No. 876,586. PATENTED JAN. 14, 1908.

F. D. POWELL & C. S. ELLIS.

COIN REGISTERING MECHANISM.

APPLICATION FILED JUNE 22, 1904.

8 SHEETS—SHEET 1.

Fig. 1

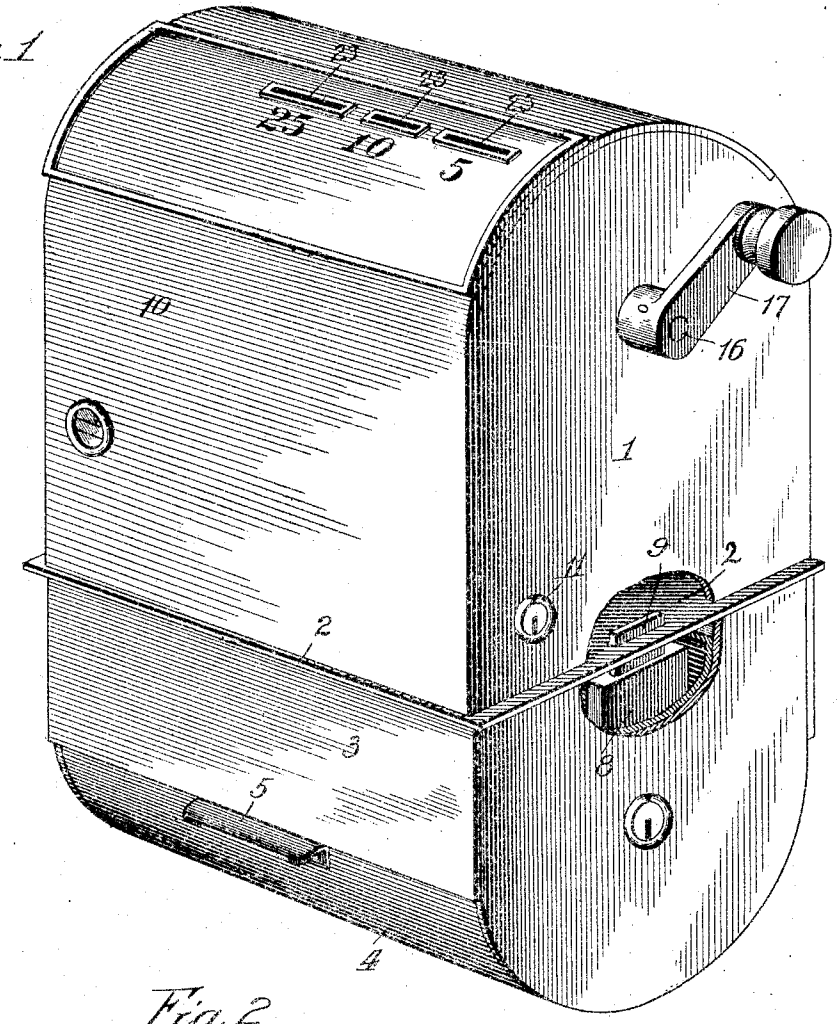
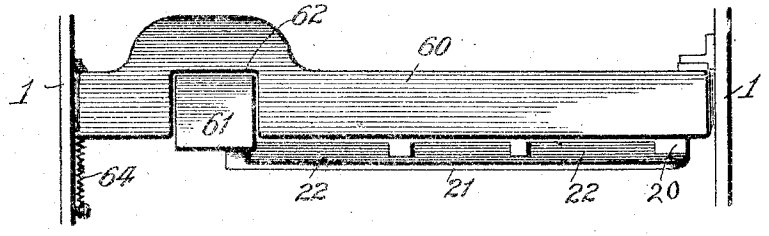


Fig. 2.



Witnesses:
Chas. E. Gaylord.
John Enders.

Inventors
Frank D. Powell
Charles S. Ellis
By David A. Fletcher,
Att'y.

No. 876,586. PATENTED JAN. 14, 1908.

F. D. POWELL & C. S. ELLIS.

COIN REGISTERING MECHANISM.

APPLICATION FILED JUNE 22, 1904.

8 SHEETS—SHEET 3.

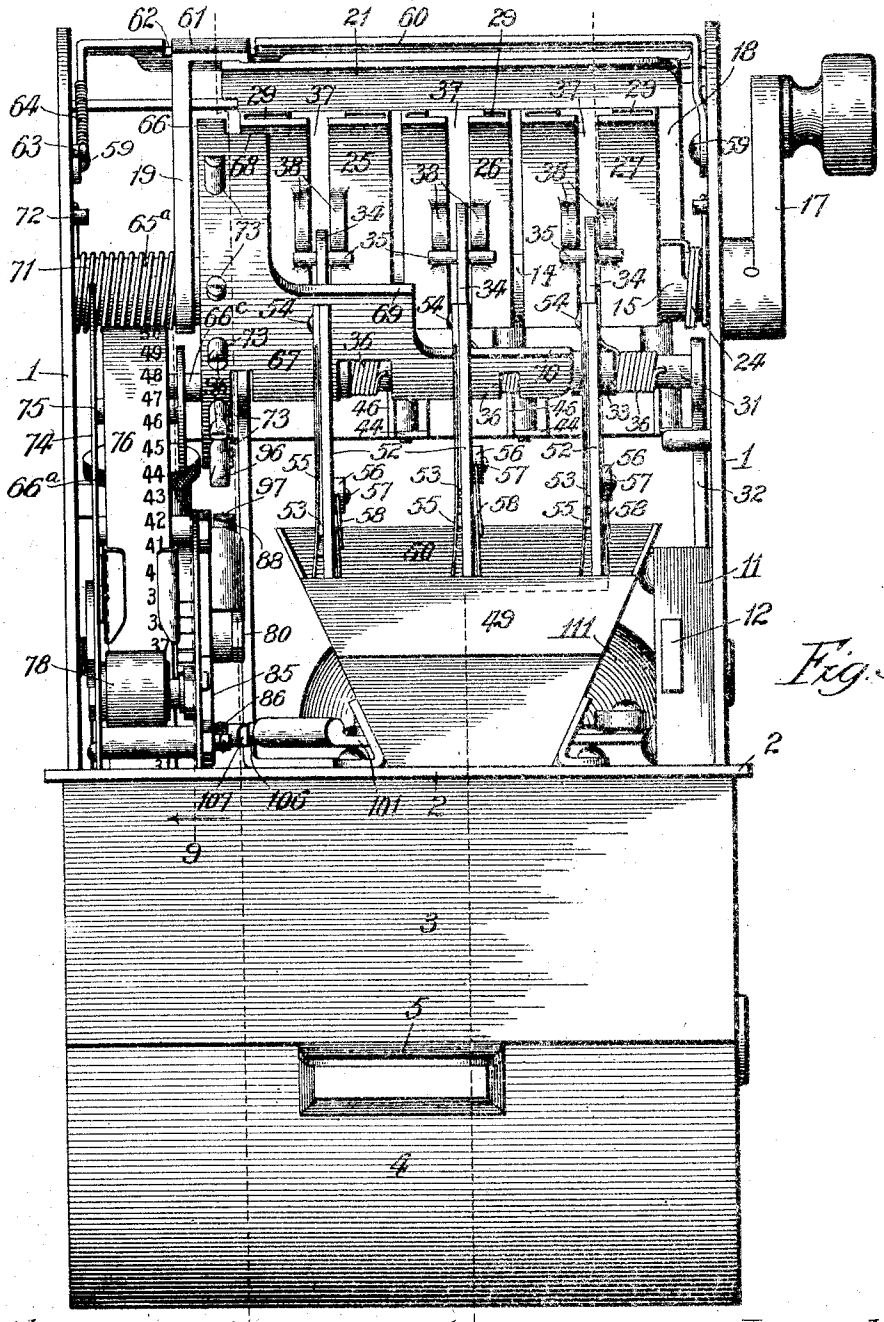


Fig. 3.

Witnesses:
Chas. E. Gaybord.
John Enders.

Inventors
Frank D. Powell
Charles S. Ellis.
By David H. Fletcher.
Atty.

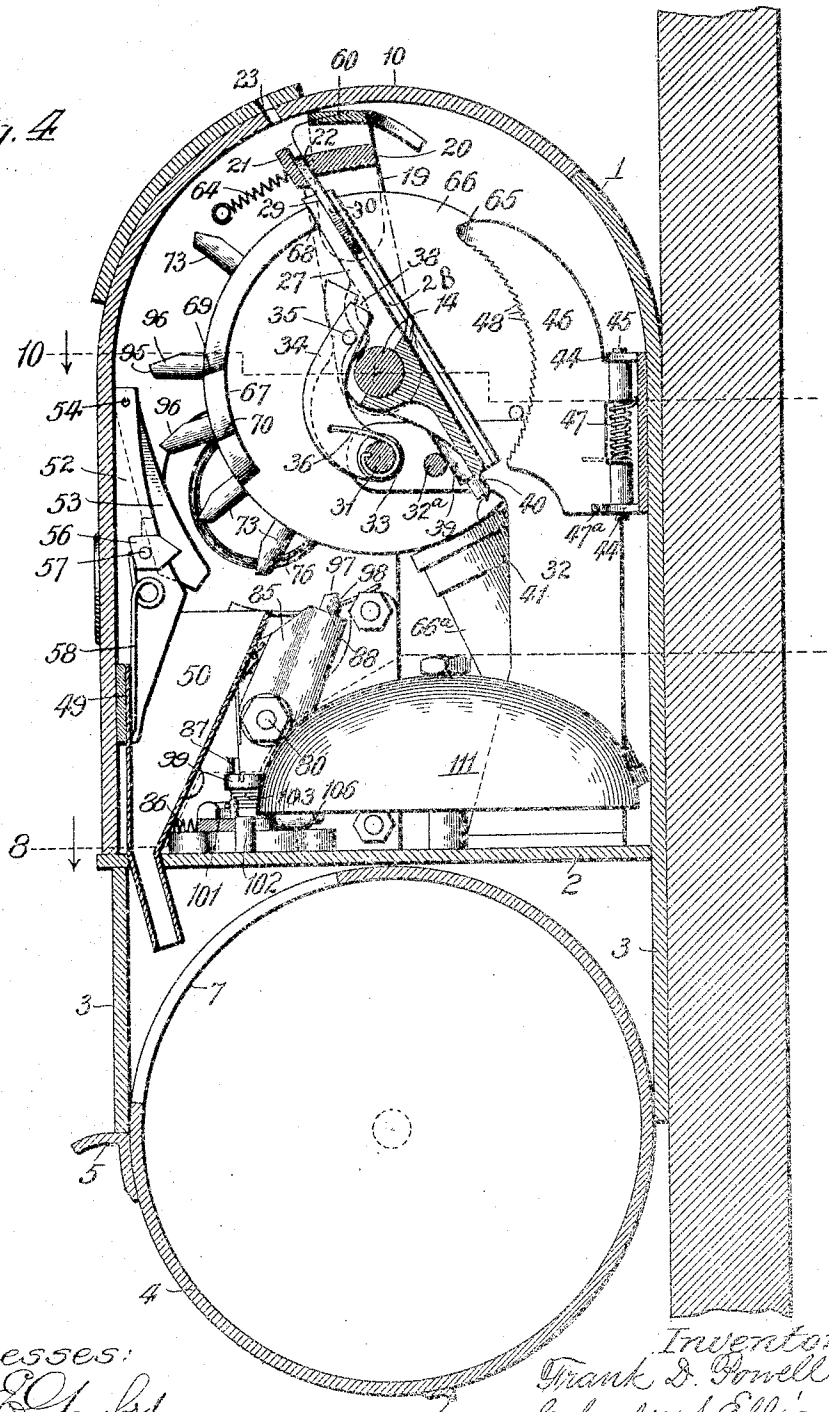
No. 876,586. PATENTED JAN. 14, 1908.

F. D. POWELL & C. S. ELLIS.

COIN REGISTERING MECHANISM.

APPLICATION FILED JUNE 22, 1904. 6 SHEETS—SHEET 3.

Fig. 4



Witnesses:
Chas. E. Gaylord.
John Enders.

Inventors
Frank D. Powell,
Charles S. Ellis,
By David N. Fletcher,
Atty.

No. 876,586. PATENTED JAN. 14, 1908.

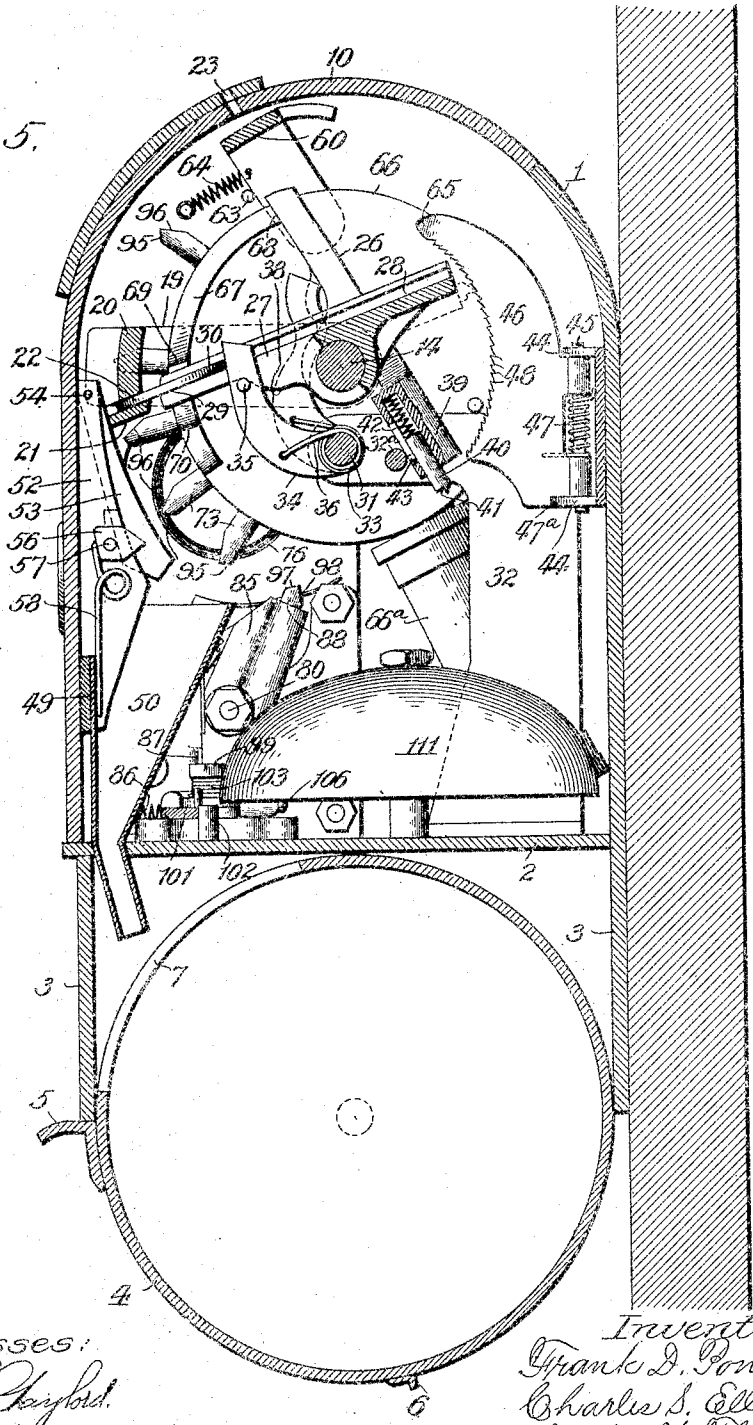
F. D. POWELL & C. S. ELLIS.

COIN REGISTERING MECHANISM.

APPLICATION FILED JUNE 22, 1904.

9 SHEETS—SHEET 4.

Fig. 5.



Witnesses:
Geo. E. Corfield.
John Enders.

Inventors
Frank D. Powell,
Charles S. Ellis,
By David N. Fletcher,
Atty.

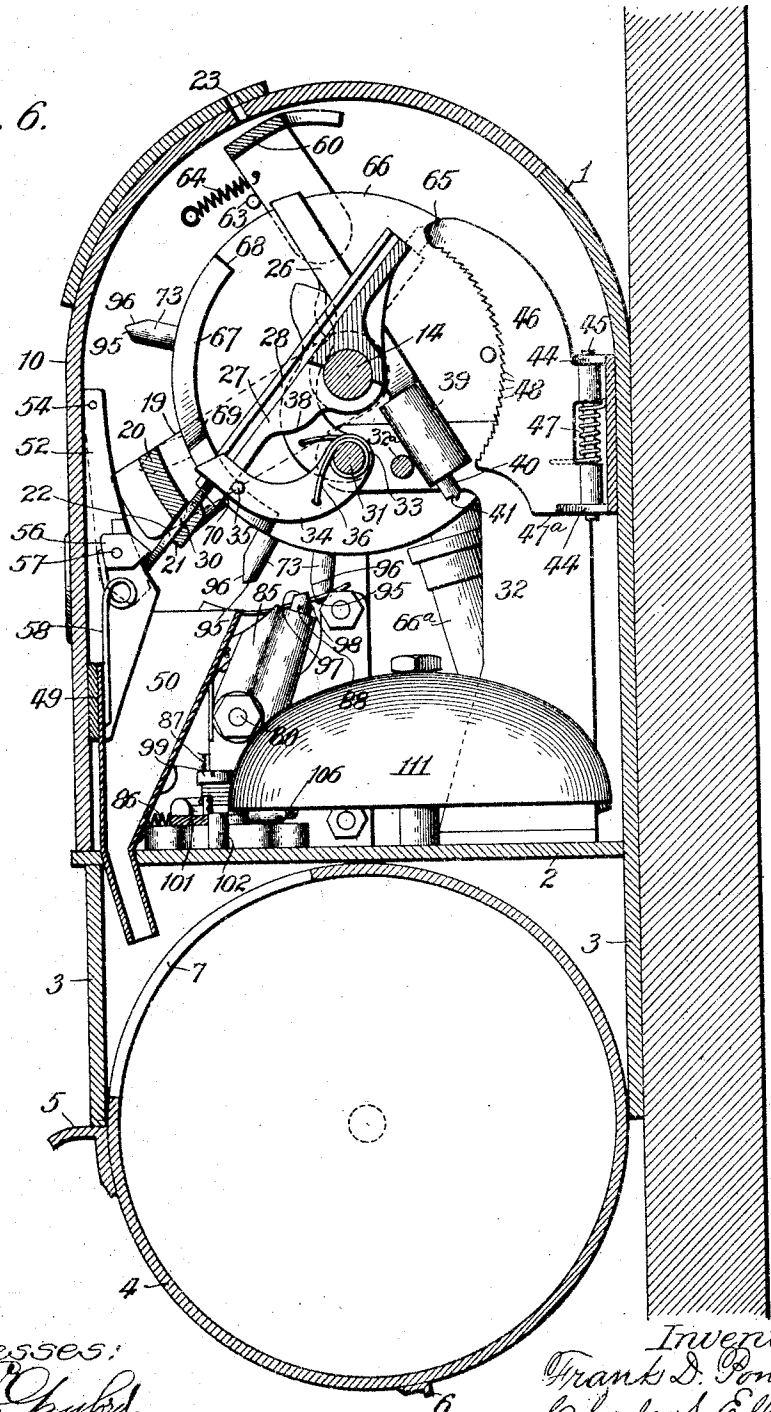
No. 876,586. PATENTED JAN. 14, 1908.

F. D. POWELL & C. S. ELLIS.

COIN REGISTERING MECHANISM.

APPLICATION FILED JUNE 22, 1904. 8 SHEETS—SHEET 5.

Fig. 6.



Witnesses:
Jas. E. Taylor.
John Enders.

Inventors:
Frank D. Powell.
Charles S. Ellis
By David A. Fletcher.
Atty.

No. 876,586. PATENTED JAN. 14, 1908.

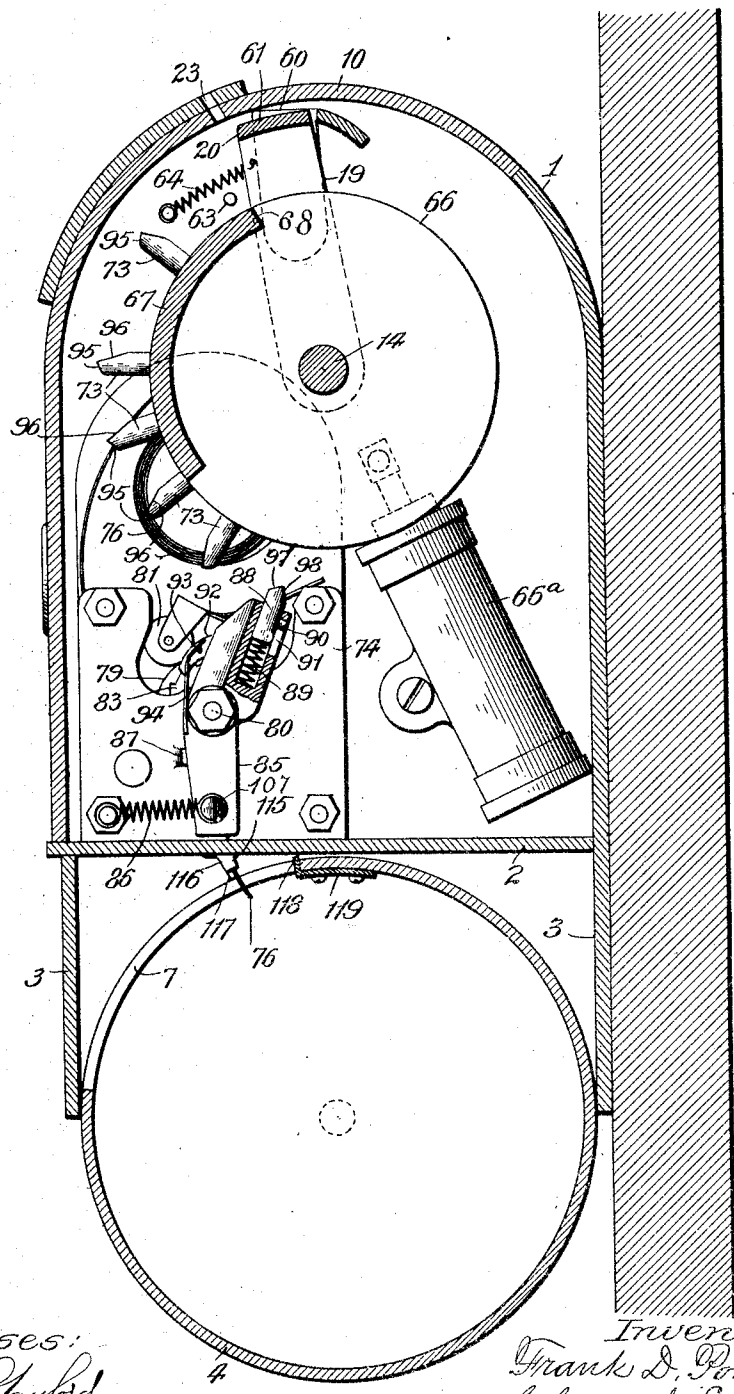
F. D. POWELL & C. S. ELLIS.

COIN REGISTERING MECHANISM.

APPLICATION FILED JUNE 22, 1904.

8 SHEETS—SHEET 6.

Fig. 7.



Witnesses:
Chas. E. Gaybord.
John Enders.

Inventors
Frank D. Powell
Charles S. Ellis.
By David H. Fletcher
Atty.

No. 876,586. PATENTED JAN. 14, 1908.

F. D. POWELL & C. S. ELLIS.

COIN REGISTERING MECHANISM.

APPLICATION FILED JUNE 22, 1904.

8 SHEETS—SHEET 7.

Fig. 8.

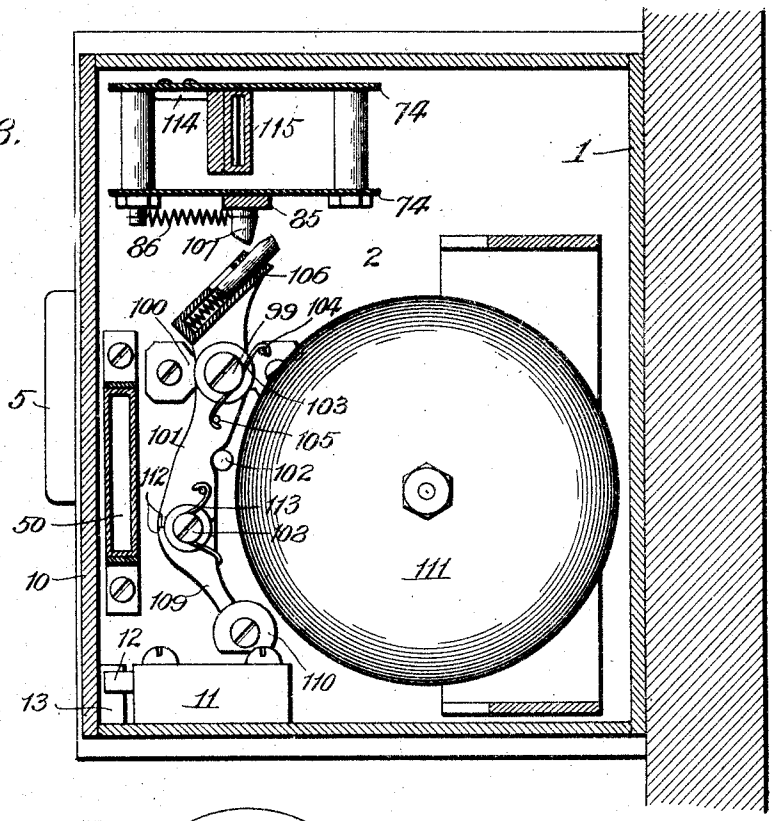
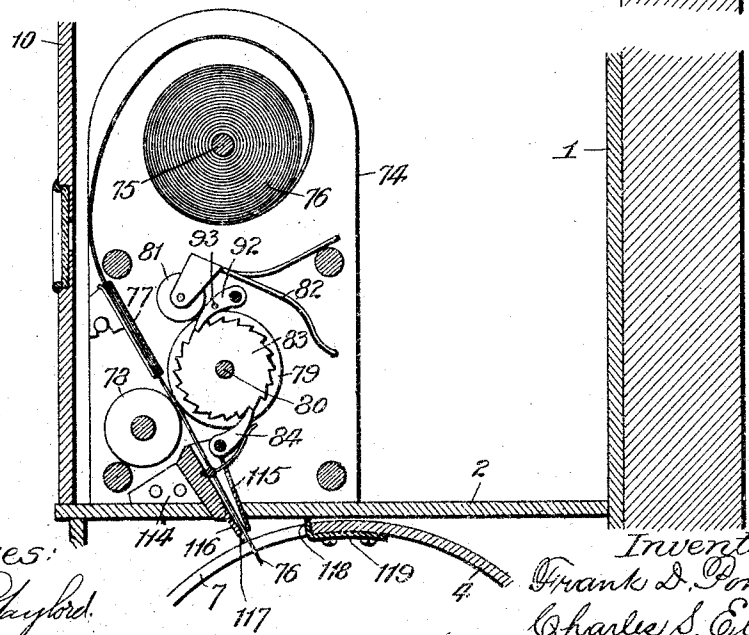


Fig. 9.



Witnesses:
Chas. E. Gaylord.
John Enders.

Inventors
Frank D. Powell,
Charles S. Ellis.
By David H. Fletcher,
Atty.

No. 876,586. PATENTED JAN. 14, 1908.

F. D. POWELL & C. S. ELLIS.

COIN REGISTERING MECHANISM.

APPLICATION FILED JUNE 22, 1904.

8 SHEETS—SHEET 8.

Fig. 10.

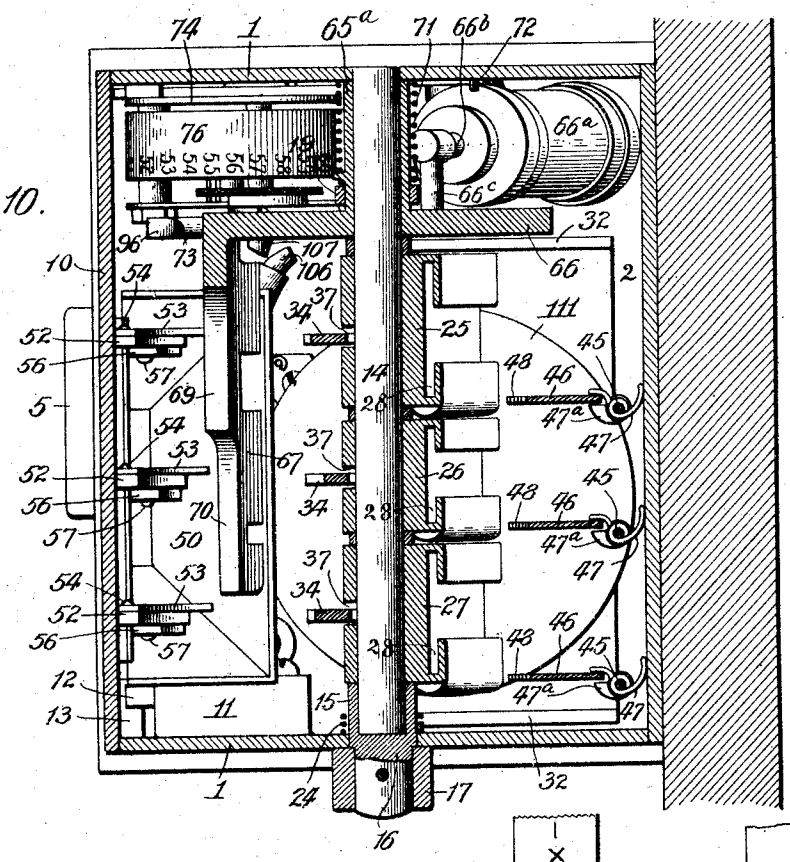


Fig. 11.

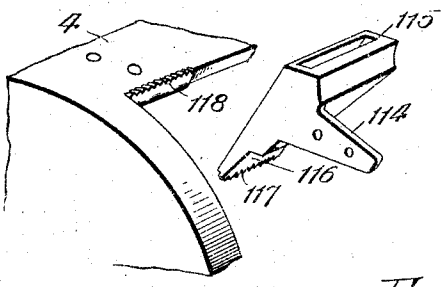


Fig. 12.

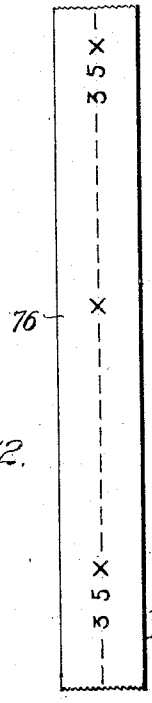
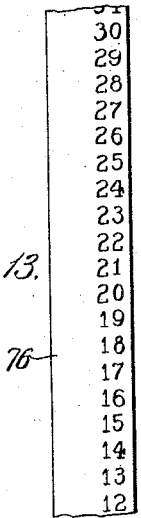


Fig. 13.



Witnesses:
Chas. L. Gaylord.
John Enders.

Inventors
Frank D. Powell,
& Charles S. Ellis,
By David N. Fletcher,
Att'y.

UNITED STATES PATENT OFFICE.

FRANK D. POWELL AND CHARLES S. ELLIS, OF CHICAGO, ILLINOIS, ASSIGNORS TO AMERICAN COIN REGISTER COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

COIN-REGISTERING MECHANISM.

No. 876,586. Specification of Letters Patent. Patented Jan. 14, 1908.

Application filed June 22, 1904. Serial No. 213,671.

To all whom it may concern:

Be it known that we, FRANK D. POWELL and CHARLES S. ELLIS, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have jointly invented a new, useful, and Improved Coin-Registering Mechanism, of which the following is a description, reference being had to the accompanying drawings, forming a part of this specification, in which corresponding letters of reference in the different figures indicate like parts.

The object of our invention is to so construct a coin registering and indicating or signal mechanism that the deposit therein of coins of different denominations may be automatically indicated by the striking of a bell or other sounding device, in addition to the registration thereby of printing or otherwise impressing an accurate record upon a continuous strip or tape contained within a locked or sealed inclosure and successively projecting a section thereof into a coin receptacle separated therefrom, with the introduction of each coin, said section varying in length according to the value of the coin and bearing a mark or marks indicative of a predetermined unit of value.

A further object is to provide a primary and secondary actuating mechanism common to all the coins, but adapted to be connected and rendered operative only by the presence of a coin in the proper place, so that when a coin is placed in conjunction with the actuating mechanism, a single movement by the operator may serve to cause the temporary closing of the coin induction openings, lock the coin, together with the primary and secondary actuating mechanism against backward movement, thereby preventing a withdrawal of the coin, deposit the latter, together with a proper voucher therefor or registration thereof, in the coin receptacle, such deposit being controlled by positive action as distinguished from mere gravity, actuate a sounding mechanism to arbitrarily designate its value, and cause the several parts to be returned to their respective normal positions.

A still further object is to provide means for automatically severing the registration strip when the coin receptacle is opened, at the same time shutting off access to the unused portion of the strip, so that when the collector, who can have access only to the coin receptacle, opens the same, he will find deposited with the coins, an accurate voucher representing their value, all of which is hereinafter more particularly described and definitely claimed.

In the drawings, Figure 1, is a perspective view of the case of a coin registering machine embodying the features of our invention, a portion of the same being broken away to show the locking mechanism, Fig. 2, is a plan view of a portion of the topmost mechanism within the case showing the primary actuator and its relation to the several coin-pockets, Fig. 3, is a front elevation thereof, the covering plate being removed to show the actuating and registering mechanism, Fig. 4, is a vertical sectional view taken upon the line 4—, Fig. 3, viewed in the direction of the arrow there shown, representing the actuating parts in their respective normal positions. Fig. 5, is a like view showing the actuating parts as they would appear when advanced to about half the extent of their travel, Fig. 6, is a like view showing said parts as they would appear when the coin is about to be discharged into the chute leading to the coin receptacle, Fig. 7, is a vertical sectional view taken upon the line 7—, Fig. 3, viewed in the direction of the arrow there shown, Fig. 8, is a plan view taken upon the line 8—, Fig. 4, viewed in the direction of the arrow there shown, Fig. 9, is a vertical sectional view taken upon the line 9—, Fig. 3, viewed as indicated by the arrow therein, Fig. 10, is a plan view taken upon the line 10—, Fig. 4, Fig. 11, is a perspective view of a portion of a revoluble coin cylinder and the tape guide with the co-acting serrated cutters for severing the tape, Fig. 12, is a view of a section of the registering tape, showing the manner in which the same is marked as it is passed through the machine into the coin receptacle, and Fig. 13, is a view showing the reverse side of the tape.

Referring to the drawings, 1 designates generally a metallic box or case having a horizontal partition 2 rigidly and permanently secured therein. Said case is rectangular in cross section and a portion 3, thereof, is extended below said partition so as to receive support and partially inclose a hollow cylindrical coin receptacle 4, the ends of which are trunnioned within the depending portion 3 of the case, as indicated in the dotted lines in Figs. 4 to 7 inclusive, the

depending parts of the case at the ends being curved to conform to the shape of the cylinder. Said cylindrical receptacle is provided with stops 5 and 6 respectively, Figs. 1 and 3, to 6, the former of which abuts against the bottom of the front depending portion 3 of the case, while the latter is adapted to engage the corresponding part at the rear. The part 5 is formed with a projecting finger-piece as shown, by which the receptacle may be partially rotated upon its axis to open and close it. An opening 7, Figs. 4 to 7, is formed in said receptacle and so located that when the latter is in its normal position, as shown in Fig. 4, with the stop 5 against the bottom of the case, said opening is covered and inclosed within the case. A lock 8, Fig. 1, is secured to the inner face of the end wall of the cylinder and is provided with a bolt 9 adapted to pass through the cylinder and into a slot formed in the partition 2, thereby locking said cylinder in a closed position. A removable plate 10 is arranged to cover the front and a portion of the top of the case, being detachably secured by means of suitable dowels, not shown, and a lock 11, Figs. 1, 3, 8 and 10, attached to the inner wall of the case, the bolt 12 of which is adapted to pass over and engage a lug 13 upon the inner face of said plate.

Mounted horizontally within the upper part of the casing is a shaft 14, Figs. 4, 5, 6, 7 and 10, which shaft, as shown in the latter view, is supported at one end in a bore in the case and at the other within a sleeve 15 which has a bearing in the opposite wall of the case and is provided with a shank 16 which projects through said case for the reception of a crank 17 rigidly attached thereto. Said crank constitutes the only operative mechanism outside of the case and is rigidly connected with a primary actuator which is normally inert, and may, in the absence of a coin, be moved with impunity without affecting the other mechanism, but which, in conjunction with a coin which serves as a connecting medium, may be utilized to set in motion the entire automatic registering mechanism hereinafter described. Said primary actuator consists of an inverted U-shaped frame, one arm 18 of which, Fig. 3, is rigidly attached or integral with the sleeve 15, while the other arm 19, Figs. 3 to 7 and Fig. 10, is loosely mounted upon the shaft 14 near its opposite end. The arms 18 and 19 are connected by means of an integral horizontal portion 20, also shown in Fig. 2, which is provided with a flange 21 arranged at an angle thereto as shown, and immediately behind which in the part 20 is formed a series of coin-slots 22, which, when said actuator is in its normal position, as shown in Fig. 4, are in registration respectively with a series of coin slots 23, formed in the plate 10 of the outer case and more clearly shown in Fig. 1, in which appear the figures "25", "10" and "5", to designate the respective coins to be deposited therein. A coiled spring 24, Figs. 3 and 10, one end of which is in engagement with the arm 18 and the other with a lug upon the case, tends to hold said actuator in the normal position shown in Fig. 4.

A series of coin carriers, 25, 26 and 27 are loosely mounted upon the shaft 14, each being arranged to stand normally in the inclined position indicated in Fig. 4. Within each of said receivers is formed a chute or way 28, extending throughout its length and open at the bottom. The upper end 29 of each of said ways, is formed to the proper size to receive a coin intended to be deposited therein and hold the same as in a pocket, with the upper portion of the coin extending through the corresponding slot 22 of the primary actuator, as clearly shown in Fig. 5, in which a coin 30 is shown as forming a positive connection between said primary actuator and the coin pocket. The way or chute 28 Figs. 4, 5 and 6 is of slightly less width than the pocket proper, so that in the event that a coin of smaller size is deposited therein, it will fall through the chute and out of the pocket through any suitable opening in the case without entering the final coin receptacle.

Located beneath the shaft 14 and arranged parallel therewith, is a shaft 31, the ends of which are supported in a frame 32, Figs. 3, 4, 5, 6 and 10. Said shaft is stationary in its frame and serves to support a series of sleeves 33, one of which is more clearly shown in Fig. 3, attached to or integral with which is a curved arm 34. The number of said arms corresponds to the number of coin carriers which may be varied arbitrarily, but, inasmuch as quarters, dimes and five-cent pieces are all that would ordinarily be used, I have confined myself to three. Each of the arms 34 is provided with a cross-pin 35 which engages with the under face of the coin carrier under which it is placed. Coiled springs 36 are placed upon the shaft 31, one end of each of said springs being secured to a bore in the shaft while the other is attached to an arm 34, thereby tending to press said arms upwardly independently of each other to hold the coin carriers in their respective normal positions and return them thereto, when moved, as hereinafter described, the backward movement of said carriers being limited by means of a bar 32^a, Figs. 4, 5 and 6, which is supported by the frame 32 and forms a stop therefor. Each of said coin carriers is provided with a longitudinal slot 37 Figs. 3 and 10, at right angles to the plane of the coin pocket, through which the ends of the arms 34 are free to project when the coin carriers are tilted for the purpose of discharging the coin into the coin receptacle. Cams 38, Figs. 3 and 10, upon the under face of each of said

tilting carriers serve to hold the ends of the arms 34 out of the slots 37 when the carriers are in their respective normal positions. When, however, any one carrier is tilted forward against the action of the arm which supports it, the pin 35 slides forward off from the cam and permits the arm to project into the slot to act as a positive coin discharger in the manner hereinafter set forth.

Upon the rear end and at one side or edge of each of said initial coin carriers, is formed a cylindrical portion 39, Figs. 4, 5 and 6, which is bored, as shown in Fig. 5, for the reception of a sliding bolt or dog 40, which is provided with a beveled detent 41, as shown, upon its outer end. A spring 42, Fig. 5, tends to push the bolt outwardly, while a pin 43, working in a slot, acts to limit its outward movement, at the same time leaving it free to move longitudinally.

Secured in lugs 44, 44, Figs. 4, 5, 6 and 10, are vertical pins 45, to which are hinged wings 46, one for each coin-carrier, which are arranged to stand normally in the same planes, respectively, with the dogs 41. Coiled springs 47 upon the axes of said wings tend to hold them against suitable stops 47^a, Fig. 10, which limit their movement in one direction while said springs yield to allow them to move away from said stops. The front edges of said wings are curved to conform to the arc described by the movement of the dogs 41 when the coin carriers are tilted and are provided with ratchet-teeth 48 upon said edges for the purpose of engaging said dogs and locking the carriers against backward movement until the latter reach the full limit of travel.

For the purpose of maintaining the coin in the carrier and securing it in proper position until it is finally and positively discharged therefrom, I provide the following described mechanism: Rigidly attached to the front plate 49, of a coin chute 50, Figs. 3, 4, 5, 6 and 10, which is in communication through an opening in the horizontal plate 2, with the coin receptacle 4, are a series of plates 52, corresponding in number and position to the coin carriers. The inner faces of said plates are curved to conform substantially to the path of movement of a coin as it is gradually discharged from the carrier by the ejector as hereinafter specified. A keeper 53, is pivoted at 54 to each of said plates and is provided with a spring 55, which tends to push it towards the carrier. The face of said keeper is curved to conform substantially to the curve of the plate 52. A dog 56, is pivoted at 57 to each of the plates 52 upon the opposite side thereof from the part 53. Said dog is tapered at its free end, as shown, being held in the pathway of the coin by means of a spring 58, which permits it to yield in the manner and for the purpose hereinafter stated.

Pivoted at 59, 59, Fig. 3, upon opposite sides of the case in alinement with the part 18, is a shield 60, also shown in Figs. 2, 4, 5, 6 and 7, which is normally held in the position shown in Fig. 4, by means of a raised portion 61, Figs. 2, 3, and 7, which passes into a notch 62 formed in the part 60. A stop 63, Figs. 3, 5, 6 and 7 serves to limit the forward movement of the shield, while a coiled spring 64 tends to draw it forward against said stop, but is normally prevented from so doing by the force of the stronger spring which maintains the actuator in its normal position. The purpose of said shield is to close the openings to the several coin carriers after the coin has been placed in one of them and during the operation of its transfer to the coin receptacle and its subsequent registration.

The foregoing constitutes a description of the several parts which co-act to receive the coins and to transfer them to the coin receptacle and I will proceed to explain their operation before describing the signal and registering mechanism which co-act therewith.

Assuming the several parts to be in the positions shown in Fig. 4, a coin 30 is placed in the slot 23 when it is held in the upper end 29 of the channel of the carrier with a portion extending into the slot 22 of the actuator, thereby constituting a positive connection between the two. The crank 17 is then moved forward and with it the primary actuator 20. The carrier 27 (assuming the coin to be placed therein) is positively connected with said actuator by means of the intervening coin and is thereby caused to move therewith. With the forward movement of the actuator the shield 60 is drawn forward by the spring 64 against the stop 63, thereby closing the several coin-slots 23. A sufficient movement for this purpose will have brought the dog 41 into contact with the ratchet-teeth 48, upon the wing 46, thereby preventing a retraction of said actuator, but leaving it free to be advanced. Upon continuing the movement until the carrier 27 is in the position shown in Fig. 5, the arm 34 is pushed outwardly by the cam 38 acting upon the pin 35 until the upper end of said arm is caused to project through the slot 37 of the coin-carrier, into position immediately behind the coin. A further advance of the actuator causes the arm 34 to be still further extended, thereby serving to push the coin out of its pocket against the yielding action of the temporary keeper 53, until the coin passes the dog 56, which yields to permit such passage. Said dog acts as a stop to prevent a backward movement of the actuator after the release of the coin from the carrier 27, but before its release from the slot 22, in the actuator, or after the dog 40, having reached the upward limit of its travel, has become disengaged from the ratchet teeth on the wing 46. The upper

end of each of the wings 46 is curved laterally, as shown at 65, Figs. 4, 5 and 6, so that when the dog 40 is elevated to the position shown in Fig. 6, it is disengaged from the ratchet and is pushed out by its spring until its end stands by the side of the curved portion of the wing. As soon as the coin is pushed by the ejector-arm 34 out of the carrier pocket, the spring 36, through the action of said arm acts to restore the carrier to its normal position. As soon as this occurs, the dog 40, acting upon the incline 65 of the wing moves said wing laterally upon its hinge out of the pathway of the dog, whereupon the carrier is restored to its normal position. A very slight further forward and downward movement of the actuator permits the coin to be discharged from the slot therein into the chute 50, through which it falls into the coin receptacle 4.

Each of the carriers is so disposed as to initiate the action of a registering and signal mechanism in a manner to indicate the relative value of the coin, after the discharge thereof into the coin receptacle. In order to operate these devices, we provide what we term a secondary actuator. Journaled upon the shaft 14, Figs. 3 and 10, is a sleeve 65^a, to which is attached or integral with which is a disk 66, also shown in Figs. 4 to 7 inclusive. Integral with said disk, and extending laterally therefrom is a projection generally designated by 67, which is parallel with the shaft 14, the periphery of which projection is curved to conform to the curve of said disk, the part thereby forming a fragment of a hollow cylinder, cut away to form a series of shoulders 68, 69 and 70, which, as shown more clearly in Fig. 3, are of such length and so disposed respectively as to lie in the path of movement of the tilting carriers 25, 26 and 27 in the order given. The sleeve 65^a is loose upon the shaft and is yieldingly held in a normal position by means of a coiled spring 71, one terminal of which is attached to the disk and the other to a pin 72, Figs. 3 and 10, upon the case. The shoulder 68 is held normally, by means of said spring against the front face of the carrier 25, which in turn is limited in its backward movement by means of the stop-bar 32^a, as stated, so that said carrier not only serves as a stop to limit the backward movement of the disk, but may be utilized to move said disk forward as hereinafter stated, against the action of the spring 71. The shoulders 68, 69 and 70 stand in different radial planes, and hence it follows that, while the secondary actuator begins to move as soon as the carrier 25 is started, by reason of the contact of the latter with the shoulder 68, the movement of the carrier 26 does not affect said secondary actuator until it is brought into contact with the shoulder 69, and the carrier 27 requires a still further movement, which is almost the full limit of its travel, before being brought into contact with the shoulder 70, so that were the several carriers to be actuated in turn to the extent necessary to discharge a coin, the first would impart a maximum movement to the disk while the second would impart substantially two-fifths, and the third one-fifth of that movement. When a coin is deposited within and discharged from any given carrier the secondary actuator is moved proportionately and when the coin is ejected from the carrier the secondary actuator is returned to its normal position by the action of the spring 71. It is desirable to produce a relatively slow return movement of the disk in order that the signals caused thereby, as hereinafter described, may be readily distinguished. For this purpose we provide a dash-pot 66^a, better shown in Figs. 7 and 10, of well known construction, the piston rod 66^b of which is connected with a wrist-pin 66^c attached to said disk.

Projecting radially from the disk 66 are five pins 73, separated at predetermined distances from each other, each pin being intended to represent the value corresponding to a five-cent coin, one or more of said pins being moved into contact with a recording mechanism according to the extent of movement of the secondary actuator, which will be again referred to after describing the recording mechanism.

Secured within the casing 1 is a framework 74, better shown in Figs. 3 and 8 to 10 inclusive, in which is provided a stud 75 for holding a tape roll 76, the strip or tape from which is conducted preferably through a guide 77 and thence between rollers 78, 79, Fig. 9, the former of which acts as a platen while the latter is a printing roller mounted rigidly upon a shaft 80, and having suitable characters or marks upon its periphery to mark the tape 76 as the latter is fed thereto An inking roller 81 of absorbent material, is held against the printing roller by means of a spring controlled arm 82. A ratchet wheel 83 is attached to the end of the printing roller which is prevented from backward movement by means of a spring controlled pawl 84 secured to the frame.

Rigidly attached to the outer end of the shaft 80, is a lever 85, better shown in Fig. 7, the lower end of which is connected by means of a spring 86 to a stationary point upon the frame, which spring serves to hold said lever in a normal position against a stop 87 upon the frame. The upper arm of said lever is provided with a longitudinal bore into which is inserted a bolt or dog 88 adapted to be projected by means of a coiled spring 89. A pin 90 is secured in said bolt to limit its outward movement, said pin being inserted through a slot 91 which permits the bolt to be retracted. A pawl 92, Figs. 7 and 9, is pivotally secured to the inner face of the

lever, a pin 93, upon which pawl is engaged by a spring 94 upon said lever, which serves to press the pawl into engagement with the teeth of the ratchet-wheel 83.

Each of the radial pins 73 upon the disk 66 is beveled at the end as shown at 95, and is provided with an inclined acting face 96, while the bolt 88 in the lever 85 is constructed in like manner with a beveled end 97 and an inclined acting face 98, it being noted, however, that these features are reversed in said bolt with respect to the position of those upon said pins. The bolt 88 is in the path of movement of the pins 73, when the disk is rotated; and, during the forward movement of the latter, the beveled parts 95 of the pins are adapted to engage the corresponding part 97 of said bolt thereby pushing the bolt into its socket against the action of the spring 89, thus permitting the passage of one or more pins in succession, according to the extent of movement of said disk, without actuating the lever 85. Upon the discharge of the coin, however, the primary actuator is released and the disk 66 is returned, as described, to its normal position by the action of the spring 71. The faces 96, of whatever pins 73 have been moved past the bolt 88 are thus successively brought into engagement with the face 98 to the bolt, and inasmuch as the power of the spring 71 is greater than that of the spring 86, Fig. 7, the lever 85 is actuated thereby, causing the pawl 92 to move the ratchet wheel forward a distance corresponding to one tooth, thus rotating the printing roller 79 and moving the tape 76 one step. It follows, therefore, that with each reverse movement of the secondary actuator, the recording tape will have advanced one step for each pin 73 brought into engagement with the bolt. Should a quarter be deposited, the primary actuator is moved forward to its full limit, thereby causing five pins to pass the bolt. The reverse movement, therefore, causes the lever 85 to vibrate five times, thus feeding the tape forward five steps and causing five marks to be made thereon by the printing roller. Were a dime or nickel to be deposited, the movement and marks would correspond to their respective values.

The signal device is actuated by means of the lever 85, and is constructed as follows: Pivoted at 99, Fig. 8, upon a screw which passes through a brace 100, rigidly attached to the plate 2, is a lever 101, which is yieldingly held in normal position against a stop 102 by means of a coiled spring 103, one terminal of which is held against a stationary pin 104, while the other is in engagement with a like pin 105, upon said lever. A spring controlled bolt 106 like the bolt 88, is movably secured in like manner within a bore formed in one end of said lever, said bolt being located in the path of movement of a pin 107, rigidly attached to and projecting laterally from the lower end of the lever 85. Jointedly attached to the free end of the lever at 108, is an arm 109, having a hammer 110, upon its opposite end in close proximity to but separated from a bell 111, supported upon the plate 2, by means of a suitable stud. The joint between said arm and lever is provided with shoulders 112 to limit its movement in one direction, while a spring 113, having its terminals connected with said lever and arm respectively, serves to retain said arm in normal relation to the lever and to hold the hammer out of contact with the bell. When the lever 85 is actuated the pin 107 is brought into engagement with the bolt 106, thereby moving the lever 101 against the resistance of the spring 103 until the pin slips off from said bolt and releases the lever which is returned against the stop 102 by the retractile force of the spring. The inertia of the hammer 110 causes it to overcome the resistance of the spring 113 when the hammer strikes the bell and is then returned to its normal position out of contact therewith. The object of this construction is to insure one clear stroke of the bell for each forward movement of the lever 85. The backward movement of said lever causes the bolt 106 to be retracted against the action of its spring to permit said lever to be returned to its normal position. It will thus be seen that for each movement of the lever 85 in a given direction the tape 76 is fed forward one step, a record mark is printed thereon and a signal is given upon the bell. There remains to be described the manner in which the record strip or tape is severed and deposited within the coin receptacle, and the character of the record therein.

Rigidly attached to the frame 74 by means of a projection 114, Figs. 8, 9 and 11, is a tape guide 115, the lower end of which is projected through an opening in the plate 2 into the chamber containing the cylindrical coin receptacle 4. The inner faces of the walls of said guide are arranged to converge downwardly leaving just sufficient space at the lower end for the passage of the tape. Upon the lower end of the forward wall 116 is formed serrations 117, which are in the path of movement of and register with corresponding serrations in an upwardly projecting lip 118, upon a plate 119, better shown in Fig. 7, attached to the interior of the cylinder 4.

With each coin deposited in the coin receptacle, a section of tape corresponding to the value of the coin, is likewise deposited, and when, in the act of opening the coin receptacle and as a result thereof, the serrations upon the lip 118 are moved past the corresponding serrations 117, the section of tape projecting downwardly through the guide is

severed thereby and is free to be removed therefrom with the coin, while access to the remaining portion of the tape is effectually cut off by the intervention of that portion of the cylinder back of the opening 7, which is moved forward to shield the tape guide. In order to identify the section of tape removed, with the machine from which it is taken, I cause each machine to bear a distinctive number or character which number is placed upon the printing roller and is stamped upon the tape during its passage.

Each character upon the printing roller represents a unit corresponding to the lowest coin value; and hence any mark such as a dot or a dash, may be sufficient, but in order that the marks may be readily counted, I make every tenth and twentieth mark distinctive. For example, in Fig. 12, I have shown a section of tape as it would appear when marked by the printing roller. After every ninth mark, I place a cross regardless of what the intervening marks may be. Adjacent to every alternate cross I place the number of the machine. This enables the auditor to count the marks by tens or twenties, instead of going over them separately. In the example given, 35 is assumed to represent the number of the machine; but in verifying the count, each numeral stands, like a dash or a cross, as representing a unit of value. In glancing at the fragment of tape indicated, one commencing at the bottom would see, that there are less than ten marks to the first cross; counting them with the numerals "35" and first cross, he sees that there are five; he then skips to the last cross and seeing that it is also adjacent to a machine number, he adds twenty. Beyond this is a single dash, which, added to the preceding, aggregates 26. In this manner the marks upon a long tape may be counted with rapidity and accuracy.

Inasmuch as the entire mechanism is automatic, it follows that the section of tape deposited with the coin must give an accurate record of the unit value of such coin; but fraud might be committed by severing a portion of the tape and accounting only for sufficient coin to correspond to the marks upon the remainder. Such deception would be prevented by causing to be printed, preferably upon the back of the tape, a series of consecutive numbers, as shown in Fig. 13, so close together that no portion could be removed without detection. It will be seen, therefore, that our improved device affords an effective check against fraud in that it would insure accurate returns to be made of all coins taken from the receptacle together with a reliable voucher therefor, while unauthorized persons could not manipulate the machine to modify or change the coin-handling, signaling or recording mechanism.

Having thus described our invention, we claim:

1. The combination with a coin receptacle, of a registering tape or strip protected against unauthorized manipulation, means for automatically feeding the same step-by-step into said coin receiving receptacle, each step representing a predetermined unit of coin value, a primary inclosure having a plurality of coin-slots for the insertion of coins of different values to initiate their deposit in said coin receptacle, means in operative proximity to said slots for transferring coins therefrom respectively to said coin receptacle, and means in operative connection with said coin transferring means, for actuating said registering tape one step for each unit of value of each coin deposited.

2. The combination with a coin receptacle, of a registering tape or strip protected against unauthorized manipulation, a locked or sealed inclosure, means for intermittently feeding a predetermined portion of said tape into said locked or sealed inclosure, with each impulse of the feeding mechanism, such impulse representing a unit of coin value, a plurality of coin openings for the insertion of coins of different denominations, means for transferring said coins to said coin receptacle and means for imparting one or more forward movements to said intermittent feeding mechanism with each coin deposited, the number of said movements being determined by the value of the coin in units, assuming the coin of smallest value provided for to represent one movement.

3. The combination with a coin receptacle, of a coin registering mechanism inclosed within a locked or sealed inclosure, said mechanism consisting of a registering tape, means for feeding said tape out of said inclosure through a restricted aperture into a secondary locked or sealed inclosure constituting said coin receptacle, means for receiving and transferring coins of different values through said primary locked or sealed inclosure to said coin receptacle, and means for automatically imparting one or more impulses to said tape feeding mechanism, according as a coin representing one or more units of value is deposited therein.

4. The combination with a coin receptacle adapted to receive coins of different denominations, of a coin registering mechanism inclosed within a primary locked or sealed inclosure, said mechanism consisting of a registering tape, means for feeding said tape step-by-step out of said primary inclosure through a restricted aperture into a secondary locked or sealed inclosure constituting said coin receptacle, means for receiving and transferring coins of different values through said primary inclosure to said coin receptacle, means for imparting one or more impulses to

said tape feeding mechanism according as a coin representing one or more units of value is deposited therein, and means for severing said tape and shielding said aperture when said coin receptacle is opened.

5. A device of the class described, in which is combined within a locked or sealed inclosure a plurality of independently movable coin-carriers, a normally inert primary actuating mechanism common to all of said carriers, said mechanism being arranged to be connected with any one of said carriers, by means of a proper coin, a separate coin receptacle common to all of said carriers, a secondary actuating mechanism arranged to be moved to a predetermined extent by each of said carriers, independent means for returning an actuated carrier and said secondary actuating mechanism to their respective normal positions after the release of a coin from the carrier, and means controlled by said secondary actuating mechanism for producing a record of the value of said coin and conveying the same to said coin receptacle.

6. A device of the class described, in which is combined within a locked or sealed inclosure a series of independently movable coin carriers, primary actuating mechanism common to all of said carriers but connectible therewith only by the intervention of a proper coin, a separate coin receptacle common to all of said carriers, means for preventing a backward movement of an actuated carrier prior to the release of the coin therefrom, a secondary actuating mechanism arranged to be moved by any one of said carriers but to different degrees corresponding to the value of the coin represented by any given carrier actuated, independent means for returning said elements to their respective normal positions after the release of a coin from the carrier, and means set in motion by said secondary actuating mechanism for producing a record of the value of each coin and conveying said record to said coin receptacle.

7. A device of the class described, in which is combined within a sealed or locked inclosure, a plurality of independently movable coin-carriers, primary actuating mechanism operated from without, common to all of said carriers but connected therewith only by the intervention of a proper coin, a separate coin receptacle in operative communication with said carriers, means for preventing a backward movement of an actuated carrier prior to the release of a coin therefrom, a secondary actuating mechanism movable by any one of said carriers but to different degrees corresponding to the relative value of the coin represented by the given carrier actuated, independent means for returning said elements to their respective normal positions after the release of a coin from the carrier and means controlled by said secondary actuator for operating a signal one or more times to indicate the value of a deposited coin.

8. A device of the class described in which is combined within a sealed or locked inclosure, a plurality of independently movable coin-carriers, coin-slots registering therewith, primary actuating means operated from without common to all of said carriers but connected therewith only by the intervention of a proper coin, means for closing said coin-slots when said primary actuator is in an abnormal position, a separate coin receptacle in operative communication with said carriers, means for preventing a backward movement of an actuated carrier prior to the release of a coin therefrom, a secondary actuator movable by any one of said coin-carriers but to different degrees corresponding to the relative value of the coin represented by any given carrier actuated, and signal mechanism operated by said secondary actuating mechanism after the discharge of a coin.

9. A device of the class described, in which is combined within a sealed or locked inclosure, a plurality of independently movable coin carriers, coin-slots registering therewith, primary actuating means operated from without common to all of said carriers but connected therewith only by the intervention of a proper coin, a separate coin receptacle in operative communication with said carriers, means for preventing the backward movement of an actuated carrier prior to the release of a coin therefrom, a secondary actuator movable by any one of said coin carriers but to different degrees corresponding to the relative value of the coin represented by any given carrier actuated, and a registering and signal mechanism operated by said secondary actuating mechanism after the discharge of a coin.

10. A device of the class described, in which is combined within a sealed or locked inclosure, a plurality of independently movable coin-carriers, a primary actuator operated from without common to all of said carriers, said actuator being arranged to be connected with any one of said carriers by means of a proper coin, a separate coin receptacle common to all of said carriers, a secondary actuating mechanism arranged to be moved to a predetermined extent by each of said carriers, independent means for returning an actuated carrier and said secondary actuating mechanism to their respective normal positions after the release of a coin from the carrier, a registering tape in said locked inclosure arranged to move through a restricted aperture into said coin receptacle, means for intermittently feeding said tape therein, and means for imparting motion thereto by said secondary actuator whereby the extent of movement of the latter corresponding to the value of a given coin deposited may cause said tape to be fed one or more steps.

11. In a device of the class described, the combination of a primary actuator operated from without, of a plurality of independently movable coin-carriers, each operatively connectible with said primary actuator by means of a coin of a given value, a separate coin receptacle, a secondary actuator yieldingly held in a predetermined normal position, said secondary actuator having a projection common to, and lying in the path of movement of all of said carriers but so adjusted relatively thereto, that the carrier for a coin of maximum value will move it to its full limit while others will actuate it correspondingly in proportion to the respective values of the coins carried thereby, and a coin registering mechanism operated by the return movement of said secondary actuator for feeding a registering tape into said coin receptacle.

12. In a device of the class described, the combination with a plurality of independently movable coin-carriers yieldingly held in a normal axial position upon a common shaft, an actuator operated from without, said actuator being arranged to move in an arc concentric with that described by the outer ends of said carriers, slots in said actuator into which coins may project when resting in said carriers, means for positively ejecting a coin from any given carrier when it reaches its limit of movement, a secondary actuator common to all of said carriers, movable by each to a predetermined extent, the ratio of such movement bearing a proportionate relation to the unit of value of the coin carried thereby, independent means for returning said actuators and carriers to their respective normal positions, a separate coin receptacle, a registering tape adapted to be fed therein, and means for actuating said registering tape by said secondary actuator to an extent proportionate to the movement of the latter upon the deposit of each coin.

13. In a device of the class described, the combination with a plurality of independently movable coin-carriers yieldingly held in a normal axial position upon a common shaft, an actuator operated from without, the body of said actuator being arranged to move in an arc concentric with that described by the outer ends of said carriers, slots in said actuator into which coins may project when resting in said carriers, spring controlled dogs upon the rear ends of said carriers and corresponding pivotal yielding wings having curved serrated forward edges adapted to engage said dogs during a predetermined portion of their forward movement and to thereupon yield laterally to permit a return movement of said dogs.

14. In a device of the class described, the combination with a plurality of independently movable coin-carriers yieldingly held in a normal axial position upon a common shaft all inclosed within a locked or sealed inclosure, of an actuator operated from without, the body of said actuator being arranged to move in an arc concentric with that described by the outer ends of said carriers, a plurality of coin slots in the inclosing case, slots in said actuator into which coins may project when resting in said carriers, said slots being normally in registration with those in said case, and an independent, spring actuated, pivoted shield for closing the slots in said case when the actuator is moved to discharge a coin, said shield being held in an inoperative position by said actuator when the latter is in its normal position.

15. In a device of the class described, the combination with a plurality of independently movable coin-carriers yieldingly held in a normal axial position upon a common shaft, said carriers having longitudinal slots therein, of an actuator operated from without, the body of said actuator being arranged to move in an arc substantially concentric with that described by the outer ends of said carriers, slots in said actuator into which coins may project when resting in said carriers, coin-ejectors consisting of curved arms pivoted eccentrically to the axis of said carriers and adapted to enter the same and move outwardly as the carrier is tilted, and means for returning said arms to normal positions.

16. In a device of the class described, the combination of a series of obliquely disposed independently tilting coin-carriers adapted to be operatively connected with a primary actuator by means of an interposed coin, said carriers having vertical, longitudinal slots, of a series of spring controlled coin ejectors pivoted eccentrically to the axis of said carriers and having their outer ends arranged to enter said slots when said carriers are tilted.

17. The combination with a series of independently movable coin-carriers of a series of eccentrically pivoted, spring actuated coin ejectors arranged to return said carriers to their respective normal positions.

18. The combination with a coin receiving device, of a registering tape adapted to be fed into a coin receptacle, of means for automatically severing said tape and shielding the unused portion when the receptacle is open.

19. The combination with a coin receiving device, of a registering tape protected from unauthorized manipulation, means for feeding said tape into the coin receptacle, and means for automatically severing the advanced portion and shielding the remainder when the coin receptacle is opened.

20. The combination with a coin receiving device, of a registering tape protected from unauthorized manipulation, said tape having

a series of ordinate characters extending throughout its length, means for feeding a portion of said tape into said receptacle with the deposit of each coin, means for automatically printing upon said tape a predetermined character with each movement thereof, and means for automatically severing said tape as the coin receptacle is opened.

In testimony whereof, we have signed this specification in the presence of two subscribing witnesses, this 20th day of June, 1904.

FRANK D. POWELL.
CHARLES S. ELLIS.

Witnesses:
D. H. FLETCHER,
C. E. JORDAN.