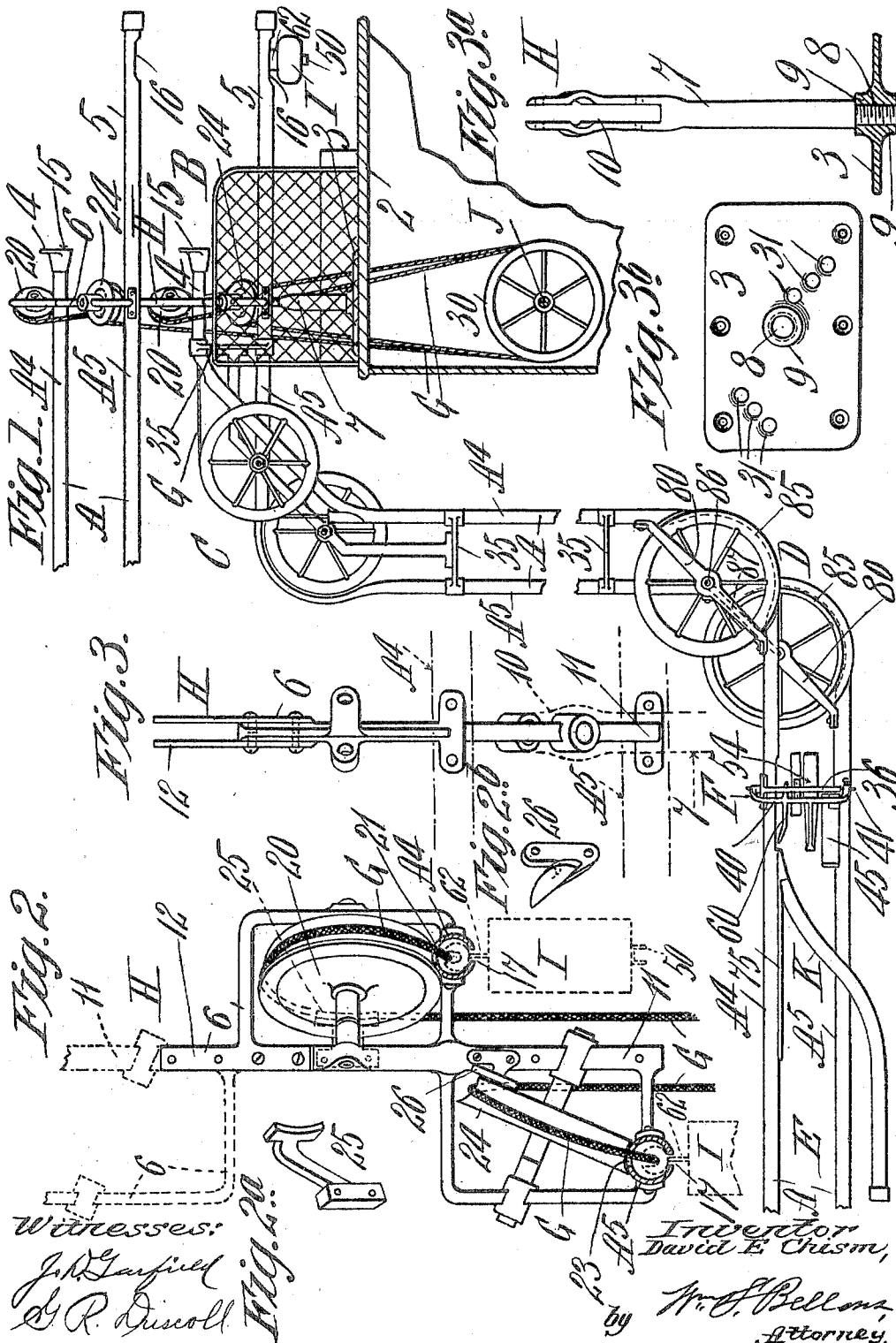


No. 820,955.

PATENTED MAY 22, 1906.

D. E. CHISM.
CASH CARRIER APPARATUS.
APPLICATION FILED JULY 3, 1905.

6 SHEETS—SHEET 1.

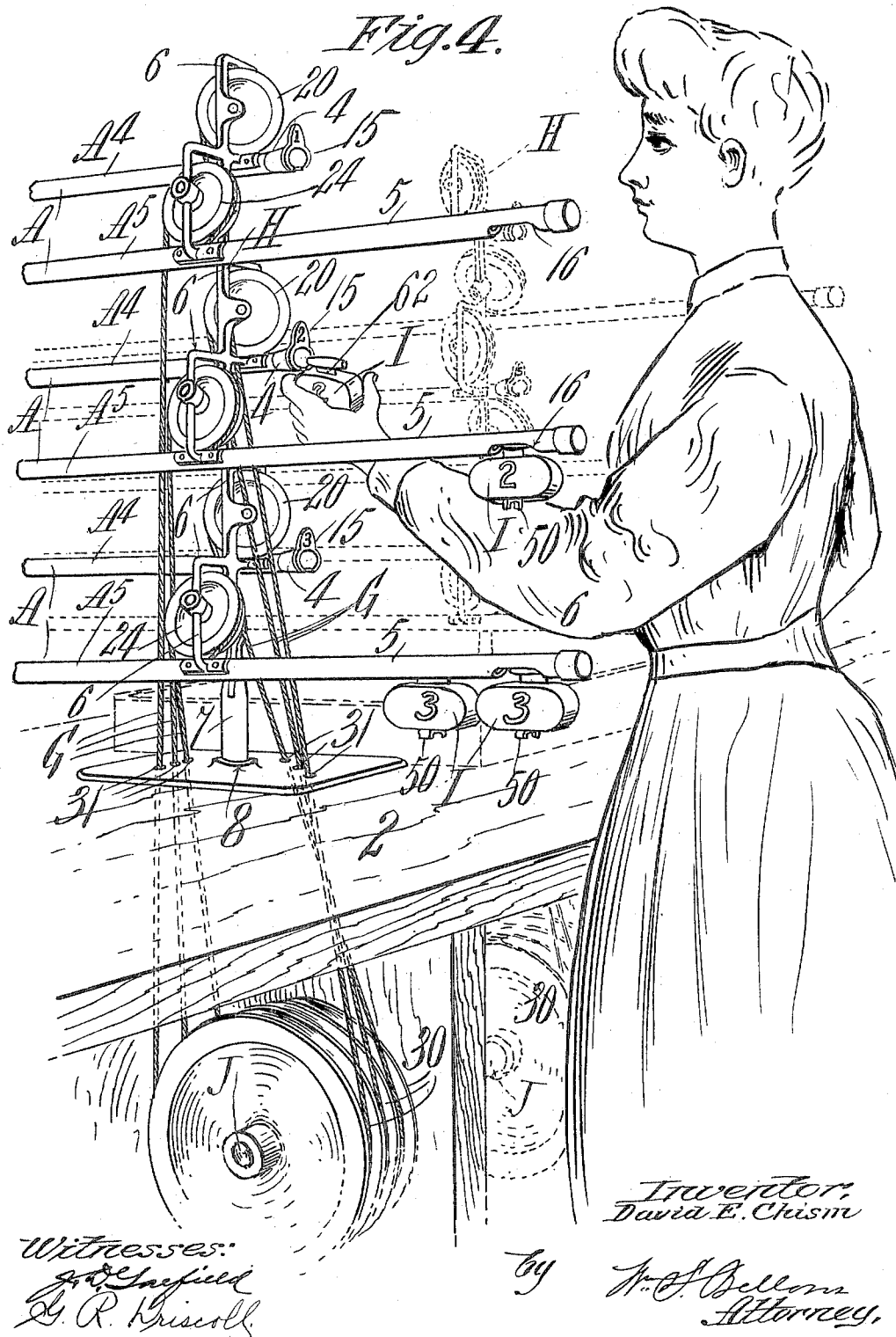


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6 SHEETS—SHEET 2.



Inventor,
David E. Chism

by *J. S. Bellows*
Attorney,

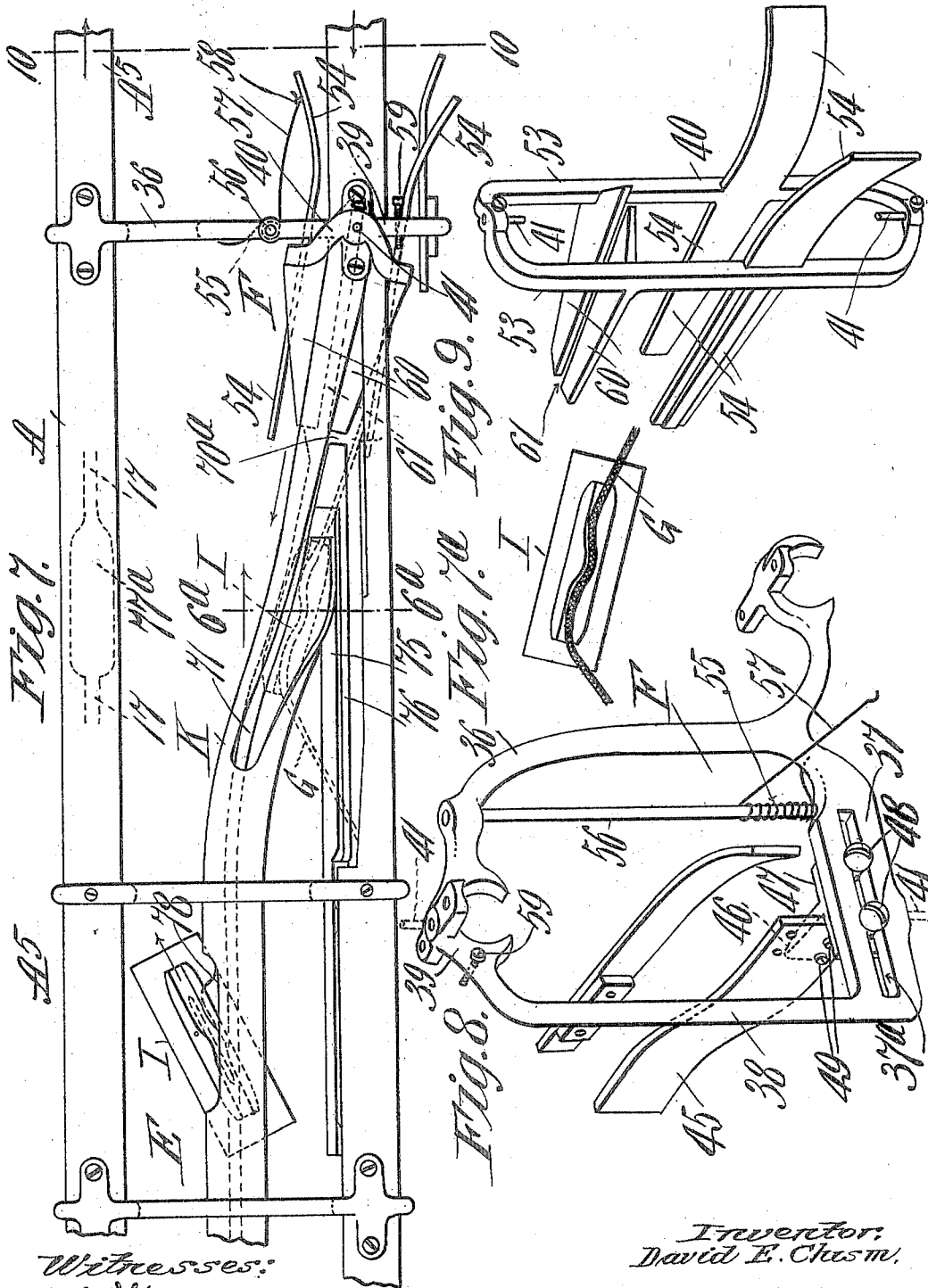
Witnesses:
J. D. Gayfield
G. R. Kriscoll.

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6 SHEETS—SHEET 4.



Witnesses:
J. D. Garfield
C. R. Driscoll.

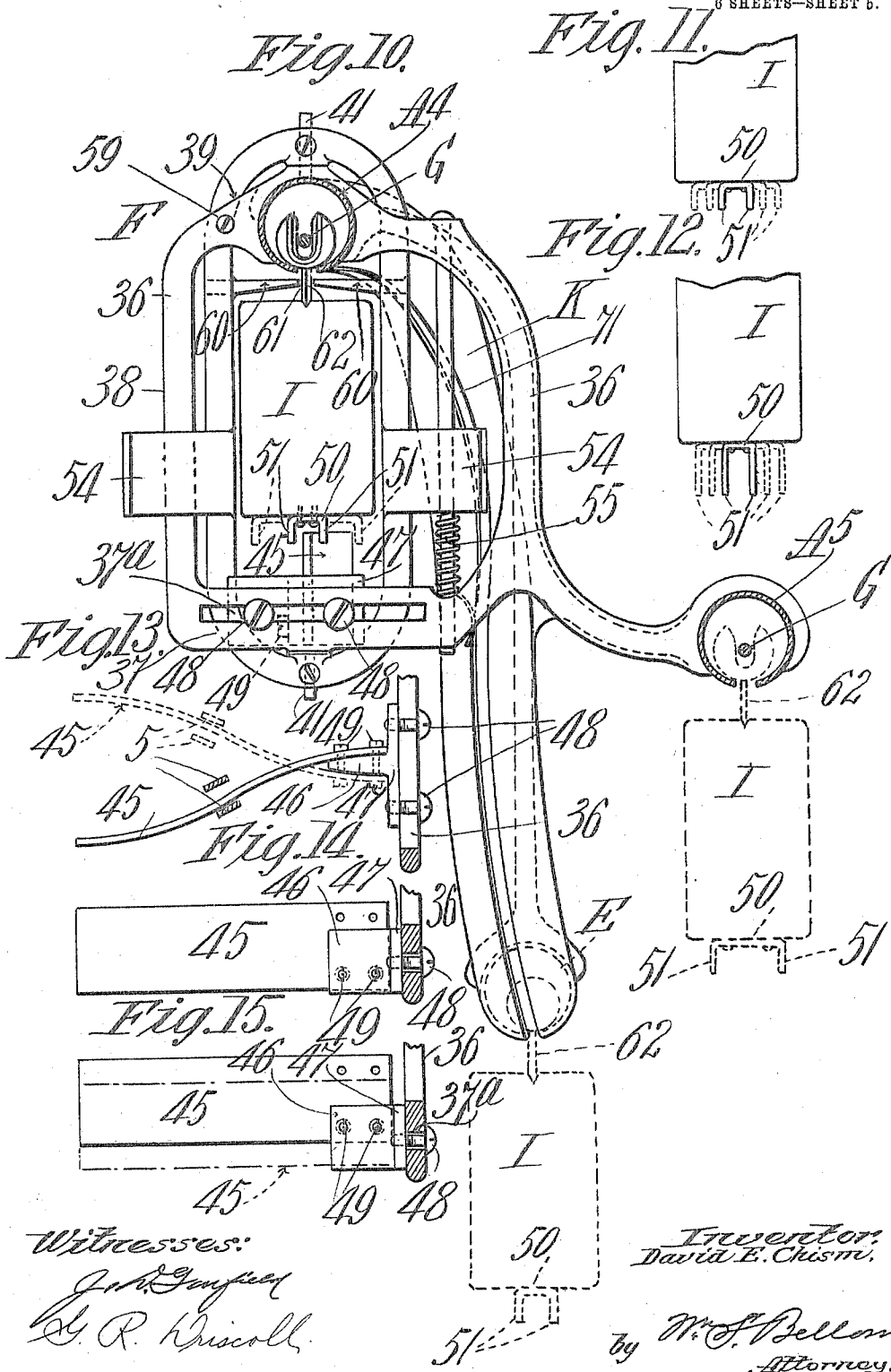
Inventor:
David E. Chism.
by M. A. Bellone
Attorney.

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6 SHEETS—SHEET 5.



Witnesses:

John G. Gifford
E. R. Hiscoll

Inventor:
David E. Chism,

by *W. F. Bellon,*
Attorney.

UNITED STATES PATENT OFFICE.

DAVID E. CHISM, OF STAFFORD SPRINGS, CONNECTICUT.

CASH-CARRIER APPARATUS.

No. 820,955.

Specification of Letters Patent.

Patented May 22, 1906.

Application filed July 3, 1905. Serial No. 268,224.

To all whom it may concern:

Be it known that I, DAVID E. CHISM, a citizen of the United States of America, and a resident of Stafford Springs, in the county of Tolland and State of Connecticut, have invented certain new and useful Improvements in Cash-Carrier Apparatus, of which the following is a full, clear, and exact description.

10 This invention relates to improvements in cash-carrying apparatuses which are of the character shown and described in Letters Patent of the United States granted to Chamberlain, Chism, and Cooper November 5, 1901, No. 685,740, or generally to any cash-carrying apparatus in which the trackways are made in the form of tubes having at their under median longitudinal lines a continuous slot and in conjunction with which trackways the endless cable, suitably propelled, has its oppositely-running courses through the track-forming tubes, such cable being guided around wheels at corners or bends in the trackway, and said cable carries cash-boxes having cylindrical heads united to the box-bodies by thin necks.

For a more full and complete description of a cash-box having a self-engaging head and one which renders unnecessary the use of buttons or shoulders on the cable reference may be had to the patent to Chism dated March 15, 1904, No. 754,423.

With more definite reference to the present improvements the same relate to constructions comprised in the terminal or "home station" or cashier's station to constructions comprised in the branches or clerks' stations, to switching devices at the junctions of the main trackways and clerks' stations, to constructions and equipments at the bends or corners of the trackway at which the cable-guiding wheels are provided, and to some other minor provisions, features, and formations, which will be hereinafter set forth.

45 One object of this invention is to provide components of a cash-carrier apparatus which may be largely made as duplicated or interchangeable parts and for the avoidance, in the installation of a cash-carrier in a store, of the necessity of any specially-constructed parts for a given situation, whereby workmen in setting up the apparatus need not be experts or require engineering skill, it being only necessary on their part that the fittings should be set up and assembled in given re-

lations and without regard for the reasons or necessities therefor.

As regards the appliances for the cashier's desk or home station, the present improvements comprise more desirable forms and arrangements of supports for the trackways and the cable-guiding wheels thereat than have heretofore been provided, to the end of assuring in a minimum of space a considerable number of terminals of trackways in superposed arrangement, one base serving to steady and support several lines, and the same being adaptable to render the home-station constructions most convenient and accessible, either at the right or left of a given place, and the present home-station constructions, furthermore, do away with many obstructions and supporting parts which have heretofore been more or less promiscuously arranged and which have been the occasion of inconvenience, the result now being that it is much easier to keep the cashier's desk orderly than heretofore, and more space is reserved for the use for which the desk is intended, and all cash-boxes are received at a uniform distance from the change-maker, and all cash-boxes are delivered or transmitted also at a uniform distance from the change-maker.

As regards the switching devices adjacent and for directing the cash-boxes to clerks' stations, the objects are to render more certain, smooth, and reliable the passage to any given station of the particular boxes which belong to that station, with assurances that the box in moving out past the switch will not be improperly swung, but will be delivered to the branch trackway easily and without shock.

The object of certain of the improvements pertaining to the clerk-station construction is to assure practicably and with reliability of operativeness the disengagement of the cash-box head from the running course of cable at the proper time as the box leaves the main track and is in readiness to descend the downwardly and laterally deflected branch or clerk-station track-section and all with the least possible friction or chafing of the cable.

The brackets uniting the right-angularly-disposed parts of outgoing and returning tracks and for constituting the journals for the cable-guiding wheels located at the internal angles are so made that the same parts

just referred to will serve by mere change of their relations one with another at vertical or "plumb" corners comprising two trackways and wheels therefor in which the parts considered in their transverse aspects have oblique relations and irrespective of which particular trackway is uppermost and to the right or lowermost and to the left of its companion, all as will be hereinafter more definitely described and explained; and in addition to the attainment of the special objects hereinabove set forth this invention has for its purpose to generally improve the construction and mechanical character of the apparatus to the end of making it strong, light, durable, sightly, and generally desirable.

The invention consists in the combinations or arrangements of parts and the constructions of various of the parts, and all substantially as hereinafter fully described, and pointed out in the claims.

The improvements are illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation showing the home station, upper and lower plumb corners, a clerk's station or branch trackway, and switching devices near the junction of the main and branch trackways. Fig. 2 is an end elevation of a portion of a sectionally-formed supporting-standard for the cable-guiding sheaves and for terminal portions of the tubular trackways included in the home-station constructions, said Fig. 2 showing two of the cable-guiding sheaves and in cross-section companion track-tubes of one line of double track. Fig. 3 is an elevation or edge view of the supporting parts as seen at right angles to Fig. 2. Figs. 2^a and 2^b are perspective views of cable-guards hereinafter referred to. Fig. 3^a is a vertical cross-sectional view of a reversible base-plate and a post engaged thereby, which supports the column or stack of the sectionally-formed brackets, such as shown in Figs. 2 and 3. Fig. 3^b is a plan view of the base-plate which sustains the aforesaid post and stack of bracket-frames. Fig. 4 is a perspective view of the home station, including in full lines three lines of track and the appurtenances therefor and indicating by dotted lines the comparatively near arrangement of a second stack of similar appliances. Fig. 5 is a side elevation of a portion of a line of trackway and clerk-station branch and of the cash-box switching and guiding device. Fig. 6 is a plan view of the same parts represented in Fig. 5 shown inverted. Fig. 6^a is a vertical cross-sectional view at the junction of a sending track-section and a clerk-station branch. Fig. 7 is a plan view of the same parts represented in Figs. 5 and 6, but shown right side up. Fig. 7^a is a plan view showing the cash-box and its channeled head and the cable in their relations assumed at the time when the box is switching to take its course laterally

and downwardly in the branch trackway and the cable is about to become disengaged from the cash-box head, this view representing in full lines what is less positively indicated by dotted lines in Fig. 7. Figs. 8 and 9 are perspective views of the parts and appliances constituting the switch and the guard and guide for the cash-box to be switched. Fig. 10 is an elevation of the parts as seen looking forwardly beyond the plane indicated by the line 10 10, Fig. 7. Figs. 11 and 12 are end views of different cash-boxes having, respectively, variable switching-lugs and showing by dotted lines further range of variability in these lugs, whereby the boxes may be made to appertain to different switching stations. Fig. 13 is a plan view of the switch or switch-bar and a reversible T-plate on which the switch itself is reversible. Figs. 14 and 15 are side elevations of the parts shown in Fig. 13, showing changed relations of the parts. Fig. 16 is a side view, and Fig. 17 is a plan view, of vertical or plumb corner constructions; and Fig. 16^a is a side view, on a smaller scale, showing the same parts represented in Fig. 16 as having the reversed relations.

Similar characters of reference indicate corresponding parts in all of the views.

In Fig. 1 of the drawings is illustrated an assemblage of portions of a cash-carrier tubular trackway A, comprising a terminal or home station B, top and bottom plumb corners C and D, respectively, a clerk-station E, and a gate or switch F therefor.

It is to be understood in connection with the above view that the trackway A comprises the sending and return tracks and that the endless cable G has provided therefor at the end remote from the home station a sheave or drum and means for preserving the desired cable tension.

The "terminal" or "home station" B, as it will be called, and which will now be described, consists of a suitably-arranged cashier's table or desk 2, on which is located in a position convenient to the cashier the usual open change receptacle or till and other desk furniture required in receiving and registering money from sales at distant clerks' stations.

Supported on a base-plate 3, which is firmly secured to the desk B at a point thereon adjacent to the change-till and rising vertically from said base is a standard H, on which the terminal end portions of the trackway A are supported, a plurality of trackways being arranged one above another and, as seen in Fig. 4 of the drawings, all within easy reach of the cashier. As shown in dotted lines in said figure of the drawings, other standards supporting the terminal end portions of several other trackways may be provided adjacent the cashier's position relatively to the change-till and all of these latter also within easy reach.

The vertical track-end-supporting standards H comprise in their construction several interchangeable jointed frame-sections 6, there being one of these frame-sections for each line or run of trackway. The lower frame-section of the standard is supported on and has a joint connection to a post 7. This frame-section-supporting post 7 has a screw-threaded and shouldered lower end, which engages a threaded and centrally-located hole 8 in a hub portion 9 of the base-plate 3. (See Figs. 3^a and 3^b.) The upper end portion of the post 7 is recessed or forked, as shown at 10 in Fig. 3^a, and supports within said recess 10 the lower end portion 11 of one of the frame-sections 6, as is shown by dotted lines in Fig. 3 and in perspective in Fig. 4 of the drawings.

The upper portion of each frame-section has provided thereon a forked or recessed end 12, in which is received and secured thereto by screws or otherwise the end portion 11 of another frame-section 6, if such second track-end-supporting frame is required, and, as shown in Fig. 4, it is entirely practicable by this frame-section-connecting means to support within convenient reach of the operator or cashier several trackway-terminals on one standard, and by reason of the minimum amount of desk-space occupied by each standard it is also equally feasible to place a number of these standards adjacent the change-till and within reach of the cashier. This important feature of the accessibility of the various trackway-terminals, as they are arranged on the cash-desk, is rendered still more efficient by the improved arrangement of the trackway ends 4 and 5.

The "sending" trackway terminals 4 have provided at their open ends adjacent the standard H the bell-mouthed receivers 15, on an upwardly or otherwise angularly extended plate of which is the numeral or other designation of the trackway, which numeral corresponds with a similar designation formed on the "cash-boxes" adapted specially therefor.

The "receiving" trackway terminals 5, the closed ends of which are some little distance to the rear of the standards H, have provided adjacent their said closed ends the underneath openings 16, which are, in fact, a widened continuation of the trackway-slot 17. Fig. 4 of the drawings illustrates clearly the relative positions of the cash-boxes as received and of those being sent relatively to the operator's position.

Referring now especially to Fig. 2 of the drawings, the points of departure of the cables from the trackways A are apparent, which points are adjacent the places of attachment of the track-terminal ends 4 and 5 to the frame-sections 6 of the standards H. The sending or outgoing part of the cable G of each line of trackway passes upwardly and

over a sheave 20, which rotates on a horizontal axis supported in bearings in frame 6. These bearings have an oblique disposition, as shown in Figs. 2 and 4 of the drawings, to the end that the said cable G, passing downwardly and thence through the tube-opening 21 outwardly and therethrough, has its outwardly-running part somewhat to one side of the upwardly-running first-mentioned part, whereby, as shown in dotted lines in Fig. 2, a cash-box I, sent outwardly, engaged with and propelled by the cable G, passes clear of the upwardly-running part of the cable. The part of the cable G for the receiving or incoming tubular trackway as it comes through such trackway passes upwardly through the aperture 23 in the upper side of the track-tube and thence around a sheave 24, which has an axially oblique disposition and which conveys the cable carried therearound off to one side on its downward course, resulting in an arrangement for clearing an incoming cash-box from collision with the vertical run of cable similar in effect to that provided for the above-described outward-running part of said cable by the axially-inclined sheave 20. Suitable cable-guards 25 and 26 are illustrated in Figs. 2^a and 2^b, and as applied in their respective positions relative to the sheaves 20 and 24 in Fig. 2 are considered as important, as insuring the proper running of the cables around the said sheaves without liability of any disengagement of the same. Located underneath the cash-desk and directly under the center of the standards H is the driving-shaft J, on which are secured the grooved cable-driving pulleys 30, there being one pulley for each run of trackway, or, as this portion of the apparatus may be a drum, one groove therein pertains to or is provided for each trackway.

As shown in Fig. 4, where there are several superposed frame-sections 6, each supporting a track-terminal and cable-sheaves therefor, a corresponding number of grooved pulleys 30, mounted on shaft J in suitable proximity to each other, are provided. These pulleys 30 are of such diameter and are so located relative to the standards H that the various runs of cable from the several trackway-terminals, passing over their sheaves 20 and 24 and thence downwardly to and around their respective pulleys, are always in separated relations to each other and are guided down through the perforations 31 in the standard base-plate 3. (See Fig. 3^b and Fig. 4.) These courses of the cables G, by reason of the centrally-located position of the standard H above and coincident with the axis of the pulleys 30, are determinative—that is, the location of the standard H being accurately determined and so erected relative to the position of the pulleys 30 the direction of the runs of cables will of necessity be as above described and will require no adjusting or any

labor of any engineering nature to quickly install these parts.

It is generally the custom in large mercantile establishments where a number of cash-carrier trackways are used to locate the cash-desk or home station at an elevation above the main floor, as may be understood from Fig. 1. In such cases the most approved way of bringing a run of trackway downward to a desired level within reach of the clerks on the main floor is by means of the top and bottom "plumb corners," as they are called and which will be hereinafter alluded to.

A description of a new form of clerk's station and track-switch therefor will now be made.

It being understood that the relative maintained positions of the sending or outward-going tracks A^4 and the receiving or return track A^5 are as shown in Figs. 2 and 10—that is, the sending-tracks A^4 are somewhat above and to one side of the position of the return-tracks A^5 —these relative positions of the two tubular tracks constituting a trackway A are maintained throughout the entire length of said trackway by the connecting and supporting brackets 35, the contour of which is shown in dotted lines in Fig. 17 and in edge view in full lines in the same figure and in Figs. 1 and 16. Other tube-connecting brackets, such as are shown in the various views of the drawings or as may be provided, also maintain the two tube members of the trackway A in the oblique relations to each other, and some of these brackets also have other functions, as will be described.

A combined track-supporting bracket and switch-supporting frame 36 for a clerk-station switch is, as shown in perspective in Fig. 8 and in its relative position to the trackway A in Figs. 1, 5, 6, 7, and 10 of the drawings, of a form on one side thereof similar to the trackway-brackets 35 and has added thereto a horizontal slotted base portion 37, which is continued by a vertical side post 38, which unites with the top track-engaging portion 39, thereby forming a combined rectangular switch-frame and track-supporting bracket. Pivotaly attached by its top and bottom portions to this frame 36 and centrally located thereon is the swinging cash-box-guiding frame 40, its pivotal points of attachment being vertically in line with the center of the sending track-tube A^4 . This guide-frame is also of a general rectangular form, its two vertical and straight side members being continued and united at top and bottom by rearwardly-bowed end portions, each of which have centrally provided thereon the removable pivot-pins 41, by means of which the two frame portions 36 and 40 (shown in separated relations in Figs. 8 and 9) are easily assembled, as shown in Figs. 1, 5, 6, 7, and 10. The

operation of this guide-frame 40 will be explained later.

Referring especially to Figs. 8, 13, 14, and 15, an adjustable switch bar or plate 45, which will hereinafter be called the "switch," is attached by one end portion to the flange 46 of an adjustable T-shaped plate 47. This plate 47 is adjustably secured to the frame-base 37, having the horizontal slot 37^a, by the screws 48. The precise manner of attachment of the switch 45 to the plate-flange 46 is best understood by a reference to Figs. 14 and 15 of the drawings, in which is also illustrated the manner of adjusting the height of the top or engaging edge of the switch 45, which is easily accomplished by a reversal of the flange-plate 46 47 and a reattachment thereto of switch 45 by means of the screws 48. Other variations of adjustment of the position of the switch 45 to deflect an engaging cash-box either to the right or to the left may be accomplished by a reversal of the position of the switch to either side of the plate-flange 46, (see Fig. 13,) and in either of the positions indicated in said Fig. 13 the proper elevation of the box-engaging top edge of the switch is provided for by the reversal of the flanged plate or by the employment of either of the two sets of screw-holes in the switch, by which the screws 49 secure it to the said flange-plate.

An improved form of switch-engaging paired lugs 50, provided on the under side portion or bottom wall of the cash-box, as shown in Figs. 10, 11, and 12, are of an inverted-U form, the downwardly-extending members 51 thereof being engaged by the curved bend of the switch 45—that is to say, a right-hand switch or one that is designed to deflect the course of the cable-carried cash-box toward the right engages the right-hand member 51 of the lug 50, and if the switch 45, adapted to engage the lug 50 of a cash-box, is a left-hand switch it engages and bears against the left-hand member 51.

A considerable number of switch-provided stations on one line of trackway require an equal number of variations in the character of the lugs 50 to be engaged thereby.

It is apparent that by the means before described of varying the height of the cash-box-engaging edge of the switch 45 a limited number of clerk-stations may be made to receive the boxes designed for and despatched thereto by the providing of the lugs 50 with members 51 of varying lengths, as is shown in Figs. 11 and 12, whereby the short members 51 would be engaged by the switches having the highest engaging edges, and the longest members 51, as in Fig. 12, would only be affected by the lowest edge switches, the latter switches being understood as being located on the trackway A nearest the home station B.

A proposed means in connection with the

above-described switch-engaging lugs on the cash-boxes for increasing still more the capacity of the selective box-despatching features described consists in forming some of the clerk-station switches 45 with somewhat greater deflections and in providing the cash-boxes designed for these more remote stations with lugs 50, having the depending members 51 thereof set wider apart, as is shown in dotted lines in Figs. 10, 11, and 12.

In practice the narrower and most inwardly located set members will pass all intervening switches without engagement therewith before coming to coaction with the switch corresponding to the given box. It is to be understood, however, that while the lugs 50 are shown and described as each having two depending members 51 in practice only one of said lugs is in reality engaged by the switch 45 at one time, as is shown in Fig. 13; but the provision of two members 51 for each lug 50 is important, as it permits the cash-box I to be sent out either end first, and also, as a reference to the dotted-line position of parts shown in said Fig. 13 of the drawings shows, it provides a lug adapted to either right or left hand curves of the switch 45. The combinations that may thus be formed by varying the position in height, curvature, and direction of the switches and of the width apart of the members 51 of lugs 50 and of their downward lengths are numerous and ample for the scope of any given trackway of a cash-carrier apparatus.

Another important resultant effect of the engagement of one of the members 51 of the lug 50 with the curved top edge portion of the switch 45 is the twisting of the cash-box I, thereby to conform to the corresponding twist imparted to its lug member 51, which, as a reference to Fig. 13 shows, is constrained by reason of the pressure of its engagement therewith to always preserve a position flatwise against the engaging surface of the switch.

It has been found highly desirable in connection with this cash-box-operating switch to counteract any tendency of the cash-box to swing laterally, and thus deviate from the required course of switching. This provision for guiding the cash-box is rendered important largely because of the side pressure exerted on the box by the cable G (which engages in the sinuous channel in the box-head) previous to its disengagement from the box-head on the completion of the switching off from the main line of trackway A of the cash-box, and the same will now be described.

Referring particularly to Figs. 8, 9, and 10, the pivoted swinging guide and guide-frame 40 has formed on each vertical side 53 thereof, slightly below the center of the vertical dimension of the same, the longitudinally-arranged guide-plates 54, which extend forwardly and rearwardly from the said sides

53, as clearly shown in Fig. 7. The rearward open extensions of these plates 54 are oppositely outwardly curved to increase the freedom of the entrance of a cash-box therebetween. The forward extensions of these plates 54, which constitute the delivery end of these guides, are straight and parallel with each other. The frame 40, on which the said guide-plates are provided, is maintained in a position normally in which the last-mentioned straight extensions of the plates 54 are parallel with the length of the main trackway by the spring 55, which, as shown in Figs. 8 and 10, is coiled about a spring-supporting post 56, its hook-provided extension 57 engaging an eye 58 on one of the outwardly-curved plate extensions 54, as shown in Figs. 6 and 7. An adjusting stop-screw 59 is provided on the top portion 39 of switch-frame 36, against which the swinging guide-frame 40 is held by the pressure of said spring 55. The guide-frame 40 of the switch appliance F is also provided with a second box-guiding device, which is located above the guide-plates 54 and consists of two horizontally-arranged flat plates 60, the inner or adjacent edges of which approach each other and constitute a narrow slotway 61, which is above and parallel with the straight portions of the guide-plates 54.

The operation of the spring-held guide-frame 40, equipped, as above described, with the guiding-plates 54 and 60, is as follows: An approaching cash-box I, if provided with a switch-engaging lug 50, which is adapted to engage the switch 45 of a certain clerk-station E, first encounters the outwardly-curved rear end portions of the guide-plates 54, and should the cash-box be at this moment of contact slightly twisted from a position parallel with the lengthwise extent of the trackway A or if it is swinging laterally or otherwise traveling unsteadily such positions are corrected and the cash-box is caused to enter between the guide-plates 54 in a position as shown in Fig. 10—that is, with the side portions of the cash-box guided on either side by said plates—and on reaching a position approximately half-way within the guide-plates 54 the flat or narrow neck portion 62 of the cash-box is engaged and thereby guided by the slotway 61 of the guide-plates 60. At or about the instant of this latter engagement of the neck portion 62 with the plates 60 (the box-body being at this time entered between the straight portion of the plates 54) the cash-box lug 50 is about engaging the end of the switch-plate 45. A continued cable-imparted movement of the cash-box I now causes, by the engagement of the lug 50 with the switch 45, a deflecting from a straight course of said cash-box by the engagement with the cash-box lug of said switch, this switching pressure on the cash-box lug 50, which might otherwise result in a

tilting or swaying of the cash-box body or upper portion, is resisted by the said box-guides 54 and 60, with the result that the entire guide-frame 40 is caused to turn with the cash-box, to the end that the beginning of the gradual withdrawal of said cash-box from the engagement of the cable G is permitted without disturbing effect on the proper deflection in the course of the cash-box.

The construction of the clerk-station E will now be described, and the continued course of the switched-off cash-box I from its last-described position to its destination within reach of the clerk in charge of said station explained.

In Figs. 1 and 5, which are side views, Figs. 6 and 7, which are inverted and top plan views, and Fig. 10, an end view, the clerk-station branch trackway K, which leads from the switch F, is illustrated. Referring to the inverted plan view, Fig. 6, it will be seen that the straight-track slotway 17, adjacent the switch F, is somewhat widened, as indicated at 70, and that the obliquely downwardly extending branch trackway K, which has provided therein the under-side slotway 71, forms a junction with the main trackway A⁴. The divergence of the branch trackway K from the main trackway commences at the point of the location of the switch device F on the latter. The slotway 71 of the branch trackway is widened adjacent the widened portion 70 of the main trackway with which it unites, forming an angularly-shaped slotway-opening 70^a, Fig. 6, within which the neck portion 62 of a cash-box, during the period of the switching of the same by the means described, is free to move sidewise to a position from which on a continued cable-carried movement of the cash-box the latter passes from the position shown in dotted lines in Fig. 6 to the dotted-line position on the branch trackway K, (indicated in Fig. 7 and in full lines in Fig. 7^a.) the latter relative position of the cash-box being represented as at the moment preceding the pulling away from or releasing of the said cash-box from the cable G. It will be observed by a further reference to Fig. 7 that the cable G just previous to its release from the channeled head of the cash-box is drawn sidewise out from the slotway 17 of the main trackway by the somewhat-prolonged engagements of the same, and so that during this position of the cable G no chafing or cutting of the same may ensue, as would be the case if the cable was drawn over a thin edge portion of the slotway. A thickened and rounded edge is provided at this portion of the branch trackway by the antichafing rib 75, having the rounded edge 76, as shown in the cross-sectional view, Fig. 6^a.

As has been stated, the position of the cash-box as shown in dotted lines in Fig. 7 is about the position at which it is released from

engagement with the cable G, and from this position, on the above-referred-to release being effected, the cash-box proceeds, partly by the impetus imparted thereto by the cable G and partly gravitatively, as occasioned by the downward course of the branch track from this point, as shown in Figs. 1 and 5. This downward course of the branch-track terminates in a suitably long straight horizontal portion along which the cash-box travels some distance and, losing its impetus in which, comes to a stop and may be removed by the clerk by sliding the box backwardly until the widened opening 77 is reached, at which moment a slight side twisting pressure on the cash-box permits the neck and head thereof to pass outward through the slot 78 in a manner easily understood on reference to Fig. 7. This outward guidance of the cash-box through the slot 78 is rendered more certain of accomplishment by the provision adjacent the junction of said slot with the branch-track slotway 71 of a spring-point 79, which yields somewhat to the pressure of the cash-box neck thereagainst, and thereby obviates the necessity of manipulating the cash-box in so precise a way to remove the same as would be otherwise necessary.

The despatching of a cash-box I from a clerk-station to the cashier's desk B is accomplished by inserting the cable-engaging head of the cash-box upwardly into the trackway A⁵ through the aperture 77^a thereof, where it automatically becomes engaged by the return course of the endless cable G and is propelled thereby to the cash-desk.

The bottom plumb corner D, which will now be described, comprises an opposite pair of double corner-connecting braces 80, the two side members 81 of which have oppositely-located wheel-stud-engaging holes 82 about centrally of their lengths. The united end portions of these braces 80 have formed thereon the angularly-arranged feet 83, which are attached to and unite the horizontal and vertical portions of a given run of trackway at the junctions of the same with the semicircular wheel-guard portion 84, which constitutes the trackway corner or bend, and for the purpose of admitting a wheel-guard flange and to permit the travel therearound of the neck portion 62 of a cash-box I this bend is recessed or cut away on its outer edge portion, as indicated in Fig. 16. The constructions of these braces 80 of a pair are identical in form and proportion and are each provided with cable-carrying wheels 85, which are supported on stud-shafts 86, which engage through the above-described holes 82 of the side members 81 and are, as shown in Fig. 17, also united to each other by the angularly-arranged intermediate portion 87 thereof. This forming of the two wheel-supporting shafts from one piece of shafting—that is, having two horizontal shafts 86 oppositely

extending and offset from each other and rigidly so maintained by the right-angular portion 87 thereof—is a desirable detail of construction, as by making the connecting portion 87 of a length corresponding to the distance between centers of the trackways A⁴ and A⁵ no adjustments or positioning of the wheel-shafts in the installing of a trackway is necessary, it only being required to swing or partially revolve the wheel-provided and rigidly-braced corner portions of the track on the crank-like shaft member 86 87 until the two braces 80 of a pair are opposite and in parallel lines with each other, the result of such adjustment of the position of the braces relatively to each also resulting in bringing the ends of the two runs of trackway A⁴ and A⁵ into positions equidistant from and in proper relation to each other. This position having been produced by the above-described means, a maintenance of the same is accomplished by the connection of the two runs of trackway A⁴ and A⁵ by the braces 35, as shown in Figs. 1, 16, 16^a, and 17.

The top, vertical, or plumb corner construction C (indicated in side elevation at the upper portion of Fig. 1) is understood as being substantially the same as the one, D, which has been described and fully shown.

It is to be understood that in the trackway A, as illustrated in Figs. 1 and 16 of the drawings, the outgoing or sending track A⁴ is above and to the left (looking outward thereon from the home station B) and that the terminal supporting-standard H might be to the right of the cashier's position at the cash-desk, as indicated by the dotted lines in Fig. 4; but, as has been before stated, it is practicable to provide other pairs of trackway having terminal standards which may be to the left of the cashier's position, as shown in full lines in Fig. 4. In such cases it has been found expedient to arrange the sending-trackway A⁴ above and to the right of the receiving-trackway A⁵, and this reversal of the relative positions of two portions of a trackway A necessitates corresponding reversal of the relations of the plumb corner constructions, and in Fig. 16^a it is shown that the lower plumb corner parts and cable-wheels are so reversed, the capability for a similar reversal of the substantially similar upper plumb corner C being assured. This reversal of the corner or "bend" portions of the trackways A⁴ and A⁵ is quickly and accurately accomplished by the simple operation before described for adjusting said tracks relatively to each other—that is, by swinging or revolving one corner portion of a track one-half way around relatively to the shaft or stud 86 of the opposite one on and by means of the crank-like shaft 86 87, one of said stud-shafts constituting the fixed center about which the other has its half-revolution in a plane side-wise offset therefrom.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. For a cash-carrier terminal station, a plurality of horizontal lines of track arranged one above another, and each line including a sending, and a return, trackway, a column or standard including a plurality of frames, one above another, the several trackways having supports on said frames, and extending rearwardly therebeyond, wheels for the carrier-cables rotatably mounted in the several frames, having peripheral portions thereof in proximity to the trackways and one of the wheels for each line of track having its body inclined relatively to the length of the latter, and endless carrier-cables respectively provided for each line of double track running along the trackways oppositely - running courses of said cables having engagements with said wheels for transverse or diverted guidance of the cables.

2. For a cash-carrier terminal station, a plurality of lines of track, each line including a sending, and a return trackway, a column or standard including a plurality of sectionally-formed and rigidly-mounted frames, one above another, the several trackways having supports on said frames, and extended rearwardly therebeyond, wheels for the carrier-cables rotatably mounted in the several frames, having peripheral portions thereof in proximity to the trackways and one of the wheels for each line of track having its body inclined relatively to the length of the latter, for the purpose set forth.

3. For a cash-carrier terminal station, a plurality of lines of track, each line including a sending, and a return, trackway, a column or standard including a plurality of frames, one above another, the several trackways having supports on said frames, and extended rearwardly therebeyond, each return-trackway terminating farther rearwardly of said frames than the sending-trackways, wheels for the carrier-cables rotatably mounted in the several frames, having peripheral portions thereof in proximity to the trackways and one of the wheels for each line of track having its body inclined relatively to the length of the latter.

4. For a cash-carrier terminal station, a plurality of lines of track, each line including a sending, and a return, tubular longitudinally-slotted, and apertured trackway, a column or standard including a plurality of frames, one above another, the several trackways having supports on said frames, and extended rearwardly therebeyond, each return-trackway terminating farther rearwardly of said frames than the sending-trackways, and said sending-trackways being rearwardly endwise open, wheels for the carrier-cables rotatably mounted in the several frames, having peripheral portions thereof in prox-

imity to the trackways and one of the wheels for each line of track having its body inclined relatively to the length of the latter.

5 For a cash-carrier terminal station, a line of track, including a sending, and a return, tubular longitudinally-under-slotted trackway, an upright frame by which said trackway-tubes are supported and beyond which they are extended, the sending-tube
10 being rearwardly endwise open while the return-tube has a widened aperture through its under side, formed near its rear end, wheels for the carrier-cables, rotatably mounted in the said frame, having peripheral
15 portions thereof in proximity to the upper sides of the trackway which are apertured thereat for the run of the cord to said wheels, and one of said wheels having its body inclined relatively to the length of the track.

20 6. For a cash-carrier terminal station, a plurality of lines of track, each line including a sending, and a return, tubular under-slotted trackway, a column or standard including a plurality of frames, one above another, the
25 several trackways being supported by said frames, and extended rearwardly therebeyond, the tubular return-trackways terminating farther rearwardly than the tubular sending-trackway, made rearwardly closed
30 and formed with underneath widened openings forward of their closed rear ends while the sending track-tubes are open at their rear ends.

7. For a cash-carrier terminal station, a
35 plurality of lines of track, each line including a sending, and a return, trackway, a column or standard including a plurality of frames, one above another, the several trackways being supported by said frames, and extended rearwardly therebeyond, the tubular return-trackways terminating farther rearwardly
40 than the tubular sending-trackways, made rearwardly endwise closed and formed with underneath widened openings forward of their closed rear ends, while the sending track-tubes are open at their rear ends, and are provided with angularly-extending members
45 15 bearing line designations, and the cash-boxes provided with cylindrical cable-engaging heads and having designating characters corresponding to those on said members 15 of the line with which the boxes correspond, wheels for the carrier-cables, rotatably mounted in the several frames, having
50 peripheral portions thereof in proximity to the trackways and one of the wheels for each line of track having its body inclined relatively to the length of the latter.

8. For a cash-carrier terminal station, a
60 plurality of lines of track, each line including a sending, and a return, trackway, a column or standard including a plurality of frames, one above another, the several trackways having supports on said frames, and extending rearwardly therebeyond, wheels for the

carrier-cables rotatably mounted in the several frames, having peripheral portions thereof in proximity to the trackways and one of the wheels of each line of track having its body inclined relatively to the lengths of the
70 latter, a post on which the column of frames is supported, a base-plate having holes 31 in two diagonal rows angular to each other, the pulleys axially centrally under said frame-comprised column, and the carrier-cables for
75 the respective lines of track engaged around said pulleys, having courses thereof passing through said holes 31, having guide and off-setting engagements with said frame-wheels, and having runs along the trackways. 80

9. For a cash-carrier terminal station, a column or standard, sectionally made and rigidly united, each section including the double frames 6, the several lines of track, each including a sending and a return tubular
85 trackway, and both thereof supported by the respective frames of a given section, and extended rearwardly therebeyond, wheels for the carrier-cables rotatably mounted in the several frames, having peripheral portions
90 thereof in proximity to the trackways and one of the wheels for each line of track having its body inclined relatively to the length of the latter, for the purpose set forth.

10. For a cash-carrier terminal station, a
95 column or standard, sectionally made and rigidly united, each section including the double frames 6, a post, at the top of which said frame-sections are carried, having a shouldered and screw-threaded lower end, a
100 base-plate, having the screw-threaded socket, and formed with the series of holes 31 in diagonal rows, arranged one row angular to the other, and in the said socket of which plate the lower end of said post-screw
105 engages, the several lines of track, each including a sending and a return tubular trackway, and both thereof supported by the respective frames of a given section, and extended rearwardly therebeyond, wheels for the carrier-cables
110 rotatably mounted in the several frames, having peripheral portions thereof in proximity to the trackways and one of the wheels for each line of track having its body inclined relatively to the length of the latter, 115 for the purpose set forth.

11. For a cash-carrier terminal station, a column or standard, sectionally made and rigidly united, each section including the double frames 6, a post, at the top of which
120 said frame-sections are carried, having a shouldered and screw-threaded lower end, a base-plate, having the upper and lower bosses, 9, 9, with the screw-threaded socket therethrough, and formed with the series of
125 holes 31 in diagonal rows, arranged one row angular to the other, and in the said socket of which plate the lower end of said post-screw engages, the several lines of track, each including a sending and a return tubular track- 130

way, and both thereof supported by the respective frames of a given section, and extended rearwardly therebeyond, wheels for the carrier-cables rotatably mounted in the several frames, having peripheral portions thereof in proximity to the trackways and one of the wheels for each line of track having its body inclined relatively to the length of the latter, for the purpose set forth.

12. In a cash-carrier apparatus, a sending-trackway, and a clerk-station trackway diverging therefrom, a support adjacent the junction of said trackways having a cash-box-switching member supported thereby, a frame pivotally mounted on said support for swinging movement on a vertical axis, and having longitudinally-extending separated and endwise-open members to engage and serve as guards for the sides of the box to be switched.

13. In a cash-carrier apparatus, a sending-trackway, and a clerk-station trackway diverging therefrom, a support adjacent the junction of said trackways having a cash-box-switching member supported thereby, a frame pivotally mounted on said support for swinging movement on a vertical axis, and having longitudinally-extending separated and endwise-open members to engage and serve as guards for the sides of the box to be switched, said separated members being rearwardly divergent.

14. In a cash-carrier apparatus, a sending-trackway and a clerk-station trackway diverging therefrom, a support adjacent the junction of said trackways having a cash-box-switching member supported thereby, a frame pivotally mounted on said support for swinging movement on a vertical axis, longitudinal, slightly-separated, and endwise-open, members 60, 60, to engage and serve as guards for the thin flat neck of a cash-box, as described.

15. In a cash-carrier apparatus, a sending-trackway and a clerk-station trackway diverging therefrom, a support adjacent the junction of said trackways having a cash-box-switching member supported thereby, a frame pivotally mounted on said support for swinging movement on a vertical axis, having the longitudinally-extending separated and endwise-open box side guard members 54, 54, and longitudinal, slightly-separated, and endwise-open, members 60, 60, above the members 54 to engage and serve as guards for the thin flat neck of a cash-box, as described.

16. In a cash-carrier apparatus, a sending-trackway and a clerk-station trackway diverging therefrom, a support adjacent the junction of said trackways having a cash-box-switching member supported thereby, a frame pivotally mounted on said support for swinging movement on a vertical axis, having longitudinally-extending separated and

endwise-open members to engage and serve as guards for the sides of the box to be switched, and a spring operating upon said frame to maintain said frame normally with its box-guard members parallel with the line of the sending-trackway.

17. In a cash-carrier apparatus, a main line and a branching trackway provided near their junction with a stationary switch-frame comprising a vertical post, a swinging frame pivoted at top and bottom to said switch-frame and provided with the separated box-side and box-neck engaging members, and a spiral spring encircling said post and having an extension engaged with said swinging frame for maintaining it normally in line with the main trackway.

18. In a cash-carrier apparatus, a sending-trackway and a branch trackway diverging therefrom, a support adjacent the junction of said trackways having a cash-box-switching member supported thereby, a frame pivotally mounted on said support for swinging movement on a vertical axis, and having separated members to engage at opposite sides of the box to be switched, and adjustable means for limiting the swinging movement of said frame.

19. In a cash-carrier apparatus, a sending-trackway and a branch trackway diverging therefrom, a switch-frame adjacent the junction of said trackways having a cash-box-switching member supported thereby, the guide-frame, pivotally mounted on said support for swinging movement on a vertical axis, and provided with separated endwise-open members to engage at opposite sides of the box to be switched, the adjustable screw for limiting the swinging movement of the pivotal frame relatively to the switch-frame, and a spring for maintaining the pivotal frame aligned with the sending-trackway.

20. In a cash-carrier apparatus, tubular under-slotted sending and branching trackways, a carrier-cable arranged to run through the tubular sending-trackway, the cash-box having the thin flat neck and cylindrical channeled head for engagement with the trackway and cable, a support adjacent the junction of said trackways having the cash-box-switching member, and a frame pivotally mounted on said support for swinging movement, and having endwise-open separated members for engagements at opposite sides of the box to be switched.

21. In a cash-carrier apparatus, a sending tubular under-slotted trackway and a branch tubular slotted trackway diverging therefrom, a carrier-cable arranged to run through the tubular sending-trackway, the cash-box having the thin flat neck, the cylindrical channeled head for engagement with the trackway and cable and the depending U-shaped switch engagement lug 51, a support adjacent the junction of said trackways pro-

vided with the cash-box-switching bar 45, and a frame, pivotally mounted on said support for horizontal swinging movements, and having separated members for engagements at opposite sides of the box to be switched.

22. In a cash-carrier apparatus, the combination with a main trackway and a branch trackway, of a switch-frame having a supporting engagement with said trackways and provided with a switch-carrying plate comprising a back member having a slot and set-screw transverse adjustment on a lower portion of said switch-frame and the angular forwardly-extending member 46, and the switch-bar 45 secured to said member 46.

23. In a cash-carrier apparatus, the combination with a main trackway and a branch trackway, of a switch-frame having a supporting engagement with said trackways and having a switch-carrying plate confined on a lower portion of said switch-frame and including the forwardly-extending lug 46, the curved or inclined switch-bar 45 having at one end portion the pairs of holes in longitudinal lines one above the other, for invertible connection on said angular member, and screws or like fastenings passed through said lug 46 and one of the pair of perforations in the switch-bar.

24. In a cash-carrier apparatus, the combination with a main trackway and a branch trackway, of a switch-frame having a supporting engagement with said trackways, and constructed with the horizontal transverse slot 37^a, a T-shaped switch-carrying plate confined on a lower portion of said switch-frame, and having the central lug 46 thereof forwardly extended, the curved or inclined switch-bar 45 having at one end portion the pairs of holes in longitudinal lines one above the other, for invertible and also reversible connection on said lug 46, as described, screws or like fastenings passed through said lug 46 and one of the pair of perforations in the switch-bar, and the adjustment-confining screws 48 engaging through said transverse slot and with the lock members of said T-shaped lug.

25. In a cash-carrier apparatus, a sending tubular longitudinally-under-slotted trackway and a branch tubular longitudinally-under-slotted trackway diverging therefrom, both said tubular trackways having, through their upper portions, openings adjacent, and extending forwardly beyond, their junction.

26. In a cash-carrier apparatus, a sending tubular under-slotted trackway and a branch tubular under-slotted trackway diverging therefrom, and both said tubular trackways having, through their upper portions, divergent openings adjacent and extending forwardly beyond their junction, and having forwardly of the junction of said upper openings the longitudinally-extending rib with the

rounded upper portion 76, as and for the purpose set forth.

27. In a cash-carrier apparatus, the combination with a sending tubular longitudinally-under-slotted trackway and a branch longitudinally-under-slotted trackway diverging therefrom, both said tubular trackways having, through their upper portions, openings adjacent, and extending forwardly beyond, their junction, of the cable running through the sending-trackway, the cash-box having the thin flat neck and the cylindrical channeled cable-engaging head, and a switching device for the cash-box.

28. In a cash-carrier apparatus, a sending tubular under-slotted trackway and a branch tubular under-slotted trackway diverging therefrom, and both said tubular trackways having, through their upper portions, openings adjacent and forwardly of their junction, the carrier-cable arranged to run through the tubular sending-trackway, the cash-box having the thin flat neck and cylindrical channeled head for engagement with the trackway and cable, a support adjacent the junction of said trackway having the cash-box-switching member, and a frame pivotally mounted on said support for swinging movements and having separated longitudinal, endwise-open, members for engagements at opposite sides of the box to be switched.

29. In a corner portion of a cash-carrier apparatus, the two trackways of a line arranged in planes one in front of the other and each trackway having the sections thereof at right angles to each other, united by quarter circular portions 84, which arc-shaped portions for the two trackways are generated from respective axes offset one from the other, the diagonally-arranged corner-braces provided for and connecting the angularly-approaching portions of each of the trackways, the crank-like part 87, 86, 86, having the opposite offset shaft members 86 thereof engaged centrally through said corner-braces, and cable-guiding wheels on said shaft members 86.

30. In a corner portion of a cash-carrier apparatus, the two trackways of a line arranged in planes one in front of the other and each trackway having the sections thereof at right angles to each other, united by quarter circular portions 84, which arc-shaped portions for the two trackways are generated from respective axes offset one from the other, the diagonally-arranged corner-braces provided for and connecting the angularly-approaching portions of each of the trackways, the crank-like part 87, 86, 86, having the opposite offset shaft members 86 thereof engaged centrally through said corner-braces, cable-guiding wheels on said shaft members 86, and the brackets transversely arranged

between and connected with the sections of both trackways, and for rigidly holding the corner components in their proper relations, as shown.

5 31. A cash-carrier apparatus having a terminal station, comprising, at such station, a trackway having a straight portion, a cable-guiding wheel adjacent the trackway and forward of the rear end of such straight portion
10 thereof, a box propulsion-cable having a run or course thereof along the straight portion of the trackway forward of said guiding-wheel, and in engagement with said wheel and thereby guided away from the line of the
15 trackway.

32. A cash-carrier apparatus having a terminal station comprising at such station a trackway having a straight portion, a cable-guiding wheel adjacent the trackway and forward of the rear end of such straight portion
20 thereof, a cable-driving drum or wheel adjacent the trackway-terminal, a cable having a run or course thereof along the straight portion of the trackway, engaged by said guiding-wheel for a course away from the trackway, and having running engagement around
25 said driving-wheel.

33. A cash-carrier apparatus having a terminal-station portion comprising a plurality
30 of straight trackways for respectively receiving and sending cash-boxes, and endless cables having straight courses thereof running along the receiving and sending trackways,

guide-wheels adjacent the straight trackway portions around which the cables run, and by
35 which they are given courses away from the said trackways, driving-wheels with which the diverted cables have engagements, said receiving-trackways having box-delivering
40 openings in a vertical line, and said sending-trackways having box-entrance openings in a differently-located vertical line.

34. An endless cable cash-carrier apparatus, the terminal portion of which comprises a plurality of tubular longitudinally-slotted
45 trackways, and cable-guiding wheels, side-wise adjacent the trackways, said tubular trackways having straight, endwise - open cash-box-receiving extensions, ending rearwardly beyond the courses of the cables and
50 the guide-wheels therefor, and in line with straight portions of the trackways forwardly beyond said cable-guiding wheels.

35. A cash-carrier apparatus comprising a straight trackway, an endless cable, and a
55 cable-guiding wheel arranged adjacent a portion of the said trackway which is forwardly beyond the terminal end thereof and operable to guide the cable to one side of the straight
60 course of the box along the trackway.

Signed by me at Springfield, Massachusetts, in presence of two subscribing witnesses.

DAVID E. CHISM.

Witnesses:

WM. S. BELLOWES,
G. R. DRISCOLL.