. 5 is an enlarged plan of the connecting-frames. Fig. 6 illustrates the support for the movable end of a wire with means for setting the latter in different positions.

In that class of store-service apparatus in which the carriers move upon wires extending between the main desk and the various stations it is frequently found difficult to secure an effective support for the station ends of the wires, especially when the latter are connected to slides whereby they are raised and lowered to alter the inclination, and thus cause the carriers to travel back and forth. This difficulty is especially apparent in stores where the stations are situated at a distance from the walls and where the ceilings are high, preventing the attachment of the supporting-rods to the walls or ceilings. I overcome this objection, and am enabled to secure the desired support in any required position, by means of frames consisting of rods suitably connected together and supported either by the floor or by the shelving at the rear of the counters, or in such position adjacent to the same as may be found most effective.

In the perspective view, Fig. 1, a frame, A, consists of uprights *a b'* and transverse bars *b c*, and longitudinal bars *c'*, connected to form a rigid structure, as shown, and set upon the tops of the shelving C, so as to overhang the latter slightly at one side, the wires *d*, which constitute the ways upon which the carriers run, extending from the central desk, D, and through the frame A, as shown in Fig. 2, to the respective stations, or to the slides E, which move upon the uprights *a b'*, or are otherwise vertically adjustable. The rods *a b b' c* are screwed into the ball-connections *s'* at the corners, and the several frames thus made are bound into a solid frame-work by means of longitudinal rods *c'*, which slip through the balls and are fastened by set-screws. The rods *c'* are adjustable both laterally and longitudinally by the double connections a^3, which are furnished each with a set-screw at the top and bottom, so as to fasten on both *c* and *c'*.

In Fig. 3 the frame A is constructed in a similar manner to that shown in the other figures, (except that there are no lower cross-rods, *c*,) and it is secured to the floor between the counters F F. By this construction each standard or rod *a*, which supports or guides one end of one of the ways, is made the means of bracing the other standards or supports, so as to secure an extremely strong, rigid, yet light and elegant structure, which in no wise interferes with the operations in the store nor detracts from the appearance thereof.

The movable end of each wire in the store-service system of the character above described must, if the wire is taut, travel in a curve or circle corresponding to a circle having for its center the opposite fixed end of the wire. This necessitates either the use of curved rods, upon which the slides connected to the movable ends of the wires may travel, or that the wires shall be so slack as to interfere in some cases with the effective operations of the system.

To avoid the use of curved ways or guides, and at the same time cause the ends of the wires to travel in curves without materially varying the tension of the wires, I make use of a link-connection, illustrated in Fig. 4. Said connection consists of two frames, S T, of

the shape shown in Fig. 5, the frame S being pivoted in the uprights *a* at *z*, so as to swing away from the fixed point of the line, and the frame T being fastened to the movable end of the line, and being jointed at its opposite end to the rear end of the frame S. With these frames is combined means for raising and lowering the frames at the point where the two are jointed together. Such means may consist of a rod, L, jointed to the frames at the junction, and extending downward, so as to be raised and lowered by the salesman, as shown in dotted lines, Fig. 4. I prefer, however, to use two cords, N M, the former extending over a pulley, *d'*, to the joint of the frames, and the latter pendent from said joint, so that the frames may be brought to either position shown in Fig. 4 by pulling upon one or the other of the said cords.

Owing to the arrangement and connection of the frames, as set forth, the movable end of the way or wire *d* may be carried in substantially a curve corresponding to a circle, of which the fixed end is the center, thereby maintaining the same tension upon the way throughout its travels.

In some instances it is desirable to impart a more extended movement to the ways than can be secured by the use of the jointed supports alone. This is especially the case where the ways should be inclined to a slight extent, in order to cause the carrier to move to the station, and then further drawn down and inclined, in order to bring the carrier within reach of the salesman. To effect this, I pivot the jointed frames to the slide E, as shown in Fig. 6, using the same arrangement of cords as shown in Fig. 4, whereby the slide may be drawn down to the position shown in full lines, and until it strikes a stop, *p*, and the frames may then be drawn down to the position shown in the dotted lines, to bring the carrier within reach of the salesman. While the slide moves in a straight course above the stop *p*, and thereby prevents the wire from being absolutely taut throughout the whole length of its travel, the slacking of the wire when it is between its upper and middle position is a matter of no importance, as the carrier does not move upon the way except when the wire is at its upper, middle, and lower positions, and only travels upon the wire when in the lower position, when occasionally it is necessary to impart a greater impetus to its movement.

The frame of the slide E is provided with an arm, *s*, in which is an eye, *u*, for the passage of the cord M, which is connected to the joint of the frames S T. By this arrangement a draft upon the cord N will first lift the jointed ends of the frames until they are folded together, as shown at the left, Fig. 4, or as in full lines, Fig. 6, and will then raise the slide to its upper position. When the cord M is drawn downward the slide is carried with it until it strikes the stop *p*, after which the further draft upon the cord will carry down the frames to the position shown in dotted lines, Fig. 6. A guard, *v*, limits the downward movement of the frame S.

A catch, *m*, may be provided at the upper portion of the standard *a*, to hold the slide in its elevated position, and this catch may be operated by a pendent cord, *n*, to release the slide.

Without limiting myself to the precise construction of the parts shown, I claim—

1. A support for the wires of a store-service apparatus, consisting of a frame adapted for the attachment of the counter ends of the wires and composed of vertical, transverse, and longitudinal bars, substantially as set forth.

2. The combination, in a store-service apparatus, of the wire ways, desk, and counters, and frames adapted to support the counter ends of the ways, consisting of uprights, longitudinal and cross bars, and arranged in proximity to the counters away from the walls and below the ceiling, substantially as specified.

3. The combination, with the counters, desk, and the movable ways of a store-service apparatus, of frames consisting of vertical, longitudinal and cross rods, and adjustable supports connected to the counter ends of the ways, and movable in respect to the vertical rods, substantially as set forth.

4. The combination, with the movable end of a store-service way, of jointed frames, and means substantially as described, for raising and lowering the jointed ends of the frames, for the purpose set forth.

5. The combination, with the movable ways of a store-service apparatus, of jointed frames connected to the ways and to vertically-adjustable slides, substantially as specified.

6. The combination, in a store-service apparatus, of a slide, and means substantially as described, for moving it upon a vertical guide or rod, a frame, S, pivoted to said slide, and a frame, T, pivoted to the frame S and connected to one of the ways, substantially as specified.

7. The combination, of a vertical guide or rod, a slide having a limited movement thereon, a frame pivoted to the slide, and a second frame pivoted to the first and connected to one of the wires of the store-service apparatus, whereby the said frames may be carried by a slide and drawn down below the latter after it has reached the limit of its lowest movement, substantially as set forth.

8. A support for the movable end of the wire of a store-service apparatus, consisting of a slide having a limited vertical movement, and connections between the slide and the end of the wire, whereby the latter can be raised and lowered after the slide has reached the limit of its downward movement, substantially as set forth.

9. The combination of the slide, jointed

frames connected to the slide and to the wire, and elevating-cord connected to the frame and arranged to first lift the frame and then the slide, substantially as set forth.

10. The combination of the guide-rod *a*, having a stop, *p*, slide moving upon the rod above the stop, catch for holding the slide in its elevated position, jointed frame connected to the slide and to the wire, and means, substantially as described, for elevating the frame and slide.

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

HARRIS H. HAYDEN.

Witnesses:

EDWIN L. GILES,

WM. TRUSLOW.