

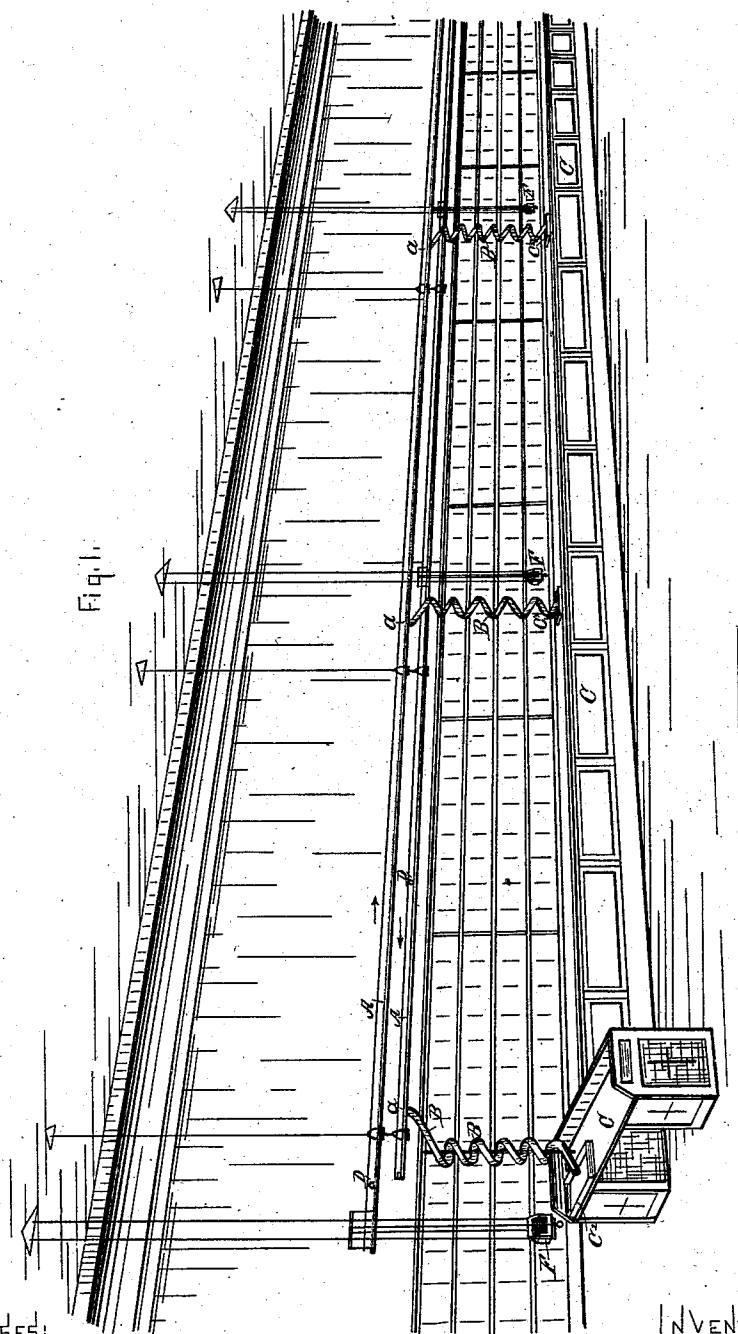
(No Model.)

2 Sheets—Sheet 1.

J. M. MARTIN.
AUTOMATIC CARRIER SYSTEM.

No. 293,898.

Patented Feb. 19, 1884.



WITNESSES:
L. V. Lewis
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INVENTOR:
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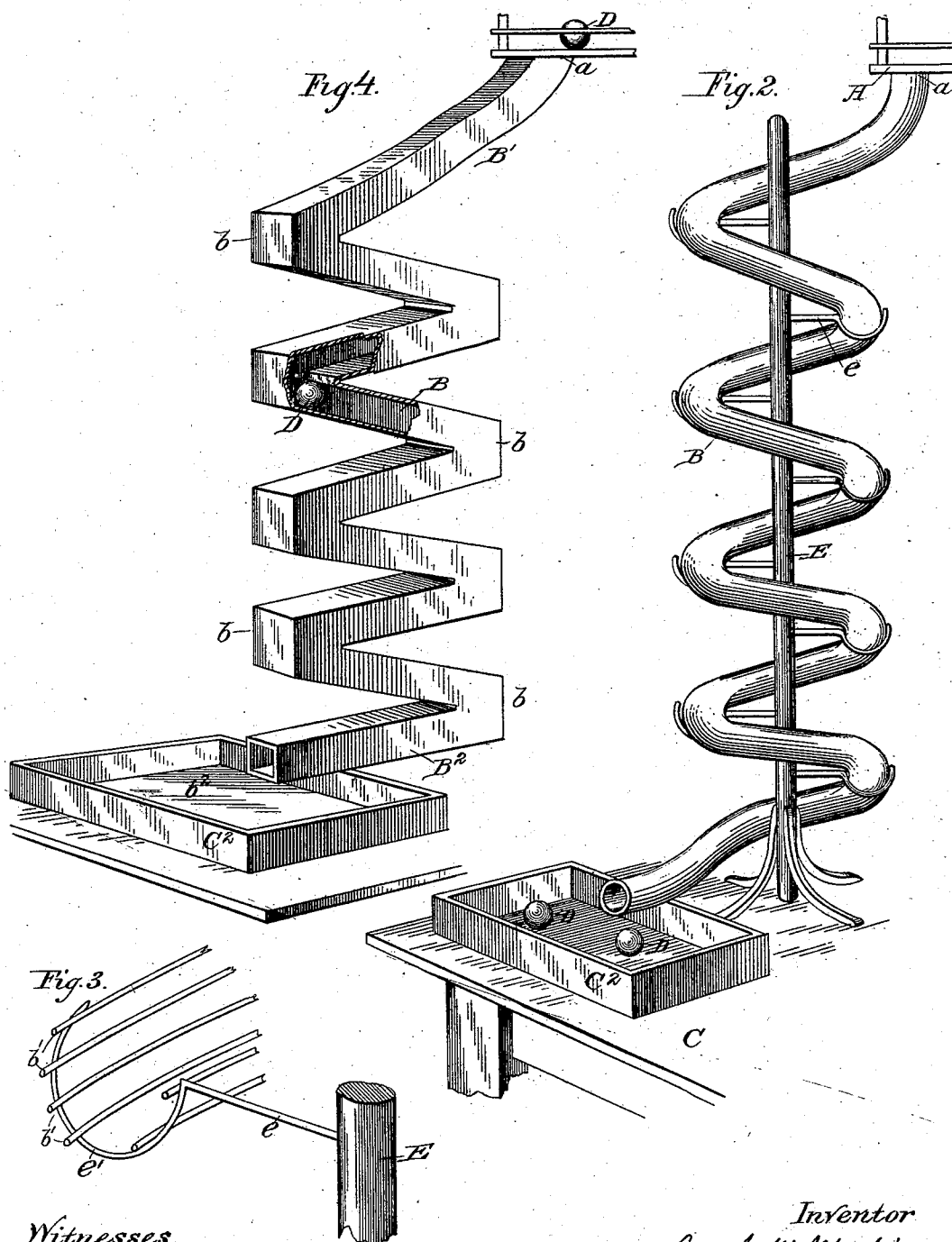
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AUTOMATIC CARRIER SYSTEM.

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Witnesses,
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UNITED STATES PATENT OFFICE.

JACOB M. MARTIN, OF STERLING, ILLINOIS.

AUTOMATIC CARRIER SYSTEM.

SPECIFICATION forming part of Letters Patent No. 293,898, dated February 19, 1884.

Application filed November 1, 1883. (No model.)

To all whom it may concern:

Be it known that I, JACOB M. MARTIN, of Sterling, in the county of Whiteside and State of Illinois, have invented certain new and useful Improvements in Automatic Carrier Systems; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to store-service systems or devices for automatically carrying cash, messages, merchandise, &c., and has special reference to a carrying system in which provision is made for automatically lowering the vehicle or article to be conveyed from an elevated track to a delivery-station at a lower level. At present in ball cash-delivery systems having tracks elevated above the delivery-stations baskets are held beneath openings in the said tracks at points above the delivery-stations. Into these the balls fall as they arrive, and the cashier or salesman draw them down within reach by means of a cord. To do this requires considerable time. Besides, at the cashier's station the balls are apt to accumulate, so as to more than fill the basket, before it can be drawn down, and as a consequence some of the balls will fall to the floor when the basket is drawn down. Furthermore, when the balls arrive at short intervals, it is difficult to draw the basket down with its contents and return it in time to receive the next ball, and when the basket is not so returned the ball falls to the desk or floor.

The object of this invention is to provide for the automatic descent of the balls as they arrive over the delivery-stations, thereby relieving the cashier and salesman of the extra task of lowering them by hand, as above set forth.

To this end the invention consists in the matters hereinafter set forth, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a perspective view of a carrier system embodying my invention. Fig. 2 is a detail view of a spiral descending track. Fig. 3 is a fragmentary view of said descending track. Fig. 4 is a view of a modified form of the descending track.

Referring to Fig. 1 of said drawings, A A are substantially horizontal and direct main elevated tracks leading from the sending-points to points above the delivery-stations.

B B are subordinate spiral tubular or semi-tubular tracks of suitable inclination, extending from the desk or counters C C at the delivery-stations upward to the main tracks A A, and communicating therewith through the openings *a* therein.

F F are basket-elevators, by means of which the balls D D to be sent are raised by hand to the tracks A A.

The operation is as follows: A ball D is raised in an elevator F, or by equivalent means, to a track A. Thence it is propelled by gravity or otherwise until it arrives at a point above its destination, and, entering the tube B through the opening *a*, rolls downward through said tube with a restrained speed, the constant change in the direction of the tube compelling the ball to change its course at every point, so that it can at no time acquire any considerable momentum, the result being that, although the inclination of said tube is great, the ball is delivered upon the desk or counter at a moderate speed. The cashier's desk and the counters C C may have raised edges, to prevent the balls from rolling off as they are delivered; or a basket or cushioned box, C', may be placed upon said desk or counters beneath the lower ends of the tubes B, to receive the balls, the yielding walls of the basket or the cushions of the boxes serving to protect the balls against injury, and to prevent noise when they fall from the spiral. The said spirals B may be supported in any suitable manner, and may be of any desired construction. Fig. 2 of the drawings shows one supported on the arms *e* of a fixed standard or upright, E. Fig. 3 shows in detail a preferred construction of the track B, wherein a series of parallel spirally-arranged wires, *b*, are supported in downwardly-directed semi-circles *e'* at the outer ends of the arms *e*, thus forming a graceful, light, and inexpensive structure. In order to reduce the noise made by the balls in passing down said wire track, and to improve the appearance of the same, said wires should be covered with colored thread, yarn, cloth, or other equivalent soft and ornamental material. In some situations

it will be found inconvenient to place the elevated track A directly over the delivery-station. When this occurs, the spiral B is placed vertically over the station, as shown in the drawings, and the neck B' of the spiral prolonged in the direction of the track A until it reaches the same. To reduce the time required for the descent of the balls to the minimum, and yet deliver them upon the table at a low velocity, the upper part of the spiral B is made with so great a slope as to start the balls at a comparatively high velocity, while the slope of the lower portion is gradually decreased, so as to cause the balls to be gradually retarded before reaching the desk or counter. The descending track B is not necessarily in the form of a spiral. It is only necessary that it be indirect—that is, that its course vary sufficiently from a direct line to compel the balls to change their course frequently, thereby preventing them from acquiring a high velocity. A modified form of said track B is shown in Fig. 4, wherein it describes a zigzag course. The operation of this is obvious. The ball enters the neck B' and rolls to the first angle *b*, where it stops momentarily, and then rolls on to the second angle *b* of the tube, where it emerges with only the momentum acquired after leaving the last angle *b*.

I claim as my invention—

1. An automatic carrier system comprising

a substantially horizontal and direct main elevated track or tracks, means for raising the vehicles to said main tracks, and indirect descending subordinate tracks leading from said main tracks to the delivery-stations, substantially as herein shown and described.

2. An automatic carrier system comprising a substantially horizontal and direct main elevated track, A, the elevators E, and the indirect descending tracks B, arranged with reference to each other, and operating together substantially as herein shown and set forth.

3. The combination of the spiral track B, upright E, and arms *c*, substantially as described.

4. The combination, with the elevated track A, of the indirect descending track B and the box or equivalent receptacle, C', substantially as shown, and for the purposes set forth.

5. The combination, with the elevated track A, of an indirect descending track, B, constructed of longitudinal parallel wires *b' b'*, substantially as described, and for the purposes set forth.

In testimony that I claim the foregoing as my invention I subscribe my name hereunto in the presence of two witnesses.

JACOB M. MARTIN.

Witnesses:

J. B. MYERS,

W. A. KINTZLE.