(No Model.)

2 Sheets—Sheet 1.

J. C. MARTIN.

AUTOMATIC CASH BOX SYSTEM.

No. 284,456. Patented Sept. 4, 1883.

Fig 1

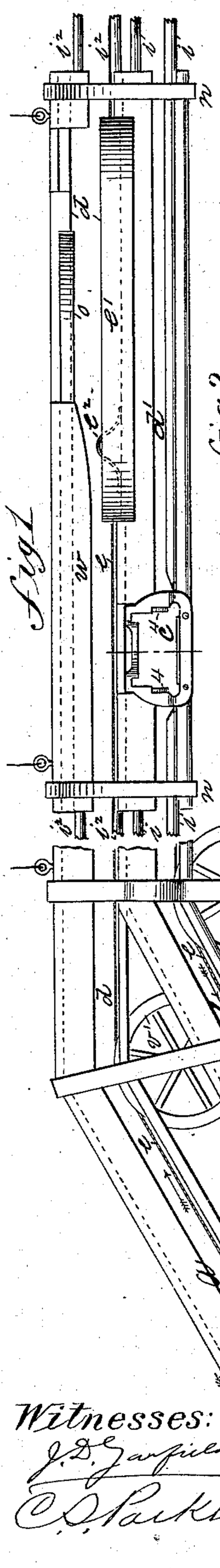


Fig 2

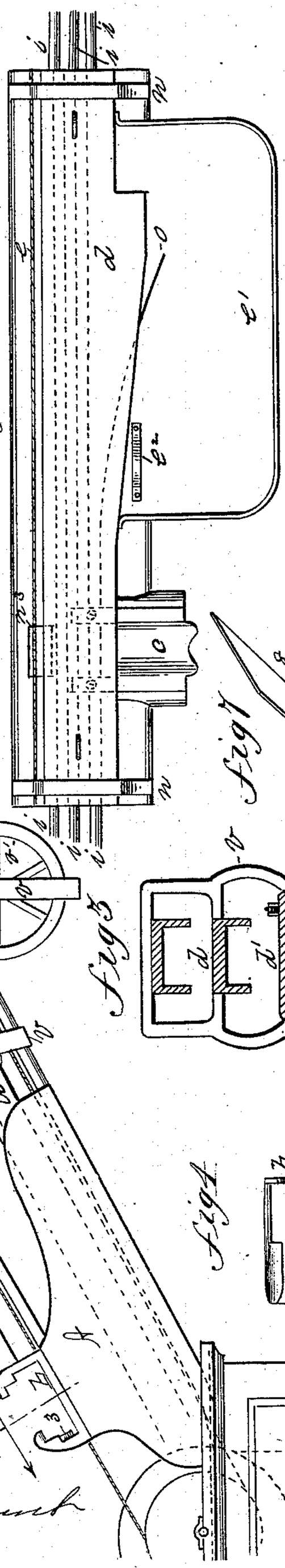


Fig 3

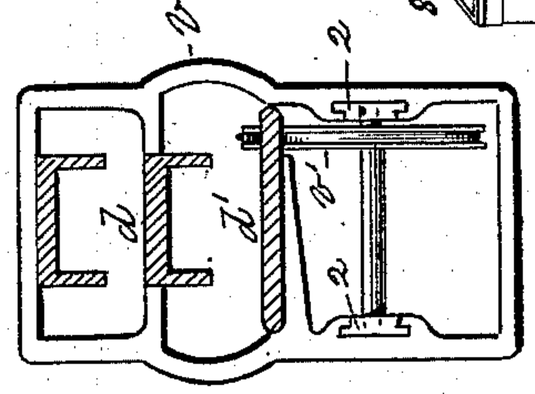


Fig 4

Fig 5

Fig 6

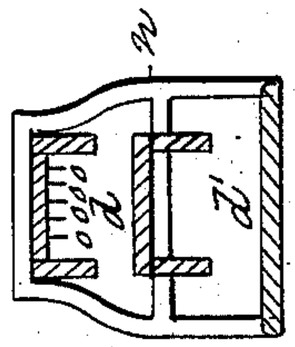


Fig 7

Fig 8

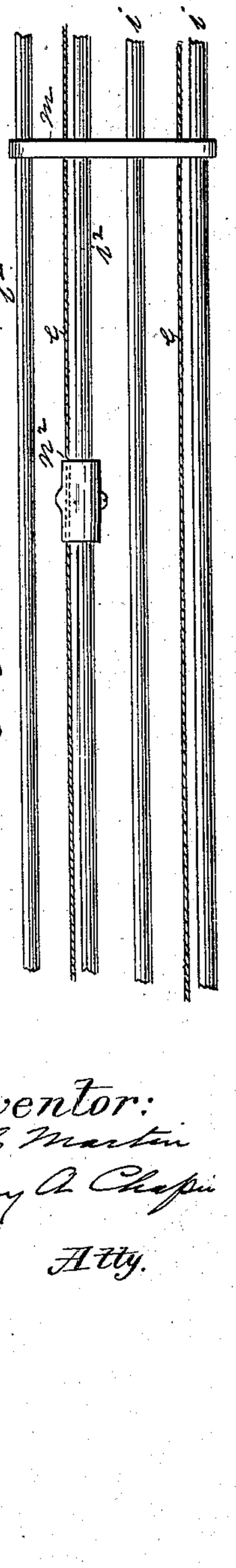
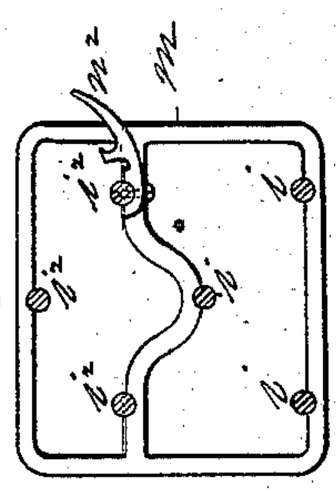


Fig 9



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(No Model.) 2 Sheets—Sheet 2.

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AUTOMATIC CASH BOX SYSTEM.

No. 284,456. Patented Sept. 4, 1883.

Fig 10

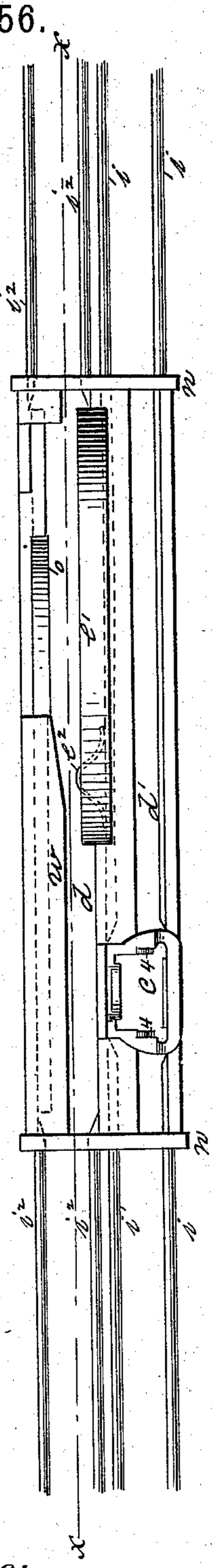
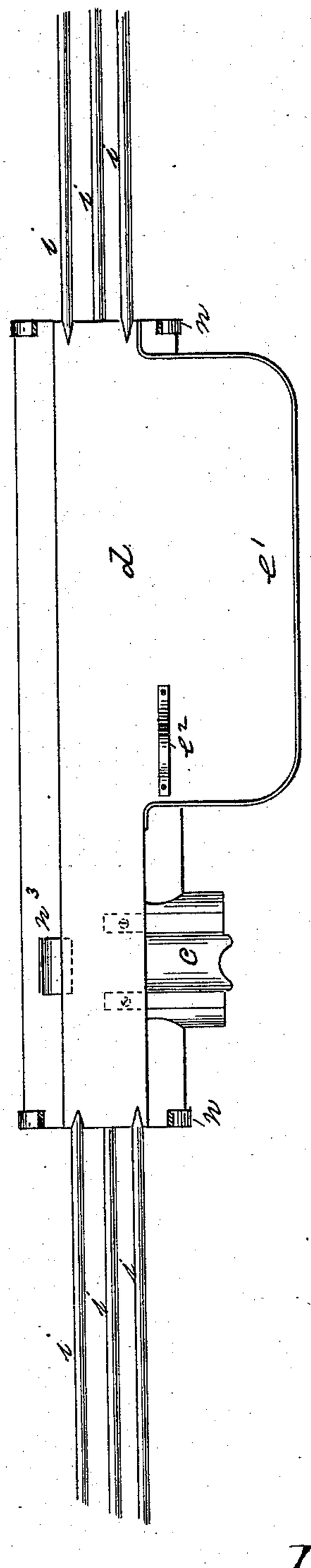


Fig 11



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UNITED STATES PATENT OFFICE.

JOSEPH C. MARTIN, OF BURLINGTON, VERMONT.

AUTOMATIC CASH-BOX SYSTEM.

SPECIFICATION forming part of Letters Patent No. 284,456, dated September 4, 1883.

Application filed July 2, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH C. MARTIN, a citizen of the United States, residing at Burlington, in the county of Chittenden and State of Vermont, have invented new and useful Improvements in Automatic Cash-Box Systems, of which the following is a specification.

This invention relates to improvements in automatic cash-box systems, and is in the nature of an improvement upon my patent of April 24, 1883, No. 276,441, the object being to provide for said systems improved box-entering gates for the stations, improved switching devices for the boxes at the way-stations, improved intermediate box-tracks between stations, and improved cord-supporting wheels and hangers, and cord-retainers on the tracks.

In the drawings forming part of this specification, Figure 1 is a side elevation of the cashier's and a way station embodying my improvements, the intermediate tracks between the stations being broken away. Fig. 2 is a plan view, partly in section, of a way-station. Fig. 3 is an elevation of one of the track and cord-wheel frames shown in Fig. 1, the full-sided box-guides being shown in section. Fig. 4 is a sectional view of the box-gate at the cashier's station, and Fig. 5 is a like view of the box-gate at the way-station. Fig. 6 is an elevation of one of the track-supporting frames, the full-sided box-guides being shown in section, and the switch-strips therein being shown in end view. Fig. 7 is a view of the cash-box. Fig. 8 is a side elevation of the track intermediate between the stations. Fig. 9 is an elevation of the intermediate track-supporting frame. Figs. 10 and 11 are similar views to Fig. 2 and a part of Fig. 1, but showing the connection of the intermediate tracks with the station.

In the construction herein shown, as in that shown in my said patent, a number of cash-boxes, D, are employed—one for each way-station—and said boxes are carried back and forth on the upper and lower tracks by an endless cord, *e*, as there described. In this construction, however, I employ a system of box-tracks between the stations differing from those shown in my previous patent, said tracks consisting of several cylindrical rods or tubes, $i\ i^2$, the ends of which are joined to the ends of the way and cashier's stations, as shown. At intervals along said tracks are placed supporting-frames *m* therefor, to keep them in line, and at each end of the way-station, supporting the wood construction thereof, as described in my said patent, and the ends of the tracks $i\ i^2$, is placed the frame *n*, the form of which and its relation to the said wood construction are shown in Fig. 6.

The structure is adapted to be suspended by suitable devices, as shown in Fig. 1, in stores, as described in said patent.

The cashier's station A is built at an incline to the line of the main track, so that boxes arriving from the latter by way of the lower track, *d'* and *i i i*, will be with facility made to slide downward upon a proper receiving-table. The aforesaid several cylindrical rods or tubes, *i i i* and $i^2\ i^2\ i^2$, are arranged in a triangular position, one group over the other, as clearly shown in Fig. 9, and the box D is provided with circular notches on its bottom and top, as shown, coinciding with the relative positions of the three rods constituting each track, between which said box is drawn along by the cord *e*.

The box D is made to engage with the cord *e* by the spring-actuated clamp B in the manner described in my said patent. Said box is provided also with the posts 8, on each end thereof, projecting upward, and the clamp B has thereon an arm, *h*, and two arms, $h^2\ h^2$, opposite each other and projecting in a direction from the ends of the box.

The way-station, consisting of that portion of Figs. 1 and 2 located between the frames *n n*, has a wooden strip at the top, to the under side of which are secured by their edges a series of metallic switch-strips, *o*, (see Fig. 6,) the number of which is governed by the number of way-stations, the number decreasing by one, going from the station A, until at the outermost or last station only one curved switch is so fixed, (represented by the curved line *o* in Fig. 2 in dotted and full line.) One of said switch-strips thus curves off at each station toward the edge of the box-table *e*, at the side thereof. The said switch-strips at each way-station are set in a line with those of the stations each side of it. The posts 8 on a box,

D, which is destined to run by the first station from station A, are so set thereon as to run between the strips which run straight by said station; but if the box is to be stopped at said first station, said posts are so set as to engage with the edge of the switch-strip which curves off over the table *e* of that station, and so on for all the stations, each box surely being delivered at its proper station. Box D, when guided off onto table *e*, as above described, moves laterally as soon as posts 8 encounter the curved part of strip *o*, and is carried near to and by the clamp-trip e^2 on said table, causing arm *h* on clamp B to strike said trip and release cord *e* from the box, as set forth in said patent.

The downhanging borders shown in Fig. 6, on each edge of the wooden strip to which the switch-strips *o* are secured, are short pieces, as shown in Fig. 1, which serve to aid in securing said wooden strip to frame *n*. A strip, *w*, is placed on the edge of said overhead wooden strip to partially inclose the boxway or upper track, *d*.

The lower boxway or track, *d'*, is clear from one end to the other, and each way-station is provided with a box-gate, *c*, (shown in section in Fig. 5,) on the vertical line through *c* in Fig. 1. Said gate is of metal, and is of such size that box D is easily pushed through it (its cord-clamping side foremost) onto the lower track. Each side of gate *c* is provided with an inclined clamp-guide, 4, against which the arms h^2 on the clamp B strike when box D is passed through gate *c*, causing said clamp to open to receive cord *e*, but closing upon the latter as soon as said arms run by guides 4, when the cord immediately carries the box along to the cashier's station.

A gate, *b*, similar to gate *c*, is set in station A at the receiving end of the outgoing upper track, through which the boxes to be sent out are passed, and on one side of which is a clamp-guide, 3, which serves the same purpose as the said guide 4 on gate *c*.

The structure of the upper boxway or track, *d*, at the way-stations and at the entrance of the station A, as shown in Figs. 6 and 4, is similar to that of the lower track, as above described, a wooden strip, however, being secured at the bottom of the frames *n* at the way-stations, and extending from one to the other, on which the rods *i* (the two lower ones) run, as shown in Fig. 1, and at the entrance to station A a wooden strip or floor to the lower track begins, as shown in Fig. 3, and extends down said incline.

The frames *v v* are adapted to the support of the track devices with which they are connected, and are also peculiarly constructed to constitute noiseless supports for the cord-wheels *v' v'*, over which the cord *e* runs, and by which the latter is supported partially in proper line for the purposes aforesaid. Said wheels revolve very rapidly, and if permitted to rotate in ordinary metallic bearings the noise caused thereby becomes very annoying; and to obviate said inconvenience in a device which is used mainly in stores and similar places, the said frames, wheel-shafts, and the bearings of the latter are arranged and constructed as follows: The side bars of the frame *v* are constructed to receive in transverse grooves made in their inner opposite sides the blocks 2 2, made of hard wood or paper, or similar non-metallic material, into which are fitted the ends of the shaft to wheel *v'*, in proper sockets made therein, not permitting the ends of said shaft to pass through said blocks and hit said frame. Thus arranged the wheel *v'* rotates with very little friction and perfectly noiselessly. In running the cord *e* so that it will always be held in proper position to be grasped by the clamp on box D, it is desirable that it be steadied and guided at different points along its course, and for this purpose cord-retainers n^2 are secured to the track at points where it becomes necessary for the aforesaid purpose. Said retainers are screwed to the said track-rods, as shown in Fig. 9, or otherwise conveniently attached to the border of any wooden part of the track in such position that the cord *e* can run back of an upstanding hook thereon near the track, whereby said cord is retained against any undue lateral movement when a box begins to move off onto table *e* and before clamp B has quite let go of the cord. Said hook is far enough removed from the track to be out of the way of the passing box, and the end of the clamp rides over and back of said hook. Another form of cord-rest, n^3, of glass or of hard metal, is placed at a point on the track at a station opposite a gate, *c*, (see Fig. 2,) to hold up the cord, and having its end slightly turned up, it helps to keep the cord in position when a box is pushed against it to be engaged with it.

What I claim as my invention is—

1. In an automatic cash-box system, the combination, with an endless motor-cord, *e*, of the station A and of one or more way-stations, substantially as described, of intermediate tracks between said stations and connected therewith, consisting of a series of cylindrical rods or tubes, *i i i*, arranged in triangular position, and of a cash-box adapted to run upon and be guided by said rods, substantially as set forth.

2. The combination, with the way-station of an automatic cash-box system, substantially as described, of a series of switch-strips, *o*, secured over the boxway therein, of the box D, having the posts 8 thereon, and of the endless motor-cord *e*, substantially as set forth.

3. The combination, with the lower boxway of an automatic cash-box system way-station, of the box-gate *c*, having the inclined clamp-guides 4 on the opposite sides thereof, and of the box D, provided with the clamp B, having arms thereon to engage with said inclined guides, substantially as set forth.

4. The combination, with the upper box-

way of the station A, of the box-gate *b*, having the inclined clamp-guide 3 thereon, and of the box D, provided with the clamp B, having an arm thereon to engage with said inclined guide, substantially as set forth.

5. The improved cord-wheel support for automatic cash-box systems, consisting of the frame *v*, having transverse grooves therein, the blocks 2 2, of wood or analogous material, fitted and secured in said grooves, and the cord-wheel *v'*, having a shaft whose ends are supported in said blocks, combined and operating substantially as set forth.

6. The combination, with the track, the motor-cord, and the cash-box D of an automatic cash-box system, of the cord-retainer *n'*, provided with an upstanding cord-hook near said track, substantially as set forth.

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