No. 870,214. PATENTED NOV. 5, 1907.

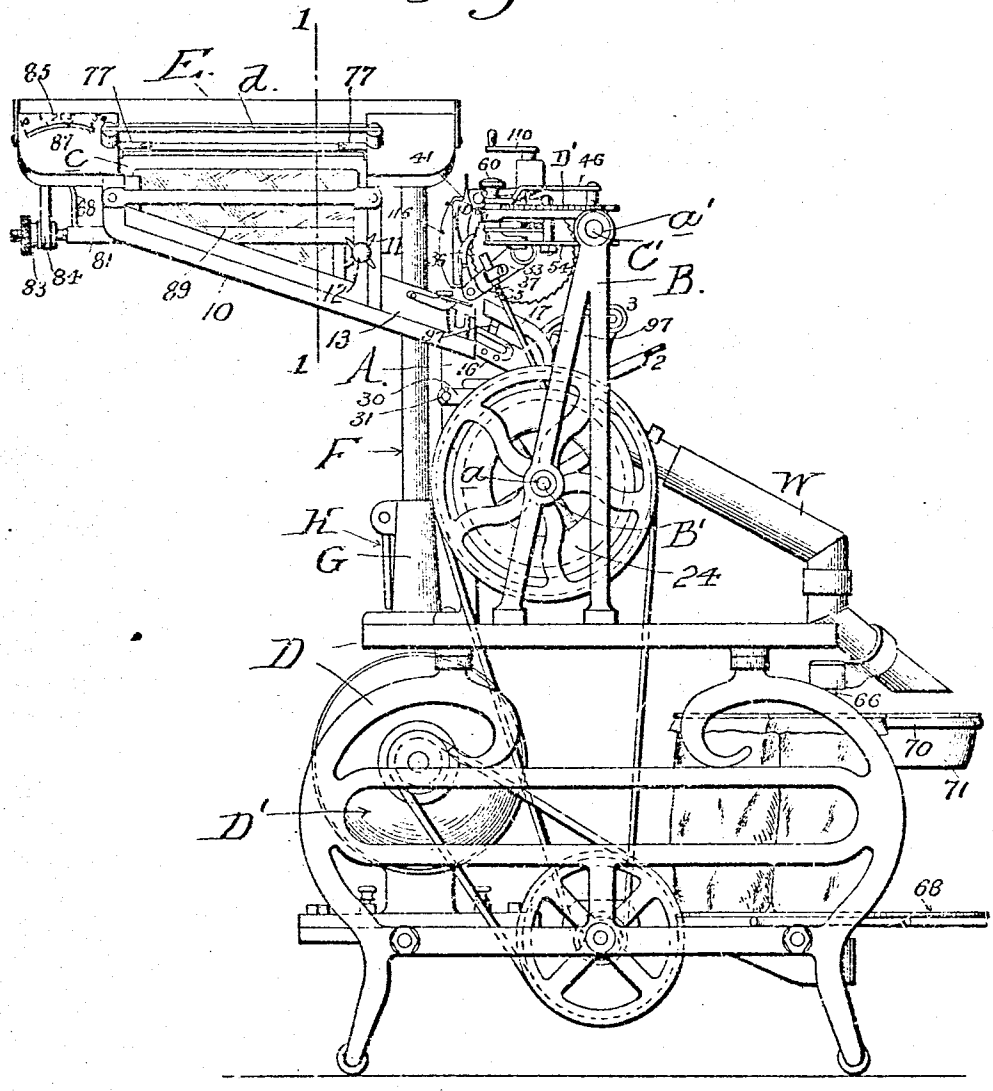
C. S. BATDORF.

COIN COUNTING, REGISTERING, AND BAGGING MACHINE.

APPLICATION FILED JAN. 12, 1904.

5 SHEETS—SHEET 1.

Fig. 1.



WITNESSES.

C. H. Walker.

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Charles S. Batdorf

By

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His Attorney

No. 870,214. PATENTED NOV. 5, 1907.

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6 SHEETS—SHEET 2.

Fig. 10.

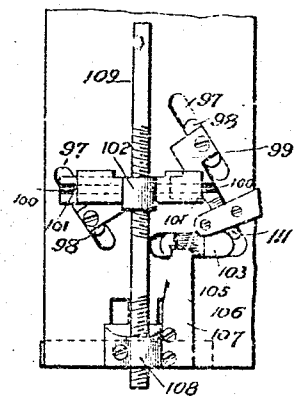


Fig. 2.

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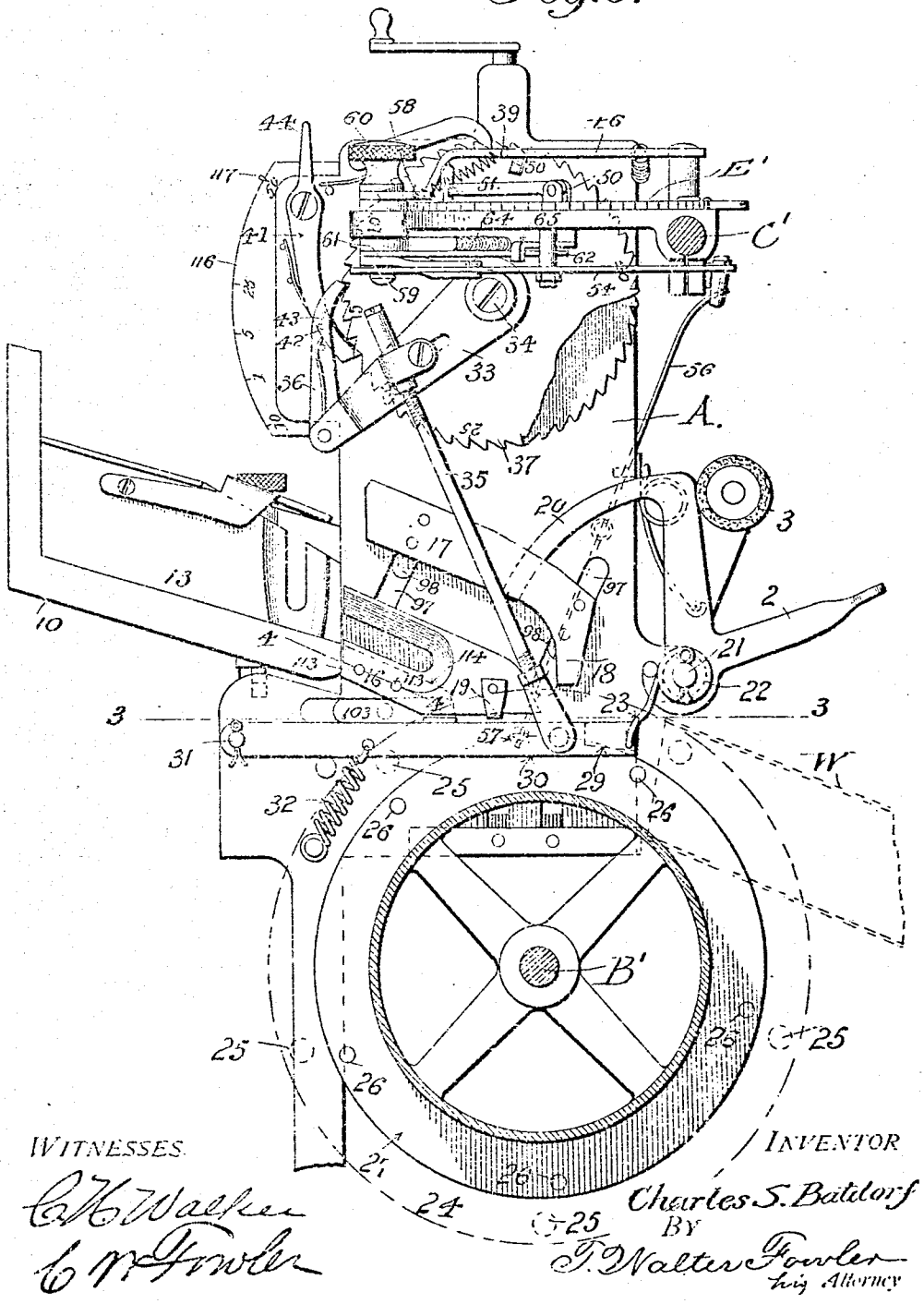
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5 SHEETS—SHEET 3.

Fig. 3.



WITNESSES.

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5 SHEETS—SHEET 4

Fig. 4.

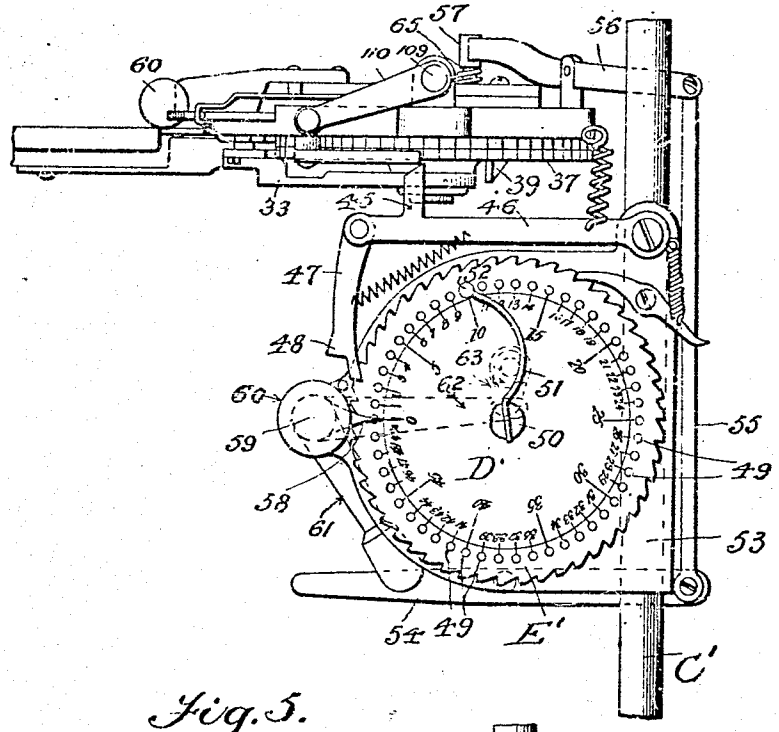
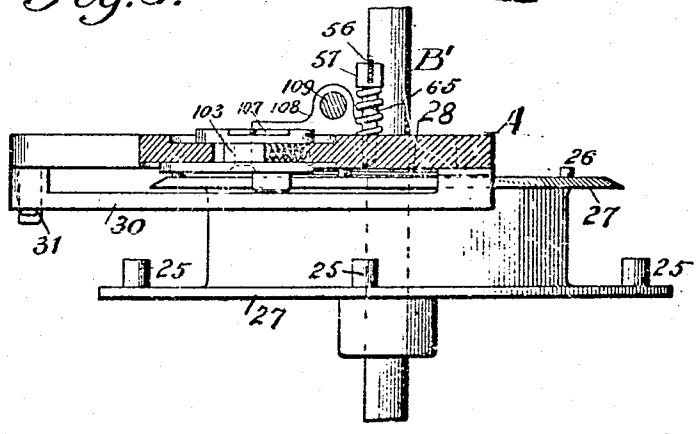


Fig. 5.



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5 SHEETS—SHEET 5.

Fig. 7.

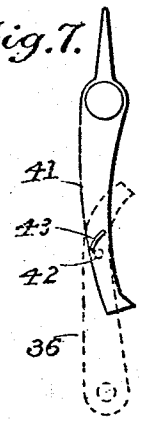


Fig. 6.

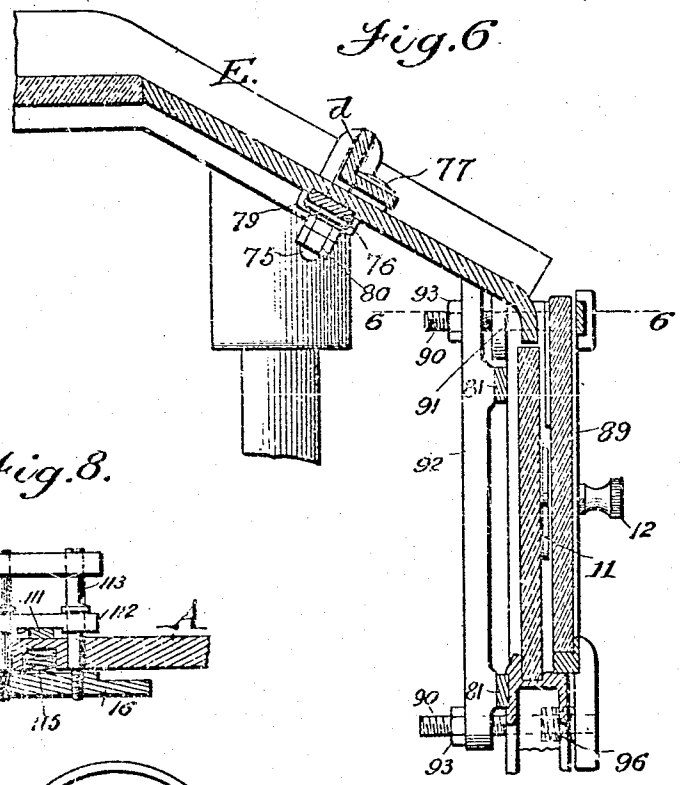


Fig. 8.

Fig. 11.

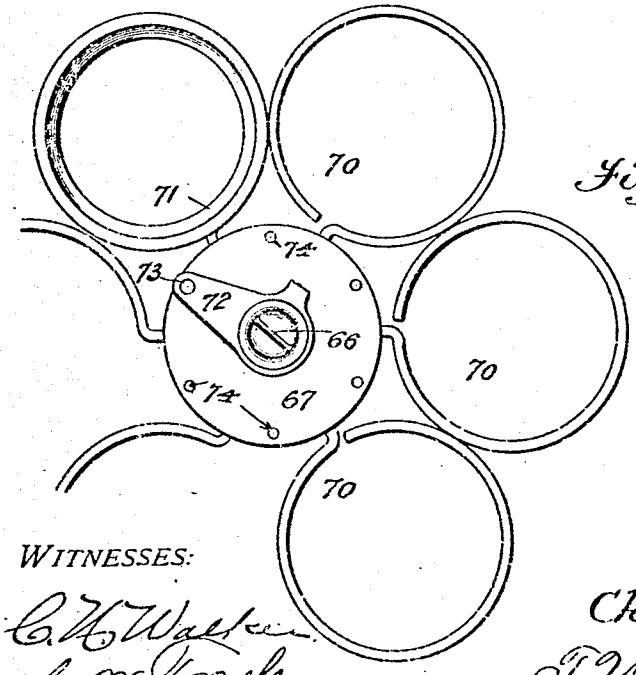
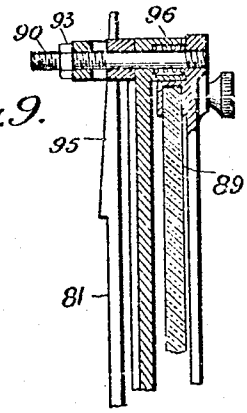


Fig. 9.



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UNITED STATES PATENT OFFICE.

CHARLES S. BATDORF, OF BROOKLYN, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO UNIVERSAL COINWRAPPING MACHINE COMPANY, A CORPORATION OF NEW JERSEY.

COIN COUNTING, REGISTERING, AND BAGGING MACHINE.

No. 870,214. Specification of Letters Patent. Patented Nov. 5, 1907.

Application filed January 12, 1904. Serial No. 188,689.

To all whom it may concern:

Be it known that I, CHARLES S. BATDORF, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Coin Counting, Registering, and Bagging Machines, of which the following is a specification.

My invention relates to a new and useful machine designed particularly for automatically counting coins and depositing the desired number of coins of predetermined value into receptacles or bags, said machine being, preferably, so arranged and designed as to be of universal application in that it is capable of such adjustments that coins of different sizes and values may be passed through the machine and successfully and accurately counted, and the required amount deposited into an appropriate bag or receptacle, and the number and value of the coins thus acted upon definitely and accurately ascertained. Provision is also made for preventing the passage through the machine, in each of its adjustments, of any but coins of a given size and value, and when the desired amount is deposited, the passage through the machine of the final coin of such number results in the speed of the driving mechanism being stopped and the further feed of coins instantly checked.

My invention consists, essentially, of a coin counting machine wherein the coin conductor is capable of adjustment to increase and decrease its vertical height to correspond to the diameter of the coins to be counted; also where said conductor is capable of adjustment to increase and decrease its width to correspond to the thickness of the coins to be counted.

My invention also consists, essentially, of a coin distributing table having a gage beneath which the coins pass, capable of adjustment to correspond to the thickness of the coins to be delivered to the coin conductor; and of a hopper portion of the table leading to or forming a part of the coin conductor and capable of adjustment laterally to correspond to the thickness of the coins to be passed therethrough.

My invention further consists, essentially, of a means for temporarily supporting each coin and in a force feed mechanism for depositing said coin into the range of action of a coin advancing mechanism, and in said coin advancing mechanism delivering the coin from the machine.

My invention further consists, essentially, of a rotatable coin advancing means, and means having a coordinate movement therewith for operating the force feed mechanism; and of registering or counting mechanism actuated by the delivery of each coin by the coin advancing means.

My invention also consists, essentially, of a transfer mechanism actuated by the registering or counting devices and of means operating in connection therewith for cutting out the motor and removing the power from the machine, and simultaneously impeding the further progress of coins through the coin conductor.

My invention also consists, in connection with the aforesaid mechanisms, of bag holding appliances and a coin chute or delivery means leading from the coin conductor to the said bags.

My invention also consists of the parts and the constructions and combinations of parts, which I will hereinafter describe and claim.

In the accompanying drawings forming part of this specification and in which similar letters of reference indicate corresponding parts,—Figure 1, is a side elevation of a coin counting, registering and bagging machine embodying my invention. Fig. 2, is a similar view looking towards the opposite side of the machine and showing the table in section. Fig. 3, is an enlarged side elevation of the coin advancing mechanism and the registering mechanism. Fig. 4, is a top plan view of the registering devices. Fig. 5, is a horizontal section on the line 3—3 of Fig. 3. Fig. 6, is a vertical section of the table and receiving end of the coin conductor, on the line 1—1 of Fig. 1. Fig. 7, is a detail of the pawl 41 with the coacting pawl 36 in dotted lines. Fig. 8, is a horizontal section on the line 4—4 of Fig. 3. Fig. 9, is a horizontal section of a part of the receiving end of the coin conductor, on the line 6—6 of Fig. 6. Fig. 10, is a detail illustrating the means for adjusting the coin passage. Fig. 11, is a plan view of the bag holding device.

The proper counting and handling of the large number of coins obtained from the extensively used slot machines, or coin actuated machines which vend articles or give information or some other return upon the deposit of a coin of predetermined size or value into the machine, and from department and other stores, street railways, banks and other depositories of money, is a heavy task and necessitates the employment of clerks or others for the purpose, and such persons, unless skilled in counting often find it difficult to continue the counting for any great length of time without experiencing great fatigue, while errors are likely to arise, and do arise, because of a miscount.

Money in the shape of coins is generally brought to the bank or other depository in bags and is also paid out, when wanted for change, in bags, the coins being counted both before and after receipt by the bank. To meet the conditions before noted and to facilitate the easy and accurate handling of coins and to automatically register the total number of coins handled and to deposit said coins in predetermined amounts in receptacles or bags convenient for commercial uses, I have devised the present invention which aims to dispense with the slow, laborious and expensive hand

manipulation heretofore practiced and perform the entire labor automatically and in a rapid, efficient and thoroughly satisfactory manner.

In carrying out my invention I employ a frame work of any desired and appropriate form and material and which frame may include a vertical standard or upright portion A located near the center of the machine, and suitable side standards B, which latter are provided with upper and lower journal bearings *a a'*, for the transverse shafts B', C', as shown in Figs. 1 and 2.

The frame is preferably mounted upon a table or stand D of some ornamental and attractive character which serves to support the bag holding devices, which I will hereinafter describe, and also supports the motor D' which furnishes the power for running the machine. This motor is herein shown as of a well known form operated by an electric current from any suitable source, but the specific character of the motor is unimportant and said motor might be dispensed with, when using the counting and registering devices in a hand operated machine; but for practical purposes and especially to obtain high speed and rapid handling of the coins I prefer a high-speed motor and one of the electric type.

The coins having first been sorted by any of the methods now in vogue to separate those of a like size and value from others of different sizes and values, are dumped upon the distributing table E which is preferably made with a surrounding rim to properly retain the coins upon the table; and said table may have its bottom made of glass or other hard smooth material to facilitate the rapid movement of the coins thereover on the way to the coin conductor. I also make that side of the table nearest to the conductor sufficiently inclined, as at *e*, to cause the coins fed thereon to slide unassisted and by gravity into the hopper end, so called, of the coin conductor. Before entering the coin conductor, each coin is, preferably, caused to pass beneath a gage which is designed to allow coins of a predetermined thickness and value to pass the same said gage, as herein shown, consisting of a transverse horizontal bar or plate *d* whose under side is so positioned relative to the upper surface of the inclined portion of the table over which the coins glide, that true coins of a certain size and denomination may escape this bar while bent or irregular coins of this same size and value and coins of greater thickness and increased value will be held back from passage to the machine and may be discarded. The table and gage bar also enable the operator to employ the senses of sight and touch in detecting counterfeit coins thus following closely the methods usually adopted by banks and depositories of money for detecting counterfeit specimens and preventing their being associated with good coins.

The table is provided with a post or support F which removably fits a socket or holder G on the frame and is turnable therein, and may be swung over the machine out of the way, and serve as a protection therefor, when the said machine is not in use, said table, in either of its positions, being held by a clamping or other holding device as at H.

The inclined side of the table has connected with it what I term the hopper end of the coin conductor said hopper consisting of an inclined bottom 10 upon which the edges of the coins roll and two vertical sides separated from each other sufficiently to allow the coins to drop edgewise between them to the bottom, said sides being, if desired, made of glass or other transparent material to enable the coins received into the hopper to be observed. In some instances, as when feeding the coins with great speed, there is a possibility of the coins at the discharge end of the hopper overlying each other edgewise and when this happens the lowest coin is retarded in its progress to the conductor by a coin or coins resting upon it, and to meet this condition, which is observable through the transparent sides of the hopper, and to relieve the obstructed coins by displacing the one, or more, resting upon it, I provide means for agitating the obstructing coins, to allow the temporarily obstructed coin to enter the coin runway and proceed to the counting devices. Any means for agitating the coins will suffice for my purpose, and as a simple and effective means I show a star wheel 11 journaled between the inner sides of the hopper near the outlet thereof and having an exterior button or finger piece 12 by which the wheel may be rotated to cause its points to strike and dislodge a coin resting upon the coin held at the entrance to the coin runway.

The coin hopper is preferably, though not necessarily, constructed with an inclined extension which forms a part of the coin runway, as shown at 13, another inclined portion of said runway being supported upon the frame standard, the two parts mentioned being in line and forming a single runway along which the coins roll after leaving the hopper proper. To enable the table and the hopper portion of the coin conductor, which latter term I will hereafter use to designate generally the entire portion through which the coin travels after leaving the table, to be turned around out of the way when the machine is not in use, I provide a separable connection at the point 14, and I secure this joint with the two parts of the coin conductor longitudinally in line to form a continuous channel for the coin, by means of a spring-pressed locking pin or bolt 15 on one part engaging a lug or socket in the other part; or I may use for this purpose any other and well known and appropriate fastening. The lower member of the divided coin conductor includes a bottom plate 16 on which the edge of the coin rolls and an upper plate 17 whose lower end has a downwardly curved portion 18 against which the front edge of the coin strikes and by which the further travel of the coin in its first or inclined direction is interrupted and by which the travel of the coin is diverted vertically to bring it into the range of action of the coin advancing mechanism, which I will presently describe. The lower portion of this part of the coin conductor has its end also removed far enough from the curved wall 18 of the companion member to form the vertical passage through which the coin is to be ejected to position it for final delivery by the coin advancing mechanism. The coin is supported in or above the said vertical passage by means of a spring plate or finger 19, or equivalent means, and it is delivered therefrom and ejected through the passage by means of a force feed mechanism which may be varied in character but which is herein shown as including an oscillating arm 20 mounted upon a stud 21 and having its end to operate substantially in the vertical plane of

the coin while supported by the spring member 19 whereby when the arm is oscillated its end strikes the top edge of the coin and forces said coin past the spring member 19 said coin then dropping into the range of action of the coin advancing means.

The oscillating arm 20 is connected with an arm 2 which contacts with a buffer 3 and said arm 20 is connected with one end of a spring 22 which is shown as coiled upon the stud 21 and having its opposite end extended as at 23; and the said arm 20 is actuated periodically in a downwardly swinging direction by the extended end 23 of the arm being struck by projections on a rotary member fixed to the shaft B'. This rotary member may be of different forms, it only being important that it shall be capable, during its rotation, to successively cause the oscillation of the arm 20; and to obtain the desired speed in handling the coins the member 19 should be constructed to impart a number of oscillations to the arm during a single rotation of said member. As shown, the rotating member consists of a disk 24 whose hub is fixed to the shaft B' said disk having a number, say five, of pins or projections 25, which operate in the path of projection of the extension or arm 23 and successively engage the same and rock the arm 20 each time a pin or projection passes. The return movement of the arm is produced by the spring 22, which is partially coiled when the arm is forced downward by the passing pin. The rotating member 24 also carries a second series of pins or projections 26 which, in the specific form of device illustrated, project from a second disk 27 rigid with the first-named disk; and when the coin is ejected through the vertical part of the coin passage, it drops into a horizontal portion 28 of the passage and lies in the range of action of the pins or projections 26, and when one of these pins meets the back edge of the coin during the rotation of the disk or rotatable member, it causes the coin to be advanced in a horizontal direction. During this advance of the coin the latter is brought into contact with an inclined or cam portion 29 on the front end of a bar 30 pivoted at 31 and normally held down by a spring 32; and as the coin is forced under the cam end of this bar 30 said bar is lifted against the pressure of its spring. The bar 30 is connected with an arm 33 on a shaft 34 in the upper portion of the machine, by means of a rod 35, said arm 33 carrying a spring-pressed pawl 36 adapted to engage the teeth of the ratchet wheel 37 whereby said wheel is advanced one tooth each time a coin is forced under the free end of the bar 30.

The wheel 37 is the register wheel and its surface is divided into as many parts as may be desired. For the sake of illustration I will suppose the wheel to have fifty teeth and its surface to be divided into fifty parts indicated in the manner common to register wheels; and on the wheel opposite the fifty mark I locate a cam-shaped lug 39 which serves to transfer the final count of the wheel to a second register which I will presently describe. The ratchet wheel 37 is formed with two ratcheted surfaces on its periphery with the ratchets reversed, and the pawl 36 successively engages the teeth of one of these surfaces to advance the wheel one point or tooth each time a coin is advanced beneath the bar 30, a retaining pawl 40 also engaging this same series of pawls as shown.

To prevent the possible overthrow of the register when the machine is counting fast I employ the second series of ratchets on the wheel 37 and I engage these by a second or locking pawl 41 whose prime function is to lock the register wheel against being moved a distance of more than one tooth by the lifting pawl 36, and the parts are so related that the movement of the lifting pawl is used to release the locking pawl from the wheel when said wheel is being advanced one point, and to allow the locking pawl to resume normal position and lock the wheel at about the time the lifting pawl has moved the wheel one tooth in advance. To accomplish this purpose, the lifting pawl has upon its inner face a lug 42 which engages a lug 43 on the adjacent face of the locking pawl; and in normal position both pawls are engaged with their respective ratchets and when the lifting pawl is moved by the advance of a coin its lug 42 first rides past the lug 43 on the pawl 41 and lifts this latter pawl out of its ratchet surface and thereby allows the register to be moved by the continued movement of the lifting pawl. Just as the lifting pawl has about made its full movement and the register has been advanced one tooth, the lug of said pawl escapes past the lug on the locking pawl thereby allowing the spring of the latter to project said locking pawl into engagement with its ratchet surface thus holding the register from further movement. With both pawls engaging the ratchets, the register cannot be moved in either direction, nor can the register be advanced until the locking pawl is first released. The locking pawl has a finger piece 44 which enables this pawl to be lifted out of the ratchet to allow the register to be freely turned for resetting and like purposes.

On top of the machine and preferably supported on the upper shaft C' I locate the second registering mechanism which is in the form of a total adder or a mechanism to which the number of counts of the single register is transferred. As before explained the register wheel 37 is provided with the cam-shaped lug 39 which stands opposite the final tooth of said wheel, and when this ratchet wheel has made one complete revolution the lug 39 strikes a projection 45 on a pivoted lever 46 said lever carrying at its free end a pawl 47 the point of which engages the teeth of the second register said pawl having also a heel portion 48 by which the outward movement of the lever is limited and said pawl and lever being each connected with a spring for holding them normally inward. The second register may be of any suitable type and as herein shown consists of a fixed and movable disk the former of which, D', has its surface subdivided into as many parts as may be desired, and said movable disk E' is concentric with the fixed disk and surrounds the same and is provided with as many openings 49 as there are teeth on the periphery of said disk, one of these holes standing opposite each of the teeth. At the center of the second register is a swiveled post or stud 50 in which is pivotally mounted one end of an arm 51 the outer end of which carries a pin 52 which is designed to be placed in any one of the series of holes made in the movable disk. From this description it will be seen that when the register wheel 37 makes a complete revolution its cam 39 will move the lever 46 and cause the pawl 47 thereof to move the outer disk of the second register one tooth in advance, this indi-

cating on the second register that the first register has made one complete movement and that the machine has counted as many coins as there are teeth on said register 37.

The base plate 53 of the second register forms a support for the same and to its under side is centrally pivoted a lever 54 one arm of which is connected with a rod 55 extending parallel with the shaft Y said rod having its opposite end connected with a centrally pivoted lever 56 on the back of the central vertical standard of the main frame and said lever 56 having its opposite arm connected with a spring-pressed pin 57 operating horizontally through the said standard and in the path of the coins in the coin passage and adapted to prevent the further passage of coins along the passage when the lever 54 is rocked about its pivotal connection. The rocking of this lever is effected by the pin 52 coming in contact with a projection or point 58 on a short vertical shaft 59 which is provided with an operating finger piece 60. This shaft extends through the base plate 53 and has fixed to it a switch lever 61 one arm of which is slotted or forked and loosely engages the outer end of the lever 54 while a second arm 62 is designed to engage a contact piece 63 which forms one of the poles of an electric circuit and from which a wire leads. The switch lever is connected to a spring 64 which is adapted to hold the lever in either of the positions in which it may be moved; and a stop 65 is designed to limit the outward movement of said lever. This lever serves as an electric cut-out for removing the power from the machine and simultaneously preventing the further travel of coins along the runway.

By way of illustration I will suppose that it is desired to count ten dollars in pennies in which case, assuming that the register wheel 37 has fifty teeth, the pin 52 will be placed in the hole 20 of the movable disk of the second or transfer register, and each time the register wheel 37 makes one revolution its cam 39 will rock the lever 46 and cause the pawl 47 thereof to move the movable disk of the second register one point which movement carries the pin 52 one point nearer the projection or point 58 and which movement being continued during the twenty revolutions of the ratchet wheel 37 necessary to count the 1,000 pennies it will be manifest that the pin 52 is progressively advanced towards the projection 58 and during the count of the last penny of the 1,000 this pin will strike the point 58 and rock the switch lever so as to remove its arm 62 from the contact piece 63 and thus break the main circuit, instantly stopping the motor and at the same time causing the other arm of the fixed lever to rock the lever 54 and move the rod 55 longitudinally thereby rocking the lever 56 about its central fulcrum and causing the lower end of this lever to project the pin 57 transversely into the coin runway in the path of the next advancing coin and stop the further travel of said coin, thereby insuring the accuracy of the counting devices. The parts are reset by engaging the finger piece 60 and rocking the switch lever or cut-out back into its normal position thereby allowing the spring 65 to withdraw the pin 57 from the path of the coin in the runway and at the same time rock the lever 56 in a reverse direction and through the connecting rod 55 return the lever 54 to normal position. When the switch lever is returned to normal the circuit is again established, the current passing from the contact piece 63 through the lever 54 and through the frame of the machine to the motor as shown.

While I have shown and described the foregoing as a preferred form of cut-out it is evident that other forms may be used without departing from the spirit of my invention; also that the electrical features may be omitted and the switch lever operated by hand to prevent a further passage of coins after the final coin of a predetermined number has been counted.

After being ejected beneath the front end of the bar 30 the coin is delivered into a chute or tube W and is conveyed to the bagging devices. These latter devices are shown as consisting of a central standard 66 and upper and lower disks 67—68 the latter of which serves as a support for the bags 69. The upper disk is provided with a series of holders in the form of split rings 70 and in these holders are adapted to be placed the short tubes or thimbles 71 over which the bag is first placed and then secured by pressing the tubes or thimbles into the split clamping rings. The lower end of the coin chute is swiveled upon the central post of the bag holding devices so that it may be swung from point to point about this center and thereby deliver the coins into any one of the series of bags positioned around the holder; and said swiveled part has a horizontal arm 72 with a vertical pin 73 adapted to engage a series of notches or depressions 74 in the disk 67 and thereby hold the delivery end of the chute in position over the bag into which the counted coins are to be deposited.

The machine heretofore described represents one by which coins of a certain size and value might be counted and where the more important parts might be made fixed and non-adjustable. For commercial and other reasons it is desirable to so construct the machine that it is capable of universal use, that is, that one machine may have such adjustments as to make it capable of handling and accurately counting coins of various sizes and denominations, thereby adapting the single adjustable machine for all other uses that a number of non-adjustable machines might be put to, and make it capable of handling coins from the smallest to the largest sizes. To accomplish my purpose it is evident that the coin conductor must have several adjustments to meet the varying diameters and thicknesses of the different coins, and the gage bar of the table must also be adjustable to correspond to the thickness of the different coins, and the mechanisms for effecting these adjustments and rendering the machine capable of counting any class of coins and quickly adapting it for coins of another class I will now describe.

From the under side of the end portions of the gage bar projects the guide pins 75, and on the under side of the inclined portion of the table is a horizontal bar 76 which is slotted at the ends to receive said pins, whereby the bar is capable of a guided movement longitudinally. Between this bar 76 and the table are suitable springs 77 which tend to hold the bar upward and which are compressed when the bar is lowered relative to the table surface; and the ends of the bar 76 are provided with cams or wedge-shaped portions 78 operating in saddle plates 79 which fit the guide pins 75 and are secured by appropriate nuts 80 on threaded ends of said pins, whereby as the bar 76 is moved in one direction,

the cams or wedge portions 78 thereof ride past the saddle plates and cause the pins and the gage bar to be depressed against the pressure of the springs 77 and lowering the bar relative to the surface of the table; and when the bar 76 is moved in the opposite direction, the declining portions of the cams or wedge portions by riding past the saddle plates allow the springs to simultaneously expand and elevate the gage bar relatively to the table surface.

The movement of the slide bar 76 is effected, in the present instance, by a second slide bar 81 parallel with the first bar and connected to the latter by means of a pivoted link 82, said second bar having a threaded end which engages a nut 83 rotatively mounted in a fixed bracket 84 depending upon the under side of the table, said nut having a milled head or finger piece by which it may be rotated in its bearing. In connection with the foregoing adjusting features, I also locate on the table an indicator 85 with designating marks for the different coins; and beneath the table is pivotally secured a lever arm or bar 86 one arm of which carries a pointer 87 which operates through a curved slot in the table and over the graduated face of the indicator, said lever arm having its other or short arm loosely connected with a pin or rod 88 projecting from the slide bar 81. From this description it will be seen that to adjust the gage bar for coins of any particular thickness, corresponding to the thickness of a true coin of a certain denomination, the nut 83 is rotated until the pointer shows on the indicator that the desired adjustment has been secured when the slide bar will have been moved the appropriate distance to allow true coins of the indicated size to pass thereunder to the coin conductor. The gage bar having been adjusted, it is necessary for the best results, that the width of the hopper end of the coin conductor should be correspondingly adjusted and to effect this additional adjustment at the same time the gage bar is adjusted and by the same mechanism, thereby requiring but one operation for the two adjustments. I construct said hopper portion with a movable front member 89 which has suitable pins 90 projecting rearwardly and guided in lugs 91 projecting from the under part of the table said pins having their rear ends also passing through plates or bars 92 and secured by nuts 93. The plates or bars 92 are separate from, and are movable relative to, the back of the stationary member 94 of the coin conductor: and the slide bar 81, before described, passes between and is guided by the plates or bars 92 and is provided with cam or wedge portions 95 which operate against the said bars 92 to pull the pins rearward and thereby move the movable front of the hopper portion of the coin conductor relative to the companion stationary portion thereof and decreasing the space between the inner surfaces of the glass or other spaced plates which form the coin passage, to correspond to the thickness of the coin to be delivered therethrough and the height of the space beneath the gage bar. When the operating nut is turned to move the slide bar 81 outwardly to allow the gage bar to be elevated by its springs to gage a coin of increased thickness, the cams or wedge portions 95 progressively withdraw relative to the bars 92, when suitable springs 96 act upon the movable front of the hopper portion of the coin conductor and allow it to move coördinately with the elevation of the gage bar. Thus it will be seen that the table and the hopper end of the coin conductor are capable of adjustment for coins of different thicknesses and when adjusted for coins of one thickness will not allow the passage of a coin of an increased thickness.

That portion 13 of the divided coin runway which leads from the lower or discharge end of the hopper portion it is not necessary to make adjustable, and it suffices if it be stationary but made of such height and width as to take the coins of maximum diameter and width, but the lower member of the divided runway, *i. e.* that portion which is carried upon the vertical standard of the main frame and which include the plate 17 with its downwardly curved lower end 18 for diverting the course of the coins, is made adjustable both in height and width to correspond with the adjustment of the width of the coin hopper and the elevation of the gage-bar. The adjustment of these parts is effected by an independent mechanism as I will now describe. The vertical standard of the main frame is provided with a plurality of inclined guides or slots 97 and from the back of the upper plate 17 of the lower member of the divided coin conductor projects suitable lugs 98 which slidably fit said guides and are fixed to suitable inclined plates 99 which move over the rear face of the standard, said plates 99 being grooved in a horizontal plane as shown at 100 to slidably fit a lug or lugs or projections 101 formed on the wings of a vertically traveling nut 102 as shown in Fig. 2.

When the coin passage is adjusted in height by the vertically movable plate 17 the size of the vertical portion of said passage is correspondingly changed and the width of the coin passage is also adjusted. These adjustments are obtained substantially as follows: The downturned end of the plate 17 forms one wall of the vertical portion of the coin passage, the opposite wall of the said passage being formed by the vertical wall of a bar 103 which is horizontally slidable in a slot or guide 104 in the frame standard, said bar 103 having an inclined lug or wall 105 on its rear, Fig. 2, which is engaged by an inclined surface 106 on an extension or wing 107 of a second traveling nut 108, whereby as the nut is moved in one direction the engaging inclined surfaces 105, 106, cause the bar 103 to be moved towards the curved wall of the plate 17 and when the nut is moved in an opposite direction said surfaces recede relative to each other and allow a spring to move the bar away from said curved wall of the plate 17. On the back of the frame standard is journaled a vertical screw rod 109 having right and left threads engaging the aforesaid nuts 102 and 108 whereby when the rod is rotated by its handle 110, the nuts approach, or recede from, each other to simultaneously increase, or decrease, the vertical height of the inclined coin passage and simultaneously increase or decrease the size of the vertical portion thereof. During this adjustment of the height of the coin passage to correspond to the diameter of the coins to be passed therethrough, the width of the said passage is also increased or decreased laterally to correspond to the thickness of the said coin, and the adjustment of the aforesaid gage bar, and this lateral adjustment of the coin passage is effected by a cam or wedge portion 111 on one of the inclined and guided plates 99 engaging a correspondingly inclined surface on a plate or bar 112 which is held against the

back of the frame standard by the shouldered threaded rods 113 which pass through said standard and engage and secure the plate 16 which forms the lower part of the lower member of the divided coin conductor and has a shoulder or portion 114 along which the edge of the coin rolls. The plate 16 is backed by a suitable spring 115 and when the cam or wedge portion 111 is receding from its companion surface 112 this spring expands and forces the plate laterally thereby increasing the width of the coin passage: and when the aforesaid inclined surface 111, is advanced progressively towards the companion surface 112, the threaded rods 113 pull the plate inward against the pressure of the spring 115 and thereby reduce the lateral width of the coin passage coördinately with the lowering of the plate 17 and the inward horizontal movement of the bar 103 to decrease the height of the said passage and the longitudinal width of the vertical portion thereof. By these, or similar, adjustments I am unable to set the several parts of the machine so that I can almost instantly change from the counting of the smallest coins to coins of the greatest size, and to any size between the minimum and maximum; and the several adjustments of the coin conductor, or passage, are indicated upon a graduated disk or plate 116 over which travels a pointer 117 on a lever 118 pivoted on the back of the frame standard and having its short arm connected by a link or rod 119 with the traveling nut 108 whereby upon turning the screw rod 109 the pointer 117 travels over the face of the indicator until the point is reached which corresponds to the character of the coins to be counted. These adjustments are also effected without any disarrangement of the coin advancing and ejecting mechanism and the operation of the cut-out before described.

The full and detailed operation of the machine will be fully understood from the preceding description; and while I have shown and described one form of mechanism for carrying out the object I have in view, I wish it to be understood that I do not limit myself to the structures shown, or to any precise mechanical parts, as my invention is of a more generic character and the present structure is but one embodiment thereof, and accordingly may be modified and others substituted without destroying or departing from the salient features of the invention.

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

1. The combination of coin supplying mechanism, means for advancing the coins separately, means for registering the advance of each coin, bag holding appliances, and a coin distributing means for supplying the counted coins to appropriate bags.

2. The combination of coin supplying mechanism; means for advancing the coins separately, means for indicating the advance of each coin, a receiving receptacle for counted coins; and coin distributing means leading to said receptacle.

3. A coin counting machine having in combination an inclined coin supplying mechanism along which the coins roll on edge, and rotatory means engaging the coins while on edge and advancing said coin in its upright condition.

4. The combination with a coin conductor, of a member rotating in a vertical plane and provided with coin advancing means, bag holding devices, and means for distributing the advanced coins thereto.

5. The combination with an inclined coin conductor of a series of coin advancing members for engaging successive coins delivered into the range of action of said members, bag holding devices, and distributing means between the said holding devices and the coin advancing means.

6. The combination with a series of members movable about a single axis and adapted to engage successive coins, of means for delivering coins into the range of action of said members, coin counting mechanism, bag holding devices and distributing means for delivering the counted coins to appropriate bags.

7. The combination of a series of members parallel with and movable about a single horizontal axis and adapted to engage successive coins, and means for delivering the coins on edge into the range of action of said members

8. The combination of a series of members parallel with and movable about a single axis and each adapted to advance a single coin, means for delivering the coins on edge separately into the range of action of said members, and means for indicating the advance of each coin.

9. The combination of a series of members parallel with and movable about a single axis and operating successively to advance coins, means for delivering the coins on edge into the range of action of said members, and means actuated by each advanced coin for registering said advance.

10. The combination of a member movable about a single horizontal axis and having a series of successively operating horizontal transversely projecting means for advancing successive coins, means for delivering coins on edge into the range of action of said coin advancing means, a registering mechanism, and means connected therewith and actuated by each coin advanced, to operate the register.

11. The combination with a coin conductor and a spring pressed vertically movable member guarding the final discharge therefrom, of a coin advancing means movable about a single axis and successively ejecting coins past said member, and registering devices actuated by the movement of said member.

12. The combination of coin conducting means, a pivoted member positioned at the final discharge thereof, coin advancing means movable about a single axis and successively ejecting single coins past said member, registering devices actuated by the member during the advance of each coin, bag holding devices, and distributing means for delivering the counted coins thereto.

13. The combination of a coin conductor into which the coins are received, a coin advancing means rotatable about a single axis for advancing the coins in succession, means for registering the advance of the coins, and means controlled by the advance of a final coin of a predetermined number of coins for automatically stopping the operation of the machine.

14. The combination of a coin conductor into which the coins are received, a series of coin advancing members rotating about a single axis and each advancing a coin separately during a single rotation of the series, means for registering the advance of each coin, and means controlled by the register for automatically stopping the operation of the machine by the advance of a final coin of a predetermined number of coins.

15. The combination of a coin conductor, means for separately advancing the coins received therefrom, means for registering the advance of each coin, a motor circuit including a switch lever or cut-out, and means for interrupting said circuit by the advance of a final coin of a predetermined number of coins.

16. The combination of a coin conductor into which the coins are received; means for advancing the coins from the conductor; means for regulating the advance of the coins; a registering mechanism advanced step-by-step by the coins advanced from the conductor; and means actuated by the registering devices for stopping the coin advancing means by the advance of the final coins of a predetermined number of coins.

17. The combination of a coin conductor; means for advancing the coins therefrom; means for registering the advance of the coins; and means including an electric circuit, a stop on the register, and a means including a member engaged by said stop at predetermined intervals

to interrupt the circuit and stop the operation of the coin advancing means.

18. The combination of a coin conductor: means for advancing the coins separately therefrom, means for registering the advance of the coins, a motor circuit, and means including a stop in the registering mechanism, a rock shaft actuated thereby during the counting of the final coin of a predetermined number of coins, and a lever arm carried by the rock shaft for making and breaking the connection with the motor circuit which controls the motion of the machine.

19. The combination of a coin conductor: means for advancing the coins therefrom; means for registering the advance of the coins including a pair of subdivided register wheels one of said wheels having perforations corresponding to its subdivisions; a plug or pin removably fitting said perforations; a rock shaft having a member disposed in the path of said plug or pin and actuated thereby; and an electric circuit; said shaft having a lever to engage and disengage said contact to make and break an electric circuit whereby the motor circuit is established or interrupted.

20. The combination with coin conducting means, means for advancing the coins therefrom, and means for registering the advance of the coins, of means for holding bags or receptacles for the counted coins, and coin distributing means between the coin advancing means and the bag holding devices said last-named devices and the distributing means being rotatable one relative to the other whereby the coins are successively deposited in the bags in predetermined quantities.

21. The combination of a coin conductor, means for advancing coins received therefrom, means for registering the advance of the coins, a motor circuit including a switch lever or cut-out, a trip device on the register, and a connection from the switch lever or cut-out, having one end disposed in the range of action of the trip means whereby the cut-out is operated to interrupt the motor circuit and stop the machine by the advance of a final coin of a predetermined number of coins.

22. The combination of a coin conductor, means for advancing the coins received therefrom, means for registering the advance of the coins, a motor circuit including a switch lever or cut-out and connections therefrom, a transfer registering mechanism, and means carried thereby and operating the cut-out to interrupt the motor circuit and stop the operation of the machine by the advance of a final coin of a predetermined number of coins.

23. The combination of a coin conductor, means for advancing the coins received therefrom, means for registering the advance of the coins, means controlled by the register, for automatically stopping the operation of the machine and the further advance of coins, coin receiving means, and coin distributing means leading to the receiving means.

24. The combination of a coin conductor, means for advancing the coins received therefrom, means for registering the advance of the coins, a motor circuit including a switch lever or cut-out and connections therefrom, a transfer registering mechanism including a movable ratcheted disk having a series of holes, a pin or member adapted to fit said holes, and a member on the switch lever disposed in the range of action of the pin and engaged thereby during the count of the final coin of a predetermined number of coins for tripping the lever and cutting out the motor.

25. The combination of a coin conductor, means for advancing the coins received therefrom, means for registering the advance of the coins, a transfer registering mechanism including a movable disk having a ratchet surface and series of perforations, a pivoted lever between the initial and transfer registers and having a part to engage the ratchets of the latter, said initial register having a cam or lug adapted to engage an arm of said lever during the completion of a rotation of said initial register whereby the transfer register is advanced one ratchet or point, a pin adapted to removably fit the perforations of the movable disk of the transfer register, and a projection on the switch lever normally disposed in the path of movement of the pin and adapted to be tripped by the latter to cause the lever to break the motor circuit and stop the further operation of the machine.

26. The combination of a coin conductor, means for advancing the coins received therefrom, means actuated by and registering the advance of the coins, a member movable into and out of the path of coins in the conductor, and normally out of said path, and connections between said member and the registering devices and actuated by the count of a final coin of a predetermined number of coins to project said member into the path of the next advancing coin and stop the advance thereof.

27. The combination of a coin conductor, means for advancing the coins received therefrom, registering means actuated by the advance of the coins, a transfer-register and connections whereby it is advanced one step during each final count of the first-named register, a motor circuit including a switch lever and a means for tripping the same during the final count of the transfer register, a pivoted lever having one end disposed in the path of movement of the switch lever, a second lever pivoted between its ends and a pin carried thereby and adapted to be moved into the path of coins in the conductor, and a connection between the first and second levers whereby the travel of the coins is stopped substantially simultaneously with the breaking of the motor circuit.

28. The combination with a coin conductor, means for advancing separate coins received therefrom, means for registering the advance of each coin, a motor circuit including a switch lever and connection by which it is actuated during the count of a final coin of a predetermined number of coins, a centrally pivoted lever having one end to be engaged by the switch lever, a rod connected to the other end of said pivoted lever, a second centrally pivoted lever, a horizontal projection thereon disposed in the plane of the coin passage and normally out of the path of the coins, and adapted to be projected into said passage in the path of the coins whereby the switch lever is tripped to break the motor circuit, and means for withdrawing the pin from the path of the coins when the switch lever is closed and the circuit again established.

29. The combination of an inclined coin conductor having a portion of its passage substantially vertically disposed: means for temporarily retaining single coins in said vertical portion of the passage, coin advancing means, and a force feed member actuated by the advancing means for delivering the suspended coin past the retaining means and into the range of action of the coin advancing means.

30. The combination of an inclined coin conductor having a vertically disposed portion near its delivery end, a yielding support for temporarily retaining single coins above said delivery end, coin advancing means, and a force feed member actuated by the advancing means and delivering the retained coin into the range of action of the advancing means.

31. The combination of an inclined coin conductor having a coin passage with a vertically disposed portion, a spring positioned above, the point of final discharge of the conductor and obstructing the passage of said coin, coin advancing means, and a vertically operating force feed member actuated by and in unison with the advancing means for delivering the obstructed coin into the range of action of said advancing means.

32. The combination of a coin conductor having an inclined passage with a vertically disposed portion, a spring member intercepting the passage and supporting the coin therein, and a force feed mechanism for delivering the coin past the spring member.

33. The combination of a coin conductor having an inclined passage with a vertically disposed portion, and an oscillating force feed member normally above the vertical portion of the passage and adapted to enter said passage and engage passing coins.

34. The combination of a coin conductor, having a coin passage, a force feed mechanism for delivering coins from the passage, and a rotatory coin advancing means for finally delivering the coins placed in its range of action by the force feed mechanism.

35. The combination with a coin conductor having a coin passage with a vertically disposed portion, and a means for advancing coins received therefrom, of an os-

cillating member operating vertically in the plane of said vertical portion and positively delivering the coins into the range of action of the coin advancing means.

36. The combination with a coin conductor having a coin passage with a vertically disposed portion, and means for advancing the coins received therefrom, of an oscillating arm operating in the plane of the vertical portion of the passage, and a spring connected with the arm and having a portion extending into the range of action of the coin advancing means and actuated thereby.

37. The combination with a coin conductor having a coin passage with a vertically disposed portion and means for advancing the coins received therefrom, of a rocking arm having a curved member operating in the plane of said vertical portion of the passage, and a torsional spring having one member connected to said arm and a second member disposed in the range of action of and actuated by the coin advancing means.

38. The combination of a coin conductor, means for advancing coins received therefrom, means for registering the advance of the coins including a movable member past which the coins are carried by the coin advancing means, a registering wheel having two series of reversely arranged teeth, a pawl actuated by said movable member and engaging the teeth of one series of ratchets and moving the wheel each time a coin is advanced, and a second pawl engaging the other series of ratchet teeth and normally holding the wheel against movement, said pawls having engaging portions whereby the first pawl disengages the second pawl from its ratchet surface during the beginning of the first part of the movement of the former and releases said second pawl to allow it to reengage its ratchet surface and lock the wheel about the time first pawl has made its complete advance movement.

39. A coin counting machine having a coin passage adjustable in width and height, and unitary means for effecting both adjustments substantially simultaneously.

40. A coin counting machine having a coin passage adjustable in two directions simultaneously to accommodate coins of different diameters and thicknesses.

41. In a machine of the character described, a coin conductor, in combination with a distributing table leading thereto and provided with a detector or gage bar adjustable towards and from the table to permit the passage past the same of coins of different thicknesses.

42. A coin counting machine having a coin conductor with a receiving or hopper portion and a runway leading therefrom said hopper adjustable transversely and said runway adjustable both vertically and transversely, to accommodate coins of different diameters and thicknesses.

43. In a machine of the character described, a coin conductor having a runway including a stationary lower part upon which the edge of the coins rolls and an upper part said upper part adjustable towards and from the lower part to increase and decrease the height of the coin passage.

44. A coin counting machine having a stationary, inclined coin conductor with a runway including top and bottom members and front and back members said top member adjustable towards and from the bottom member to increase and decrease the vertical height of the coin passage, and said front member adjustable towards and from the back member to increase and decrease the horizontal width of said passage and unitary means for effecting both adjustments substantially simultaneously.

45. In a machine of the character described, a coin conductor having a runway a portion of which is substantially vertical and means for increasing and decreasing the width of said vertical portion.

46. In a machine of the character described, a coin conductor having an inclined runway including vertical side members and top and bottom members said top member having a downwardly turned lower end for diverting the course of the coin and forming a wall of a vertical extension of the coin passage, a horizontal member having a vertical portion forming the opposite wall of the vertical portion of the passage, said top member, one of the side members and said horizontal member movable towards and from their opposing members to adjust the size of the coin passage relative to the coins to be passed therethrough.

47. In a machine of the character described, a coin conductor having a receiving or hopper portion with parallel sides, and a distributing table communicating with the space between said sides and having a gage bar beneath which the coins pass, in combination with means for adjusting the gage bar and simultaneously adjusting the width of the said space.

48. In a machine of the character described, a coin conductor having a receiving or hopper portion with parallel spaced sides, in combination with means for adjusting said sides to vary the width of the space between them, and means for indicating the extent of such adjustment.

49. In a machine of the character described, a coin conductor having a receiving or hopper portion with parallel spaced sides, and a distributing table leading to said space and provided with a gage bar beneath which the coins pass, in combination with means for simultaneously adjusting the gage bar and the space between said sides, and means for indicating the adjustment of said sides and bar.

50. In a machine of the character described, a coin conductor having a receiving portion with fixed and movable parallel spaced sides, and a distributing table communicating with said space and having a gage bar beneath which the coins pass, in combination with means including connected slide bars having a coördinate movement one of said slide bars engaging and adjusting the said movable side relative to its companion, and the other slide bar simultaneously adjusting the gage bar relative to the table surface.

51. In a machine of the character described, a coin conductor having fixed and movable parallel sides separated from each other to form a coin passage, said movable side having rearward extensions, in combination with a slide bar having wedge portions engaging said extensions to move said side relative to the fixed side to increase and decrease the space between the sides, and means for operating the slide bar.

52. In a machine of the character described, the combination of a coin conductor having fixed and movable parallel sides separated from each other to form a coin passage, said movable side having rearwardly extending pins or members, springs acting upon said movable side to normally separate it from its companion, a slide bar having wedge portions acting upon said pins or members to cause said movable side to approach the fixed side and thereby reduce the width of the space between said sides, means for operating the slide bar, and means for indicating the adjustment of said movable side.

53. In a machine of the character described, the combination of a coin conductor having fixed and movable parallel sides separated from each other to form a coin passage, said movable side having rearwardly extending pins or members, bars secured to the inner ends of said members and spaced from the fixed side, a slide bar having wedge portions operating between the last-named bars and the fixed side and adjusting the movable side relative to the latter, a rotatable nut engaging a threaded portion of the slide bar, for operating said bar, and an indicator connected with and operated by the slide bar to disclose the adjustment of the coin passage.

54. In a machine of the character described, the combination with a coin conductor, of a table communicating therewith, a gage bar mounted on the table and beneath which the coins are caused to pass said gage bar having guided pins or projections extending through the table, a slide bar beneath the table and having wedge portions engaging said pins or projections to move the gage bar relative to the table and thereby adjust the space beneath the bar, means for adjusting the width of the passage in the coin conductor, a connection between the last-named means and the slide bar for operating the latter, and means for indicating the amount of said adjustments.

55. In a machine of the character described, a coin conductor, in combination with a distributing table connecting with the conductor, a gage bar on the table and beneath

which the coins pass to the conductor, springs for holding the bar normally above the table and means for depressing the bar relative to the table for adjusting the space beneath the bar.

56. In a machine of the character described, a coin conductor having a runway including a fixed back plate and a movable front plate said front plate being spring-pressed, and a wedge mechanism for moving the front plate in opposition to its spring pressure and thereby adjusting the width of the coin passage.

57. A coin counting machine having a stationary inclined coin conductor with an inclined runway including a bottom and a slidably mounted top, in combination with means for moving the top relative to said bottom and in a direction substantially at right angles to the travel of the coin, to vary the height of the coin passage.

58. In a machine of the character described, a coin conductor having a runway including fixed bottom, a movable top, a fixed back and a movable front in combination with a sliding wedge-mechanism for adjusting the said movable top and front and thereby varying the vertical height and transverse width of the coin passage.

59. In a machine of the character described, the combination of a main frame having inclined slots, a coin conductor having a runway including a fixed bottom and a movable top said top having lugs guided in said slots, a plate or member connected to each of said lugs and disposed on the back of the main frame, a traveling nut slidably engaging said plates or members, and a rotatable screw for operating the nut.

60. In a machine of the character described, the combination of a main frame having inclined slots, a coin conductor having a runway including a fixed bottom, a movable top, a fixed back and a movable front, said front being spring-pressed and having rearwardly extending guided pins, lugs on the movable top and having inclined plates fixed to them, one of said plates having a wedge portion to engage said pins and move the front relative to the fixed back, simultaneously with the movement of the top, a traveling nut slidably engaging said inclined plates, and a rotatable screw for operating the nut.

61. In a machine of the character described, the combination of a main frame having inclined and horizontal slots, a coin conductor having a runway including a stationary inclined bottom, a movable inclined top guided in said inclined slots, a fixed back member and a movable front member, said front member having a downturned end, and a member slidable in the horizontal slot of the frame and opposing said downturned end of the front member and forming therewith a vertical portion of the coin passage, a traveling nut slidably engaging the inclined top, a second traveling nut having a wedge shaped surface engaging a corresponding surface on the horizontally slidable member, a wedge-shaped member carried by the movable top and engaging the movable front, and a right and left screw for actuating the nuts and their adjuncts in unison.

62. In a machine of the character described, the combination with a coin conductor having a runway adjustable in height and width for coins of different sizes and including fixed and movable members, means including operating wedges and traveling nuts for adjusting said movable members, an indicator, a pointer movable over the same and a connection between one of the nuts and the pointer whereby the latter discloses the extent of adjustment of the conductor.

63. A machine of the character described including a distributing table having an adjusting gage bar beneath which the coins pass; a coin conductor connecting with the table and having a hopper-like receiving end and a runway extension; means for adjusting the transverse width of the hopper; means for adjusting the gage bar; means for adjusting the vertical height and transverse width of the runway; means for advancing coins received from the conductor; a registering mechanism for the coins; and a receiving mechanism for registered coins.

64. A coin counting machine having a stationary conductor with an inclined passage the outlet portion of which includes a top and bottom movable in unison towards and from each other for coins of different diameters.

65. A machine of the character described including a stationary conductor with an inclined coin passage the outlet portion of which includes a top and bottom member between which the coin is received said members movable towards and from each other for coins of different diameters, means for advancing the coin from said outlet portion and means for registering the advance of the coin.

66. A machine of the character described including a stationary conductor with an inclined coin passage the outlet portion of which includes a top and bottom and means for adjusting the space between them, rotary means operating in said space for advancing the coins, and counting mechanism actuated by the advanced coin.

67. In a machine of the character described the combination with a coin conductor and means for advancing the coins separately, of a force feed mechanism operating vertically in the coin passage for positioning the coin into the range of action of the coin advancing means.

68. In a machine of the character described, the combination with a coin runway and a means for advancing the coins issuing therefrom, of a reciprocating force feed member operating vertically in the runway and delivering the coin therefrom into the path of the coin advancing means.

69. In a machine of the character described, the combination with a coin conductor having an inclined runway a portion of which is made substantially vertical to divert the course of the coin, and means for advancing the coins separately, of a force feed device operating in the plane of the vertical portion of the runway and delivering the coin into the range of action of the coin advancing means.

70. In mechanism of the character described, the combination of a coin-channel adjustable for the passage of coins of different diameters and thicknesses, means for adjusting the coin-channel to correspond to the diameter and thicknesses of coins of different denominations, and coin-operated counter-mechanism.

71. In mechanism of the character described, the combination of coin-delivery-mechanism, a coin-channel adjustable for the passage of coins of different diameters and thicknesses, means for adjusting the coin-channel to correspond to the diameter and thickness of coins of different denominations, and coin-operated counter-mechanism.

72. In mechanism of the character described, the combination of a coin-channel, comprising an adjustable pivoted arm, means for adjusting said arm to vary the width of the channel for coins of different denominations, and coin-operated counter-mechanism.

73. In mechanism of the character described, the combination of coin-delivery-mechanism, a coin-channel, a counter-mechanism for advancing the counter step-by-step, comprising a lever having a part extending into the path of a coin passing through said channel, a ratchet, a pawl shifted by said lever, and an adjustable stop for limiting the operation of the counter-advancing-mechanism.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

CHARLES S. BATDORF.

Witnesses:
T. W. FOWLER,
C. W. FOWLER.