Aug. 13, 1935. K. A. T. GRANZELIUS 2,010,815

COIN OPERATED AUTOMATICALLY OPERATING APPARATUS

Filed May 11, 1933 4 Sheets-Sheet 1

Fig. 1

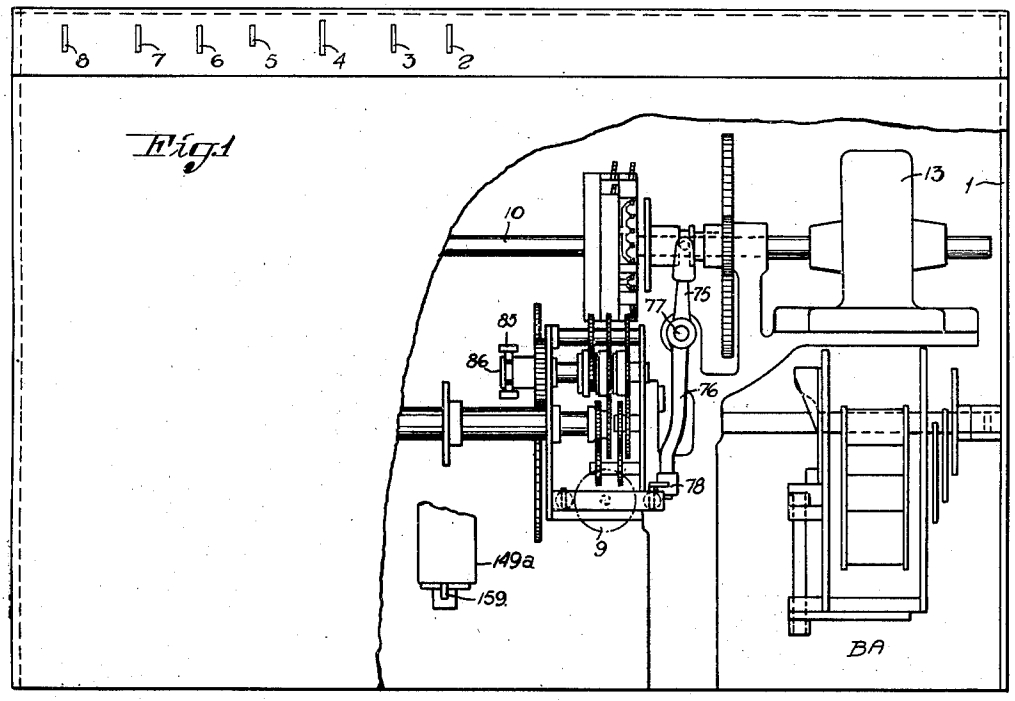
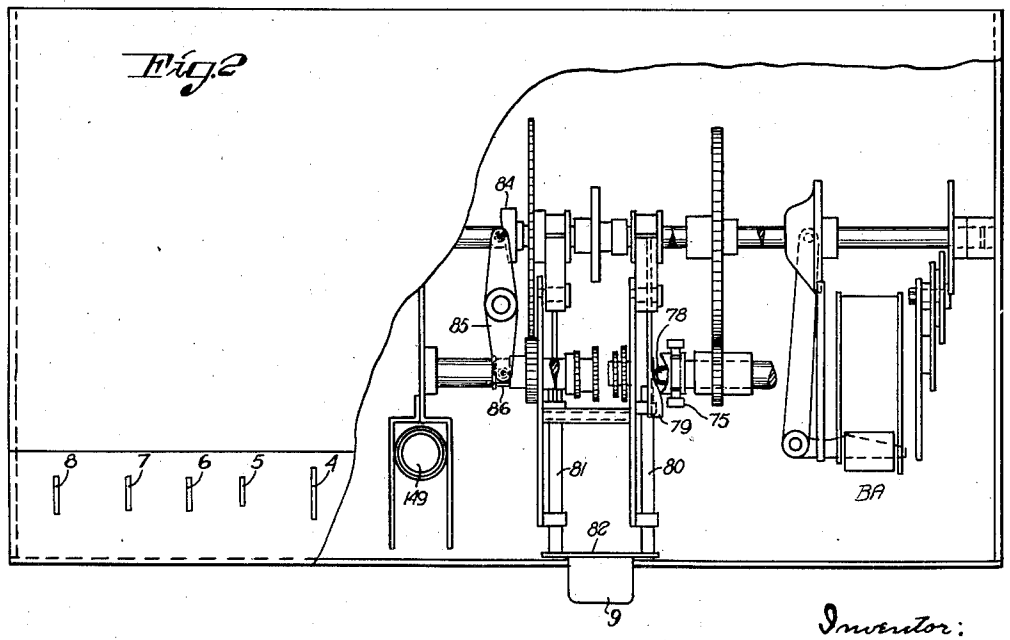



Fig. 2




Inventor:
Karl Axel Teodor Granzelius,
By Byrnes Townsend & Potter,
Attorneys.

Aug. 13, 1935. K. A. T. GRANZELIUS 2,010,815

COIN OPERATED AUTOMATICALLY OPERATING APPARATUS

Filed May 11, 1933 4 Sheets-Sheet 2

Fig. 3

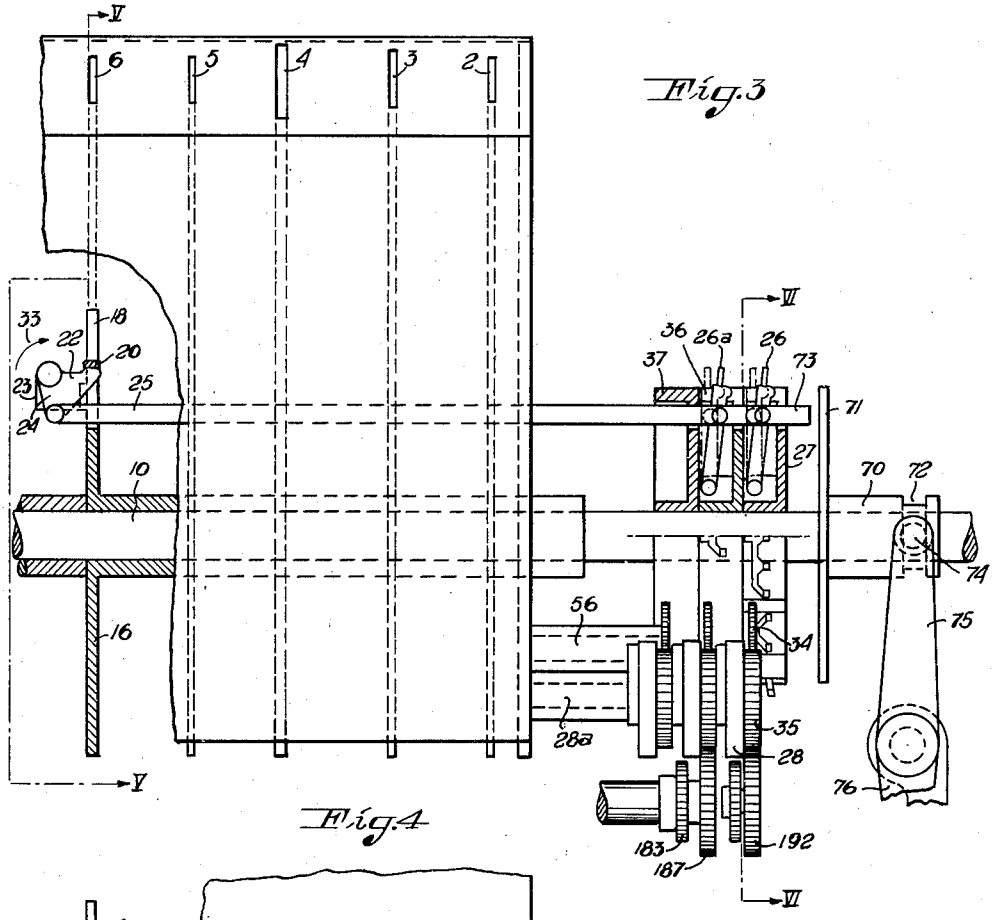
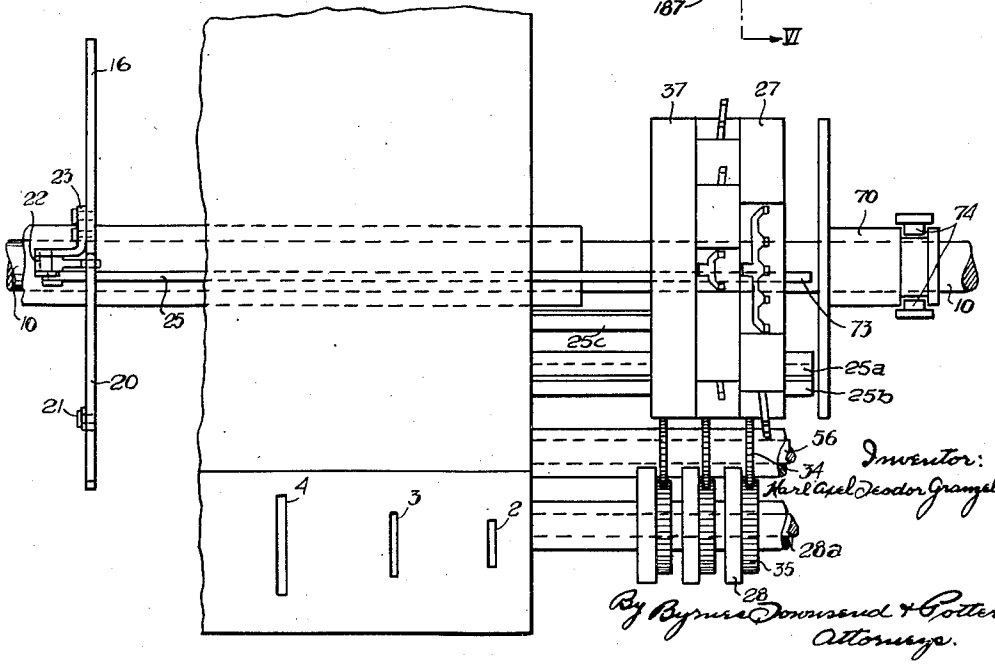



Fig. 4




Inventor:
Karl Axel Teodor Granzelius,
By Byron, Townsend & Cotter,
Attorneys.

Aug. 13, 1935. K. A. T. GRANZELIUS 2,010,815

COIN OPERATED AUTOMATICALLY OPERATING APPARATUS

Filed May 11, 1933 4 Sheets-Sheet 3

Fig. 6

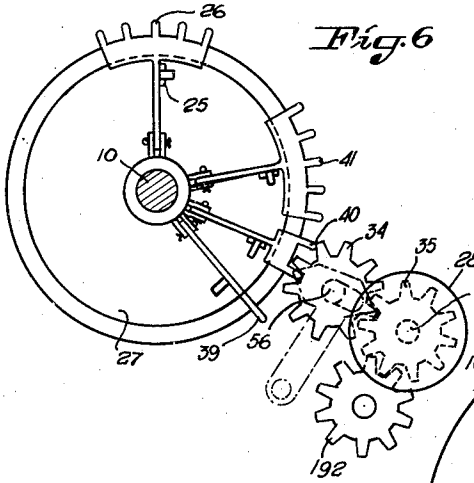



Fig. 5

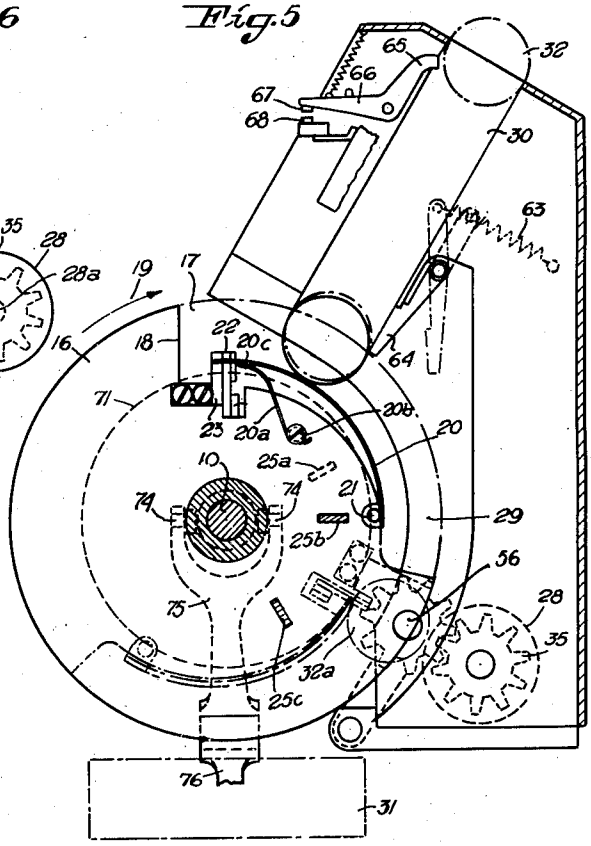
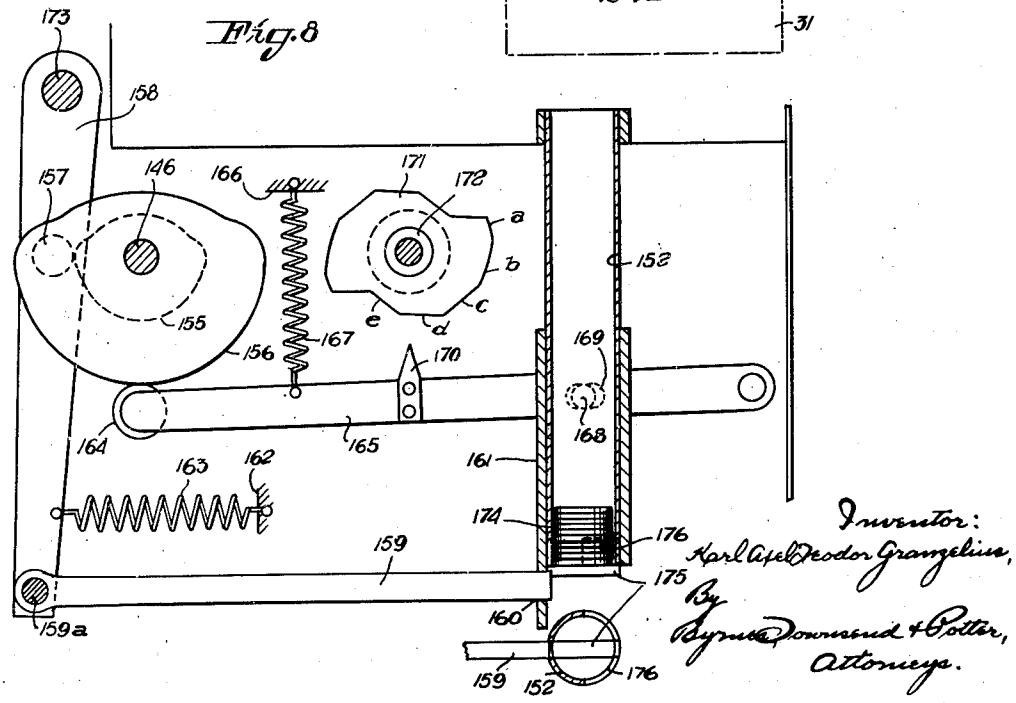



Fig. 8




Inventor:
Karl Axel Teodor Granzelius,
By
Byrne, Townsend & Potter,
Attorneys.

Aug. 13, 1935. K. A. T. GRANZELIUS 2,010,815

COIN OPERATED AUTOMATICALLY OPERATING APPARATUS

Filed May 11, 1933 4 Sheets-Sheet 4

Fig. 7

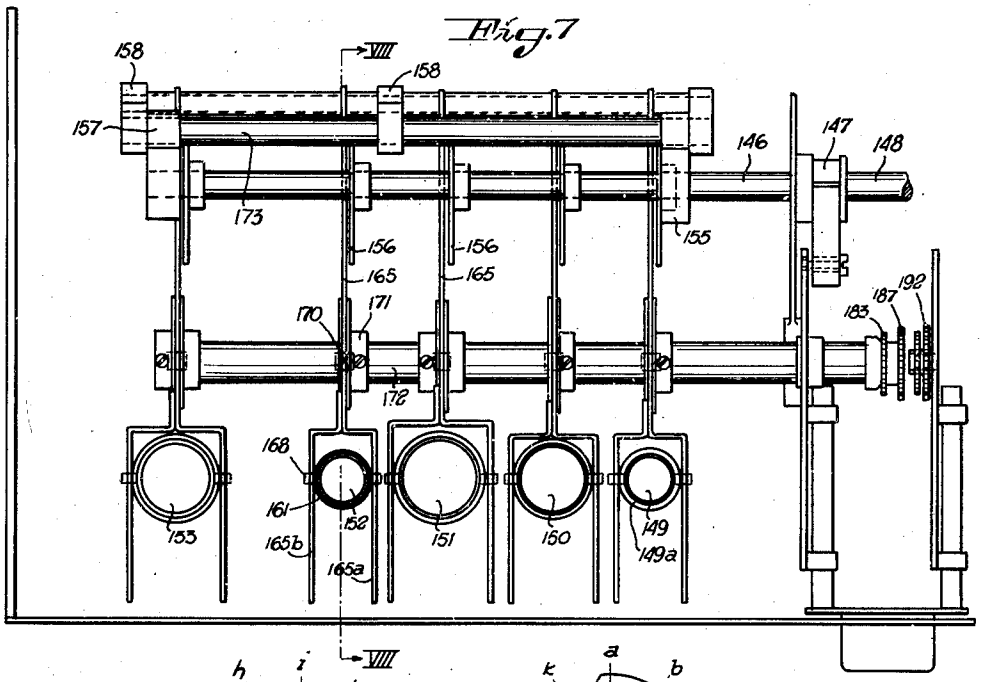



Fig. 13

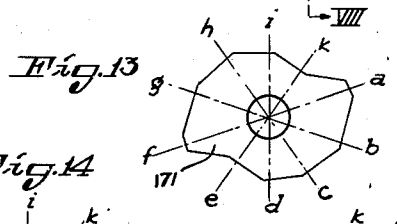



Fig. 11

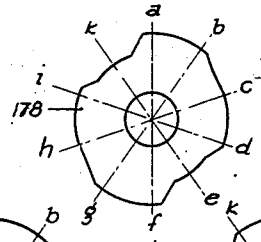



Fig. 14

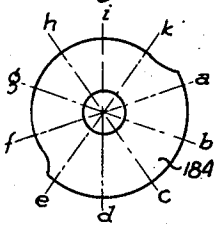



Fig. 12

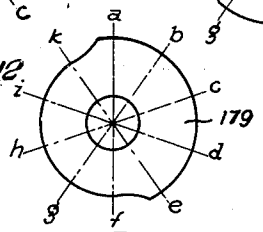
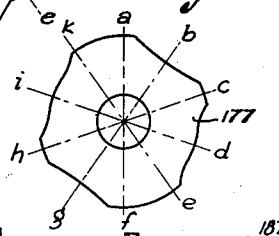



Fig. 10



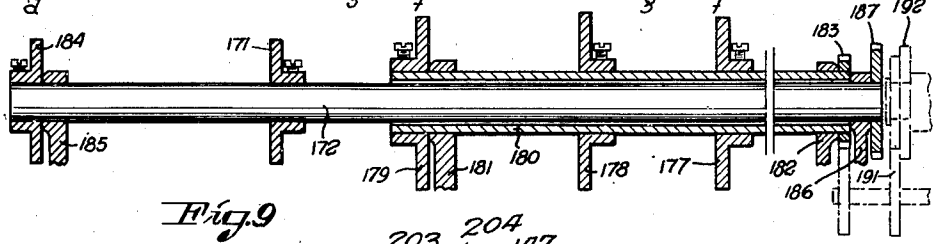




Fig. 9

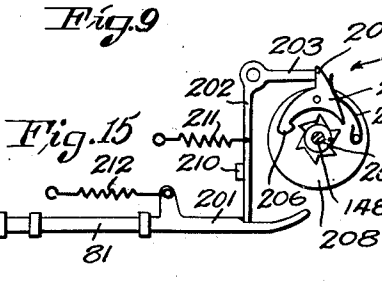



Fig. 15

Inventor:
Karl Axel Teodor Granzelius,
By Byrne Townsend & Potter,
Attorneys.

Patented Aug. 13, 1935 2,010,815

# UNITED STATES PATENT OFFICE

2,010,815

## COIN OPERATED AUTOMATICALLY OPERATING APPARATUS

Karl Axel Teodor Granzelius, Stockholm, Sweden

Application May 11, 1933, Serial No. 670,545
In Sweden April 5, 1933

7 Claims. (Cl. 194—91)

This invention relates to an automatically operating apparatus which is adapted to be operated by means of coins, fare tokens, banknotes or other payment means and which is provided with a calculating machine or one or more counters and at the same time provided with a device for discharging coins or the like. Such automatically operating apparatus may be of the kind known as savings-bank apparatus, calculating machines, ticket selling apparatus, apparatus for selling various wares, postage printing apparatus, cash-registers, automatic telephone apparatus or the like.

Apparatus of this kind are already known, which operate purely electrically, that is to say the coin constitutes a contacting member for closing a circuit containing relays or the like which actuate registering mechanisms. Other machines are known which work mechanically, the coin acting on account of its own weight upon registering mechanisms or register setting devices. Apparatus are further known in which the coin is inserted to a certain extent into a drum and the flat side of the projecting portion of the coin is utilized to actuate a registering mechanism. These apparatus however are not provided or combined with a coin discharge device. Mechanically operating apparatus of this kind have already been proposed, which operate on the insertion of a coin for the purpose of registering the same, in which however a device for discharging coins must be set manually, which may cause faulty settings.

It is the main object of the present invention to provide such a combination of coin-registering and coin-discharging devices, that members or means which determine the ejecting of coins are positively connected with those means which determine the registering of the inserted coin, so that the ejecting of coins becomes automatic and faulty settings are rendered impossible. The chief feature of this invention, therefore, is the provision of an apparatus which has a movable member for receiving the coin or other payment means which constitutes a mechanical power or movement transmitting member arranged between said movable member and the setting members of the calculating machine or the counter or counters, said setting means being directly or indirectly actuated by said power transmitting member; said setting members being directly or indirectly connected with settable mechanisms pertaining to the discharge device. The coin or payment means constitutes in this case a lever-like or friction producing member for the purpose of actuating said setting means.

When in the following description for the sake of simplicity the expression "coin" is utilized, it is to be understood that also other as payment means acting devices such as fare tokens or banknotes could be used, which banknotes for this purpose may be utilized by themselves or inserted in a special pocket. As further this invention only concerns the setting mechanism proper for the registration and discharging, respectively, of the coins, the invention will only be described and shown as applied to a special kind of apparatus, for instance a ticket-selling apparatus which is adapted to discharge tickets at a certain predetermined price and adapted to set the arithmetic complement, that is to say the difference between a fixed price for instance one hundred, and the ticket price for instance 15. It is however to be understood that the invention also may be applied to any other automatically operating apparatus, for instance apparatus of the kind indicated above.

The invention is illustrated in the accompanying drawings in which:

Figure 1 is an external view of a ticket-selling apparatus to which the present invention is applied, parts of the casing of the apparatus being broken away for the sake of clearness. Fig. 2 shows the same apparatus as looked upon from above, a part of the casing being broken away. Fig. 3 shows on a larger scale parts pertaining to the setting mechanism with parts of the casing removed or entirely left out. Fig. 4 shows the same mechanism as looked upon from above. Fig. 5 is a section along the line V—V in Fig. 3. Fig. 6 shows a sectional detail of the setting mechanism along the line VI—VI in Fig. 3. Fig. 7 shows the coin discharge device as seen from above. Fig. 8 is a section of this device along the line VIII—VIII in Fig. 7. Fig. 9 shows shafts pertaining to the discharge device. Figs. 10–14 show controlling elements in the form of disks having cams and fixed to the shafts shown in Fig. 9. Fig. 15 is a detail view of a clutch construction.

The apparatus is mounted within a casing 1 which is provided with coins apertures 2, 3, 4, 5, 6, 7 and 8 for Swedish coins of the value of 1 öre, 2 öre, 5 öre, 10 öre, 25 öre, 50 öre and 1 crown, respectively. It is of course understood that the apparatus may be arranged to be operated by U. S. coins or any other foreign coins. A main shaft 10 is journalled in suitable manner within the apparatus. This shaft may be

operated either manually, in which case a crank is to be attached to a prolongation of the shaft 10 projecting through one wall of the casing, or as shown on the drawings the main shaft may be driven by an electric motor 13 through the intermediary of a suitable gearing. As however the gearing and the clutch form no part of the present invention they have therefore not been shown in detail. The motor circuit may in this case be closed by the inserted coin and opened either directly or through the intermediary of suitable devices by means of a push-button 9 arranged at the front wall of the casing.

To the main shaft 10 are fixed seven disks 16, one for each kind of coin (Figs. 3 and 4). Each of these disks 16 has a recess 17 (Fig. 5) of less depth than the diameter of the respective coin, so that the coin projects somewhat beyond the circumference of the disk. One end surface 18 of the recess serves as carrier for the coin, when the disk rotates in the direction of the arrow 19. According to a preferred form of embodiment a resilient or spring actuated strip 20 in the form of a circular arc and of substantially the same width as the thickness of the disk or the coin is attached to the disk at the bottom of the recess. As shown on the drawings the strip 20 is at 21 pivoted to the disk 16 and its free end is in contact with one arm of the bellcrank 22 which is pivoted to a bracket 23 fixed to the disk. A spring of steel wire 20a is fixed by means of a screw 20b to the disk and the free end 20c of the steel wire is bent at right angles and extends underneath the free end of the strip 20.

The other arm 24 of the bellcrank is pivoted to a rod 25 extending substantially parallel to the main shaft, the free end of said rod being pivoted to an auxiliary member 27 provided with teeth 26 corresponding to the value of the coin, the auxiliary member being also fixed to the main shaft 10. These teeth 26 are adapted, when in a certain position, to actuate a toothed wheel 34 in mesh with a toothed wheel 35 having a numeral wheel 28 fixed thereto. These wheels constitute one order of the counter or of the calculating machine. Each disk 16 is arranged rotary within a coin channel 29 which at its upper end forms a continuation of a coin-chute 30 and at its lower end opens in coin receptacles 149—153 (Fig. 7) pertaining to the coin discharging device or if desired opens in a special coin receptacle 31 (Fig. 5).

The device hitherto described operates in the following manner, compare Figs. 3, 4 and 5. When a coin 32, for instance of the value of 25 öre, is inserted through the coin apertures 6 and the chute 30, it will rest on the circumference of the disk 16 or, if this disk is in the position as shown in Fig. 5, on the strip 20 in the recess 17 of the disk. When thereafter the main shaft 10 with the disks rotates in the direction of the arrow 19, the end surface 18 of the recess 17 carries the coin 32 along to the channel 29, and for the reason that the distance of the strip 20 from the circumference of said disk diminishes successively in the direction towards the free end of the strip, the coin acts as a lever or a wedge and presses the free end of the strip down upon the arm 22 of the bellcrank, whereby the bellcrank is rocked in the direction of the arrow 33 and the rod 25 is displaced lengthwise to the left according to Fig. 3, and the teeth 26 and 26a are caused to occupy the position shown with dotted lines in Fig. 3. These teeth will then mesh with the toothed wheel 34 journalled on a spindle 56 (Fig. 6), which toothed wheel 34 is in mesh with the toothed wheel 35 securely fixed to the pertaining numeral wheel 28. The toothed wheel 35 and the numeral wheel 28 are journalled on the spindle 28a. As soon as the coin has left the channel 29, it falls down into the coin receptacle 31 or as the case may be into one of the receptacles 149—153. When the coin leaves the recess 17, the strip 20 will again occupy its normal position relative to the disk 16, as shown in Fig. 5.

The auxiliary members 27, 36 and 37 are provided with teeth for all coins for which the apparatus is constructed. The auxiliary member 27 has teeth for unit order coins, the auxiliary member 36 has teeth for tens order coins and the auxiliary member 37 has one tooth for hundreds order coins, in this case for one crown. Inasmuch as twenty-five öre cannot be registered as a unit, it is necessary to actuate as well the units order numeral wheel as also the tens order numeral wheel. As will be seen from Fig. 3, the rod 25 is pivoted to the teeth 26 on the auxiliary member 27 and also pivoted to the teeth 26a on the auxiliary member 36. As will be seen from Fig. 6, the auxiliary member 27 has a pivoted tooth 39 corresponding to one öre, a double tooth 40 for one two-öre coin, a member 41 with five teeth for a five-öre coin and the member 26 with five teeth for five öre in cooperation with the member 26a which has two teeth for twenty öre. All these teeth or members are in the manner as shown in Fig. 3, by means of rods 25, connected with bellcranks which are attached to the pertaining disks 16. It is to be observed that the recesses 17 in the disks 16 are peripherically displaced relative each other in correspondence to the positions of the teeth or members on the auxiliary members (compare Fig. 6). Thus the member 26 and the member 26a are arranged in the same angular position relative to the other members. The counter comprising the wheels 28, 34, 35 and similar wheels for the other denominations is arranged near the lower end of the channel 29, as shown in Fig. 5, so that the coin may effect registration in this counter shortly before it leaves the channel 29. The member 36 having toothed member 26a is further provided with a tooth for a ten-öre coin and a member with five teeth for a fifty-öre. The auxiliary members 36 and 37 which are substantially similar as the member 27 have not been shown in detail. For greater clarity of illustration, the drawings do not show the tens-carrying mechanism for advancing the tens and hundreds order portions of the counter by one step each time that the number wheel of the units or tens order, respectively, moves to "zero", since the tens-carrying mechanism may be of any known or conventional design. The rods pivotally connected with the said teeth or members extend through the other disks 16, as shown in Fig. 5, where these rods are designated 25a, 25b and 25c, respectively, and as all disks and auxiliary members are fixed to the same main shaft 10, the rods will not be in the way for each other during the rotation of the shaft 10. In Fig. 5 the position of the coin 32 has been shown with dotted lines 32a, when the teeth 26 transport their movement to the toothed wheel 34.

When a coin is inserted in the chute 30 and the main shaft 10 rotates it may happen that the coin at first rests on the circumference of the disk 16, which however does not matter, because

the coin will after a certain rotation of the disk fall down into the recess 17. In order to keep the coin ready to fall down into the recess and thereafter allow the carrying along of the coin, a lever 64 actuated by a spring 63 is arranged in the chute 30, said lever normally forming a continuation of the chute 30 and being rocked into the position shown by dash-dotted lines in Fig. 5, when the coin is moved into the channel 29.

The apparatus is preferably so arranged that its motor is started through the intermediary of the coin by means of a contact device which is closed by the inserted coin. A preferred form of such contact device is shown in Fig. 5 and consists of a bellcrank, one arm 65 of which extends into the chute 30, while its other arm 66 has a contact plate 67 adapted to cooperate with a contact spring 68.

A preferred form of embodiment of the coin discharge device however will be described more clearly and is shown in Figs. 7–14. This device comprises controlling elements in the form of disks having cams arranged at different distances from the axis, which cams determine the number of coins to be ejected, the controlling elements or cam disks being controlled by the counter of the apparatus or by the calculating machine. It is assumed that in this case a shaft 146 is caused to rotate only one revolution at a time, which for instance may be effected by means of a clutch 147 operated electrically or mechanically. A shaft 148 is continuously rotated by the motor 13, and, as shown in Fig. 15, the clutch 147 may be manually actuated by the push button 9 to connect the shaft 146 to shaft 148 after the coins are deposited. The push button is connected to a rod 81 that has a shoulder 201 engaged by one arm 202 of a bell crank lever, the free end of the other arm 203 engaging a shoulder 204 on an escapement pawl 205 which has a tooth 206. A spring 207 urges the shoulder 204 against the arm 203, and the pawl and spring are mounted on a disk 208 which is rigidly fixed to shaft 146. The shaft 148 carries a ratchet wheel 209, but the pawl and ratchet members cannot engage so long as the arm 202 of the lever is held against the stop 210 by spring 211. The rod 81 is normally held in retracted position by a spring 212 but is pushed forward manually to rock the bell crank 202, 203 to release the pawl which, urged by spring 207, throws the tooth 206 into engagement with the ratchet wheel 209. When the button 9 is released, the lever returns to its initial position with arm 203 in the path of shoulder 204 of the escapement pawl, and the clutch is thus released. This shaft 146 supports a plurality of pairs of cam disks 155, 156, one pair for each sort of coins. In the form of embodiment as shown there are a plurality of stationary coin receptacles 149, 150, 151, 152 and 153 for coins of the value of 1 öre, 2 öre, 5 öre, 10 öre and 50 öre, respectively. It is to be observed that the invention is not limited to the said sort of coins or to the number of coin receptacles, and according to circumstances modifications may be carried out within the scope of the present invention as set forth in the appended claims. One cam disk 155 (Fig. 8) fixed to the shaft 146 engages a roller 157 attached to a pivoted lever 158 which at its free end is pivoted to a pushing rod 159, the free end of which extends into an opening 160 in a cylinder 161 which slidably surrounds the coin receptacle 152. This coin receptacle 152 has at its lower end an opening 174 of the same height as the thickness of four coins together, and the bottom of the coin receptacle is provided with a groove 175. The pushing rod 159 is adapted to move through the opening 174 and the groove 175 in which case it pushes coins out of the receptacle 152 which for this purpose is cut away at its lower end as indicated by 176. A spring 163 inserted under tension between the lever 158 and a fixed part 162 of the frame of the apparatus keeps the roller 157 in engagement with the cam disk 155. The cam disk 156 also fixed to the shaft 146 engages a roller 164 attached to the free end of a pivoted lever 165, a spring 167 inserted under tension between this lever 165 and a fixed part 166 of the frame of the apparatus keeping the roller 164 in engagement with the circumference of the cam disk 156. The lever has the form of a fork (Fig. 7) at its pivoted end and the branches 165*a* and 165*b* of this fork are provided with studs 168 which engage recesses 169 in the outer cylinder 161. Between these studs 168 and the roller 164 the lever 165 has an upwardly directed member 170 which is adapted to cooperate with a controlling element 171 having cam surfaces and being fixed to a shaft 172 (Fig. 9). For the purpose of effecting the reciprocating movement of the lever 158 it is not necessary that each lever is provided with a roller 157 cooperating with its cam disk 155, but it is sufficient that the shaft 146 has one cam disk 155 only, or as shown on the drawings (Fig. 7) two cam disks 155 which actuate levers 158 fixed to a journalled shaft 173. The pushing rods 159 belonging to the other coin receptacles are then attached to a shaft 159*a* connecting the two levers 158, so that all rods 159 are reciprocating simultaneously.

As shown in Fig. 8 the number of coins discharged at a time depend on the position of the cylinder 161 and thus on the position of the pushing rod 159 relative to the coin receptacle 152, and this position in its turn is determined by the cam surfaces of the controlling element 171 and the position of this latter relative to an initial or zero position. In the position as shown in Fig. 8 the cam surface *d* is opposite to the projecting member 170 which corresponds to three 10-öre coins, that is to say the cylinder 161 can only be lifted to such an extent that the end of the pushing rod 159 engages and can push out only the three lowermost coins resting on the bottom of the coin receptacle 152.

The controlling elements (Figs. 10–14) are arranged on shafts in such a manner that controlling elements pertaining to different denominational values cooperate with each other. Thus the controlling element 177 for 1 öre, the controlling element 178 for 2 öre and the controlling element 179 for 5 öre are fixed to one and the same hollow shaft 180 which is supported by bearings 181 and 182 and at one end is provided with a toothed wheel 183 which by means of a gearing 191, 192 is in engagement with the units order toothed wheel 35 of the counter. In order to be able to eject one to nine öre these controlling elements or cam disks must have different cam surfaces and must further occupy a determined angular position relative to the cam surfaces on the other disks. These cam surfaces are designated *a*—*k*. The cam surfaces *a*, *c*, *e*, *f*, *h*, *k*, of the controlling element 177 are arranged at such great radial distance from the axis of the cylinder that the cylinder 179*a* surrounding the 1-öre coin receptacle 149 will not be lifted, that is to say no coin will be ejected. The other cam surfaces *b*, *d*, *g*, and *i* bring about a lifting of the cylinder 149*a* a distance cor-

responding to the thickness of a 1-öre coin. The cam surfaces *a*, *b*, *f* and *g* of the controlling element **178** correspond to the zero position of the pushing rod, while the cam surfaces *c*, *d*, *h* and *i* allow the discharge of one 2-öre coin and the cam surfaces *e* and *k* allow the discharge of two 2-öre coins. On the 5-öre coin controlling element **179** the portion *a*—*e* has such a radial distance from the axis that no coin is ejected, while the portion *f*—*h* allows the ejection of one 5-öre coin.

If for instance the hollow shaft **180** occupies such a position that the cam surfaces *c* are positioned opposite to the projecting members **170** on the lever **165** there will be ejected no 1-öre coin, one 2-öre coin and no 5-öre coin. If on the other hand the cam surfaces *i* are opposite to the projecting members **170** there will be ejected one 1-öre coin, one 2-öre coin and one 5-öre coin or together eight öre.

The tens order controlling members **171** and **184** are arranged in a similar manner. These controlling members or cam disks are fixed to a shaft **172** which is supported by bearings **185** and **186** and at one end provided with the toothed wheel **187** in mesh with the tens order toothed wheel **35** of the counter. This shaft **172** extends partly through the hollow shaft **180**. The cam surfaces *a* and *f* of the controlling element **171** do not permit the ejection of any coin, the cam surfaces *b* and *g* correspond to one 10-öre coin, the cam surfaces *c* and *h* correspond to two 10-öre coins, the cam surfaces *d* and *i* correspond to three 10-öre coins and the cam surfaces *e* and *k* correspond to four 10-öre coins. The cam surface *a*—*e* of the controlling element **184** permits no ejection of coins and the portion *f*—*k* corresponds to the ejection of one 50-öre coin.

The connection between the registering device and the coin discharging device comprises the following parts: A sleeve **70** is axially displaceable on the shaft **10** supporting the auxiliary members **27**, **36** and **37** (Fig. 3). This sleeve has a disk **71** and is provided with a peripheral groove **72**. Some of the rods **25** have a prolongation **73** extending to the right according to Fig. 3, the end of which engages as near as possible the disk **71**. The prolongations serve to augment the value of deposited coins, as recorded on the counter mechanism, by that arithmetic complement which is the difference between the price of the ticket and the value of the largest coin which may be deposited in the apparatus. The cam surfaces on the controlling elements are so designed and positioned that no coins will be ejected when the total recorded value, i. e., the deposited coins plus the complementary value, i. e., exactly equal to the value of the largest coin. According to the example above referred to it shall be assumed that the arithmetic complement is 85, and therefore the rod **25***b* corresponding to 50 öre, the rod **25** corresponding to 25 öre and the rod **25***a* corresponding to 10 öre have such a prolongation **73** which means together 85 öre. The groove **72** is engaged by studs or rollers **74** on the fork-like arm **75** of a lever **75**, **76** pivoted at **77**, the other arm **76** of which supports a roller **78** in engagement with an inclined guiding surface **79**. This guiding surface is fixed to a rod **80** connected to a parallelly supported rod **81** by means of a yoke **82** to which is fixed the push-button **9** accessible from the outside of the casing **1**.

When the push button is pressed, the plate **71** is forced against the prolongations and the value 85 öre is thus added, due to the displacement of the teeth **26**, **26***a* and the continuous rotation of shaft **10**, to the value of the deposited coins. the total will be 100 öre or 1 crown if 15 öre was deposited and this recorded value indicates that the purchaser of the ticket should not receive any change. If the total is greater than 1 crown, the cams of the ejecting mechanism will be so positioned that the ejected coins will be equal to the amount by which the recorded total exceeds 1 crown.

Further mechanisms which preferably are attached to the apparatus but form no part of the present invention are the following: Shafts of the apparatus may be coupled together by means of special clutches, the cutting-in and out of which is controlled by the counter in such a manner that neither the coin discharging device nor the selling apparatus will function when a less amount than that fixed beforehand is inserted into the apparatus and the push-button is actuated.

To one of such shafts is attached a ticket-ejecting device, on the drawings generally designated "BA".

The mode of operation of the apparatus under the assumption that the example above referred to is utilized, that is to say the ticket price is 15 öre and thus the arithmetic complement is 85 öre, is as follows. When a 25-öre coin is inserted into the apparatus through the coin aperture **6**, the motor is started and the shaft **10** rotates, whereafter the coin presses the bellcrank **22** downwards and the teeth **26**, **26***a* are rocked about their pivots to such an extent that they will be in the path of movement of the toothed wheels **34** which thus together with the toothed wheels **35** and the numeral wheels **28** are rotated so that the latter show the numeral value 25. To the same amount the shafts **172** and **180** are set simultaneously, inasmuch as these, as pointed out above, are directly connected with the counter. Upon the coin, in this case a 25-öre coin, having fallen down into the special coin receptacle **31**, the teeth **26**, **26***a* return to their normal ineffective positions. Hereafter the push-button is actuated, which causes an axial displacement of the sleeve **70**, whereby the teeth corresponding to 50, 25 and 10 öre are set so as to actuate the corresponding denominationals of the counter and further a clutch is actuated which couples the shaft of the motor with the shaft **146**. By this means the numeral wheels are rotated forwards, so that they now show 25+85=110, that is to say, the shaft **172** has been rotated to such an extent that the cam surface *b* on the controlling element **171** corresponding to one 10-öre coin is positioned opposite to the projecting member **170** on the lever **165**. When thereafter the shaft **146** rotates, at first the cylinder **161** is lifted a distance corresponding to the thickness of one 10-öre coin in the receptacle **152** and thereafter the rod **159** is pushed forward (to the right according to Fig. 6), so that one 10-öre coin (the change) is ejected, and finally the counter is zeroized by a special arrangement such as that indicated by **84**, **85**, **86** (Fig. 2). At the same time the ticket-selling apparatus "BA" has discharged a ticket.

What I claim is:—

1. In collection apparatus for retaining a predetermined sum for a service rendered and for returning change when the coins deposited exceed that sum, the combination with means in which coins may be deposited, means for totaliz-

ing the value of the deposited coins, and change-ejecting means, of means controlled by said totalizing means for setting said change-ejecting means to deliver coins equal in value to that amount by which the totalized value of the deposited coins exceeds said predetermined sum.

2. In apparatus of the type stated, the combination with a plurality of coin chutes for receiving coins of different values, totalizing means, means energized by coins deposited in said chutes for actuating said totalizing means in accordance with the total value of the deposited coins, of a plurality of containers for receiving coins of different values, an ejector for each container, means normally retaining said ejectors in inoperative positions, means controlled by said totalizing means for adjusting said ejectors in accordance with the change to be delivered, and means for actuating said ejectors to deliver coins from said containers.

3. Apparatus as claimed in claim 2, wherein said means for adjusting said ejectors includes means for adding upon said totalizing means that complementary value which is the difference between the largest value coin which may be deposited in said chutes and a fixed charge to be collected by said apparatus, a cam for adjusting each ejector to determine the number of coins to be delivered thereby from the associated coin container, and means controlled by said totalizing means to adjust said cams into positions corresponding to the delivery of change equal to the amount by which the deposited coins exceed the said fixed charge.

4. Apparatus of the type stated comprising a plurality of coin chutes for receiving coins of different values, a plurality of wheel members, means energized by coins deposited in said chutes to rotate said wheel members to an extent corresponding to the total value of deposited coins, change-ejecting means, and adjustable means actuated by and in accordance with the rotation of said wheeled members for controlling said change-ejecting means.

5. Apparatus as claimed in claim 4, in combination with means for rotating said wheel members to an extent corresponding to the amount by which the largest value coin which may be deposited in said chutes exceeds a fixed charge to be collected by said machine, and wherein said adjustable means controls said change-ejecting means to discharge coins of a value equal to the amount by which the deposited coins exceed the said fixed charge.

6. In collection apparatus for retaining a predetermined sum for a service rendered and for returning change when the coins deposited exceed that sum, the combination with means in which coins may be deposited, said deposit means including separate coin chambers for coins of different values, means for totalizing the value of the deposited coins, change-ejecting means cooperating with said coin chambers, said change-ejecting means and coin chambers being supported for relative displacement to control the number of coins to be delivered from the respective chambers, and means controlled by said totalizing means for effecting relative displacement of said change-ejecting means and said coin chambers in accordance with the amount by which the value of the deposited coins exceeds said predetermined sum.

7. In apparatus of the type stated, the combination with a plurality of coin chutes for receiving coins of different values, totalizing means, means energized by coins deposited in said chutes for actuating said totalizing means in accordance with the total value of the deposited coins, of a plurality of containers for receiving coins of different values, an ejector for each container, means normally retaining said ejectors in inoperative positions, means controlled by said totalizing means for ejecting a relative adjustment of said ejectors and the associated containers in accordance with the change to be delivered, and means for actuating said ejectors to deliver coins from said containers.

KARL AXEL TEODOR GRANZELIUS.