

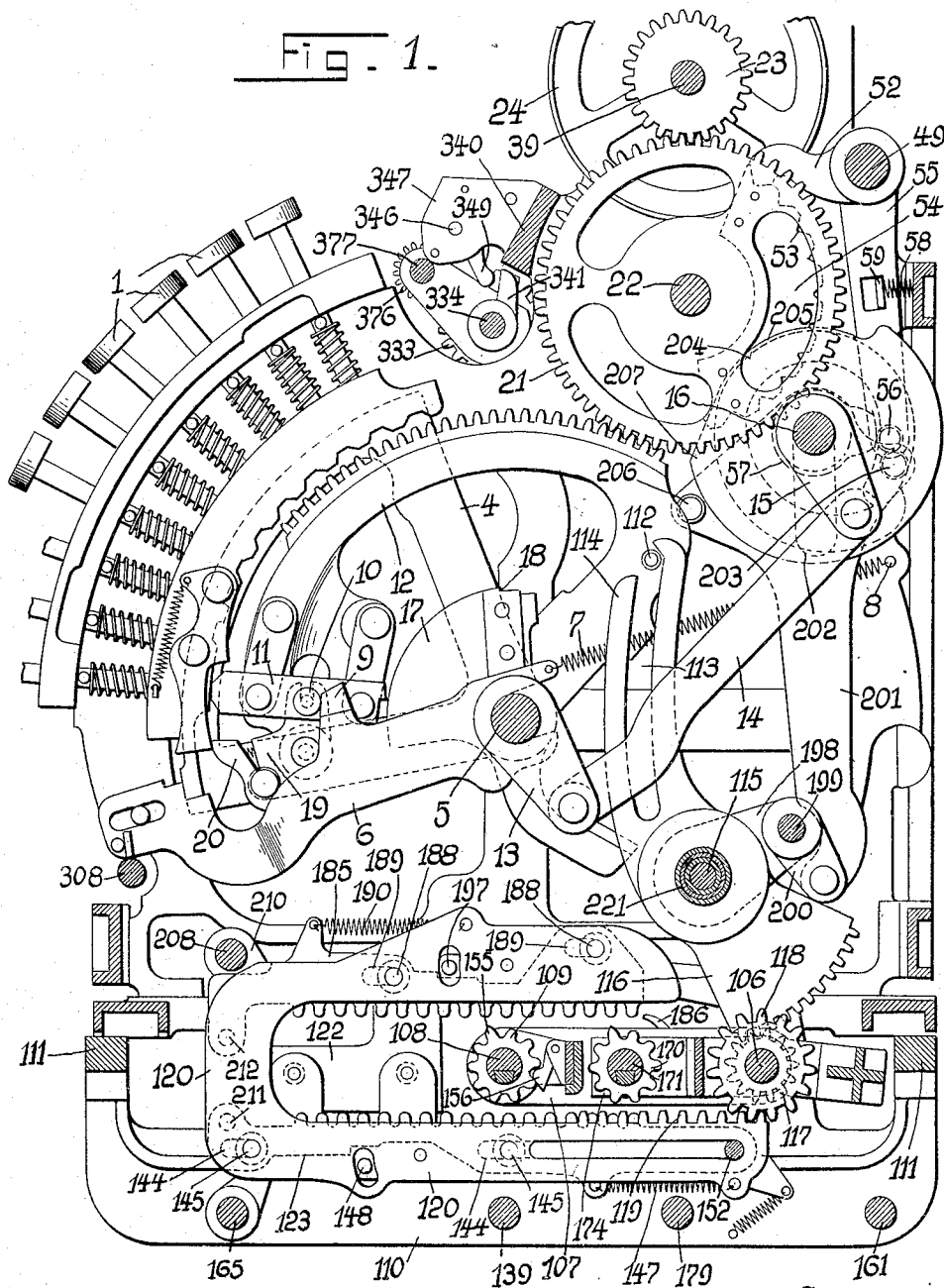
H. A. MARTIN.
 MULTIPLE TOTAL PRINTING CASH REGISTER.
 APPLICATION FILED NOV. 19, 1910.

1,214,568.

Patented Feb. 6, 1917.

20 SHEETS—SHEET 1.

Fig. 1.



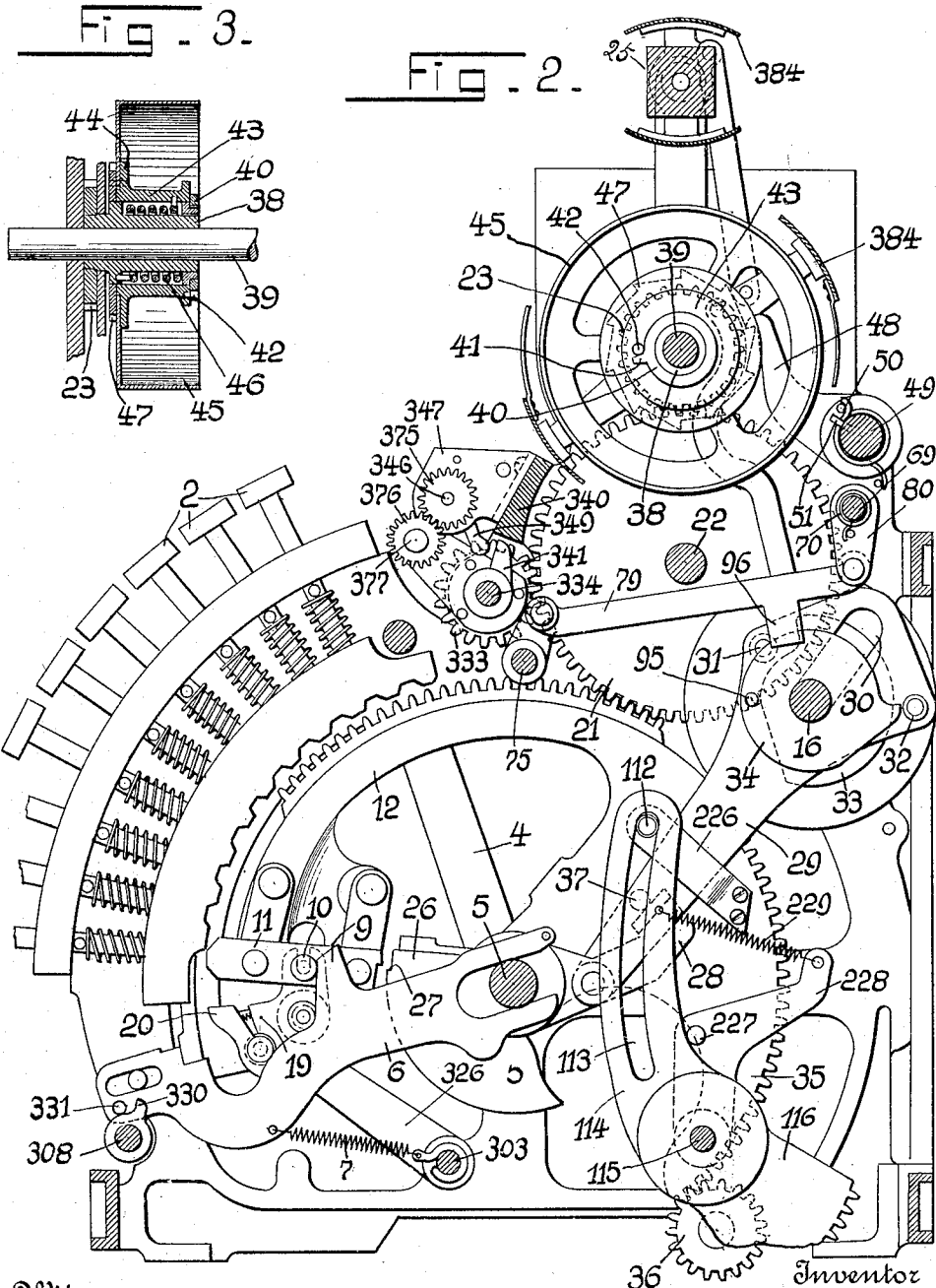
Witnesses
 C. Klottermann.
 W. M. McCarthy

Inventor
 Haakon A. Martin
 and R. S. Jones Attorneys

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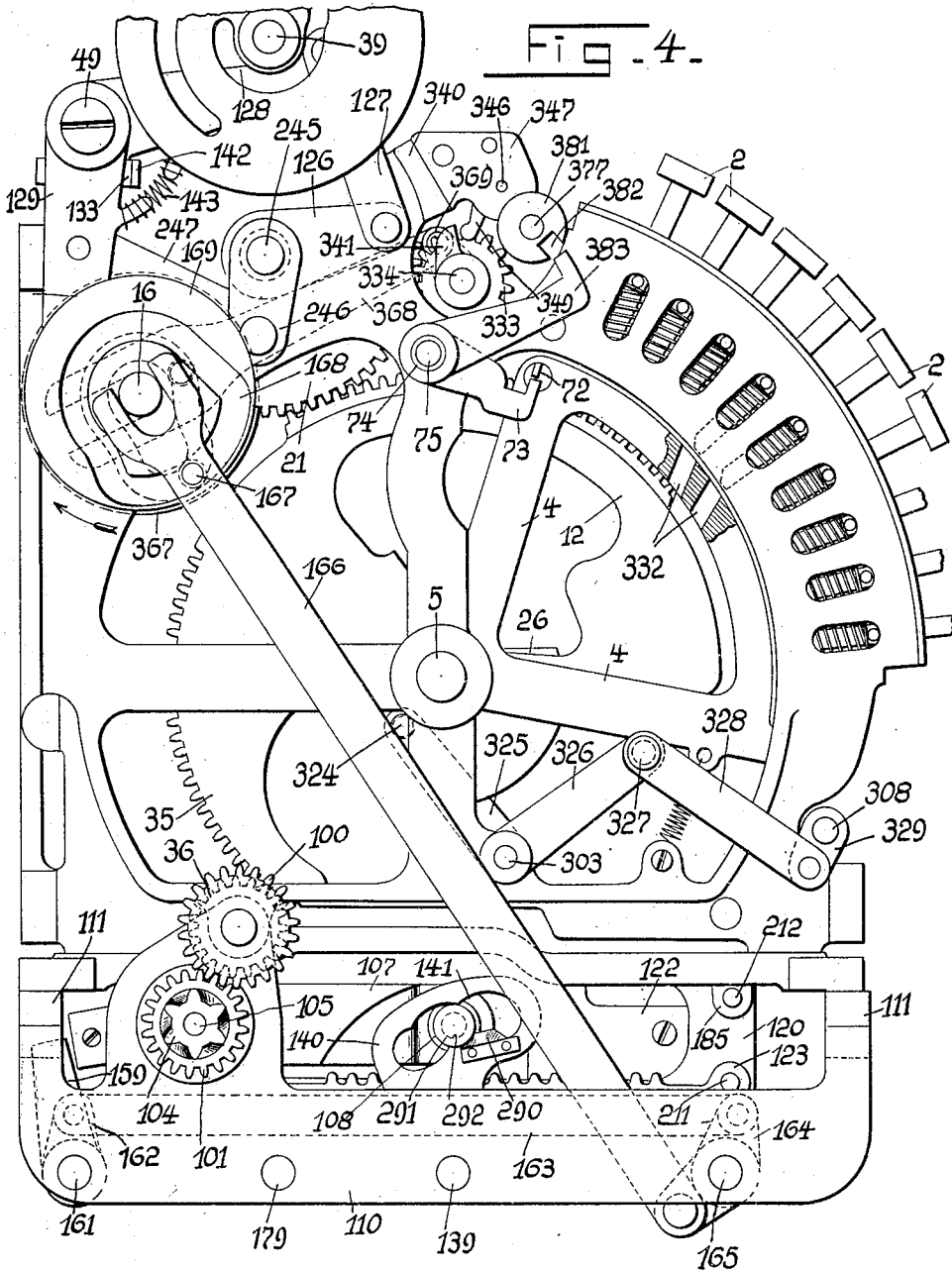


Witnesses
 C. Klostermann
 W. M. McCarthy

Inventor
 Haakon A. Martin.
 By *H. H. H. H.*
 and *R. H. H. H.* Attorneys

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 20 SHEETS—SHEET 3.



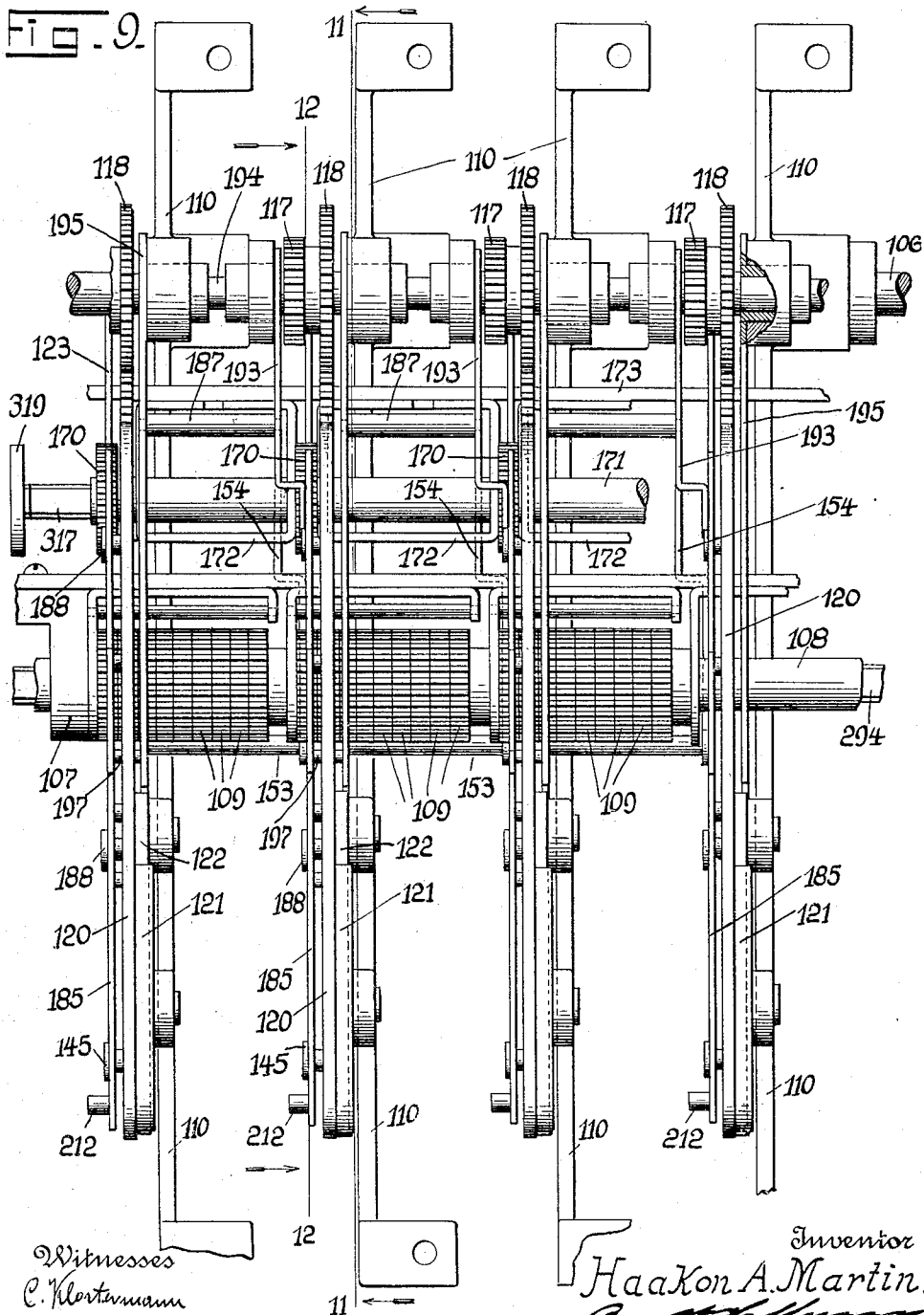
Witnesses
 C. Klostmann
 W. M. McCarthy

Inventor
 Haakon A. Martin
 By *[Signature]*
 and *[Signature]* Attorneys

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Witnesses
 C. Klotzmann

W. M. McCarthy

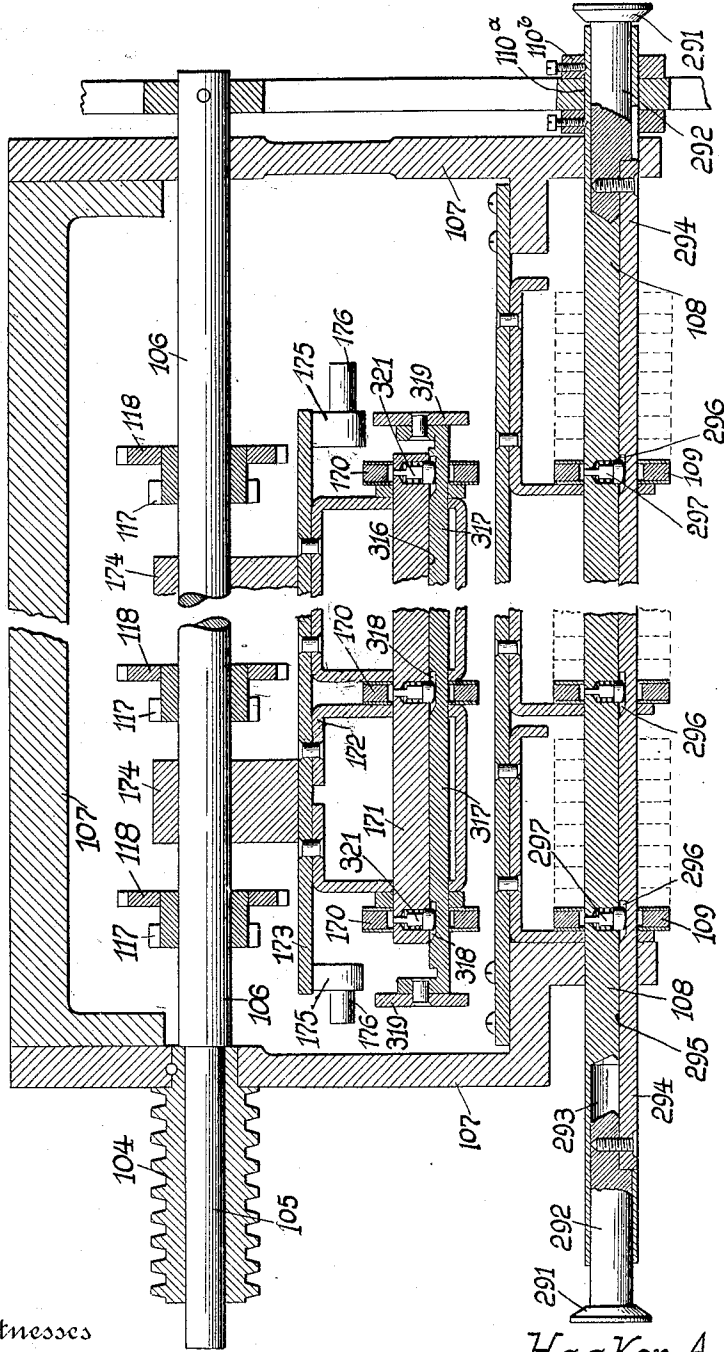
Inventor
 Haakon A. Martin.
 By *[Signature]*
 and *[Signature]* Attorneys

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Patented Feb. 6, 1917.

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Fig. 10.



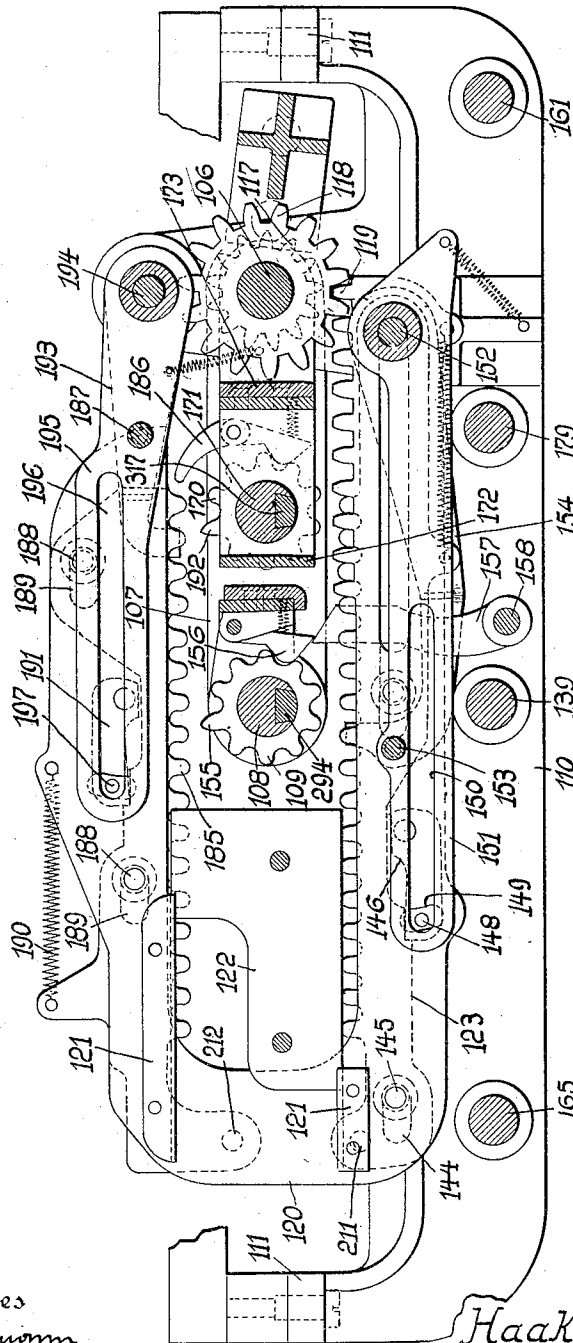
Witnesses
 C. Kostermann
 W. M. McCarthy

Inventor
 Haakon A. Martin.
 By *[Signature]*
 and Robless Attorney S

1,214,568.

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Fig. 11.



Witnesses
 C. Kostermann
 W. M. McCarthy

Inventor
 Haakon A. Martin.
 By *[Signature]*
 and Roblase Attorney S

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FIG. 12.

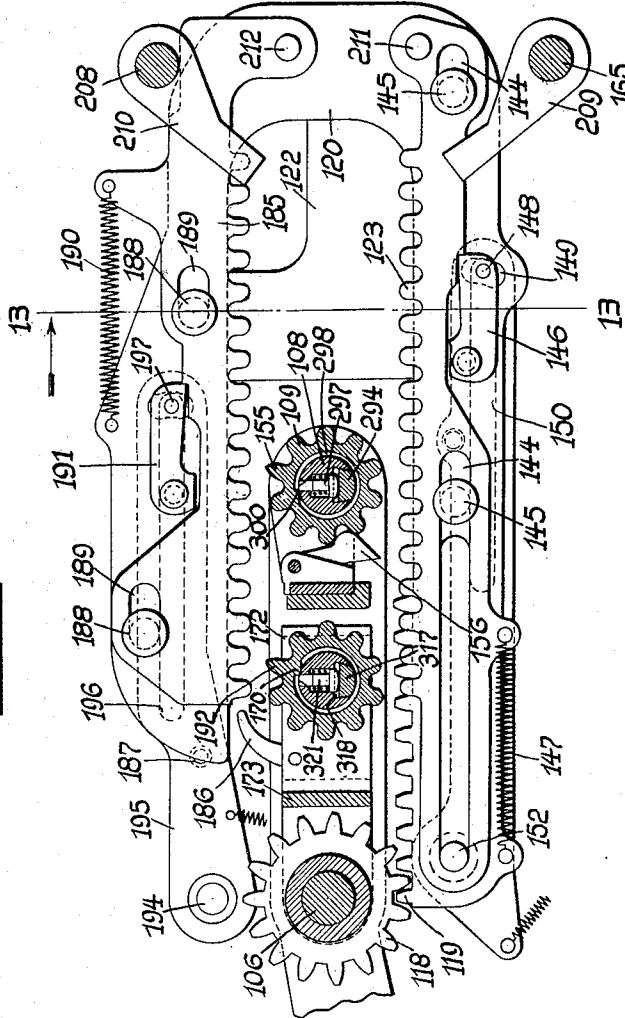
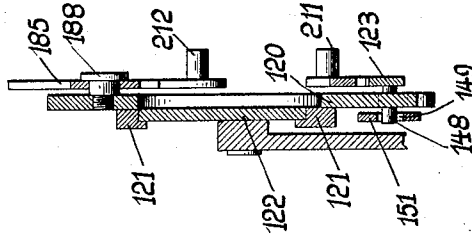


FIG. 13.

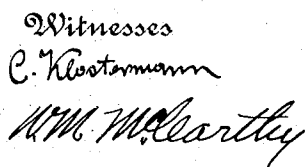


Witnesses
 C. Klostmann
 W. M. McCarthy

Inventor
 Haakon A Martin
 By *[Signature]*
 and R. O. Lass Attorney

1,214,568.

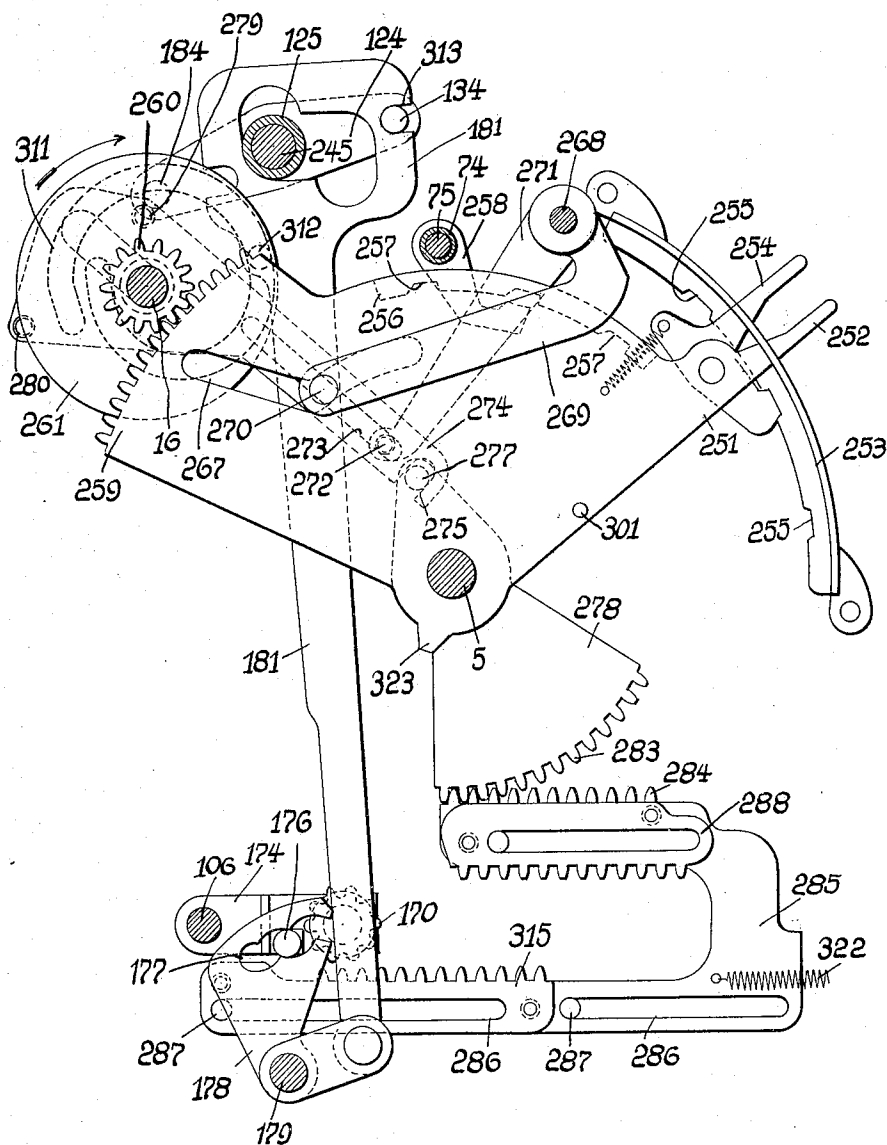
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Inventor
Hakon A. Martin
By *H. H. H. H.*
and R. L. L. L. Attorneys

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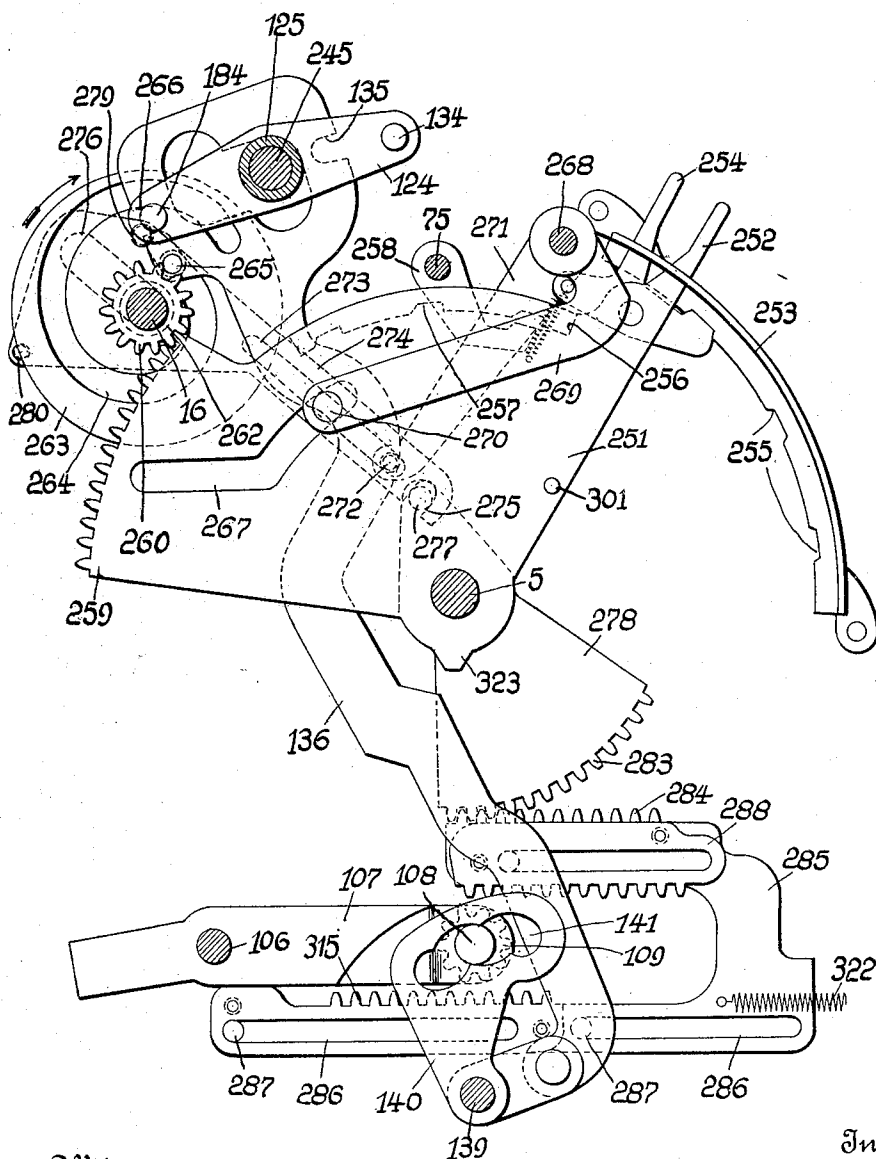
Witnesses
C. Klortmann.
W. M. McCarthy

Inventor
Haakon A. Martin.
By *H. H. H. H.*
a *W. H. H. H.* Attorney

1,214,568.

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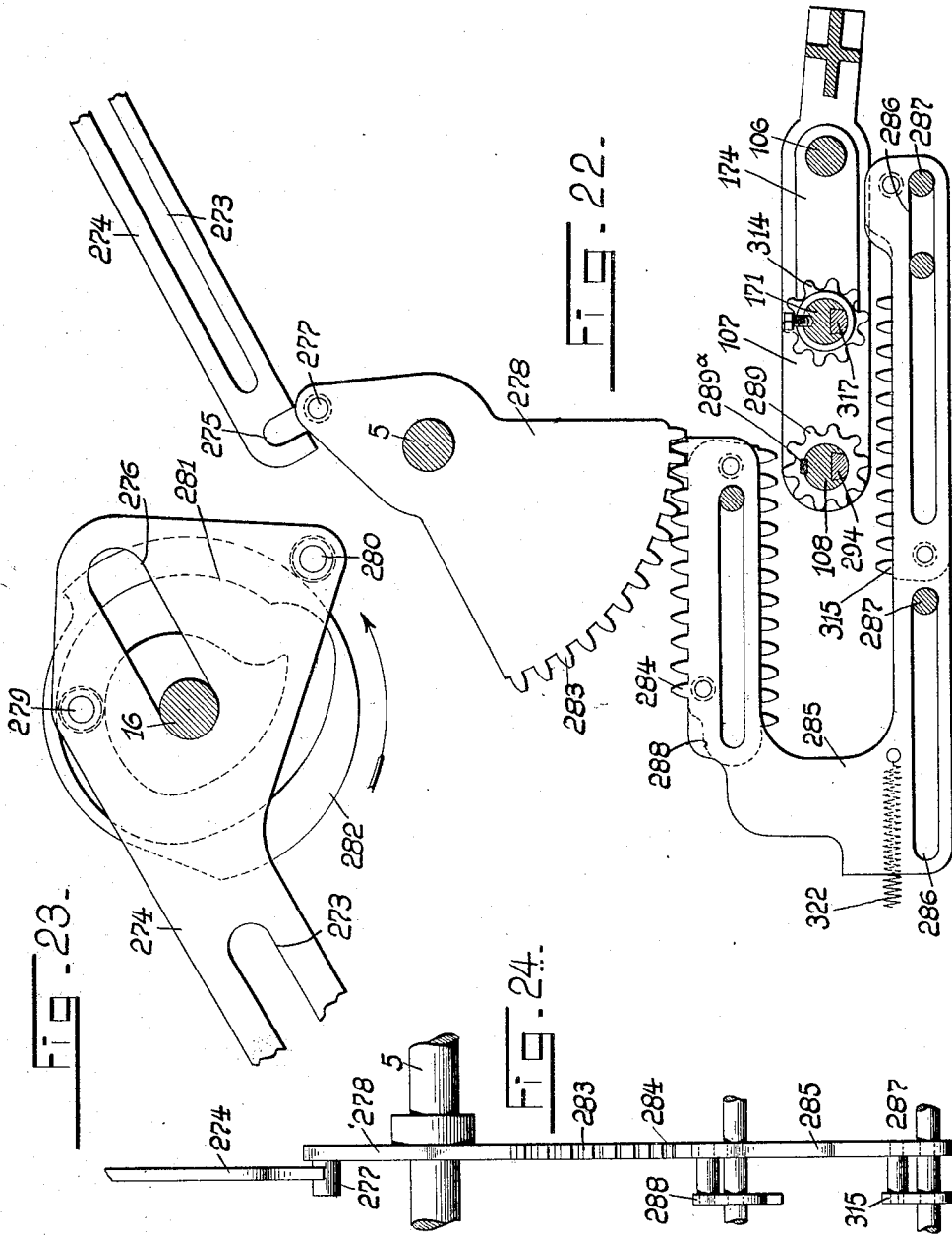
FIG. 18.



Witnesses
 C. Kostermann
 W. M. McCarthy

Inventor
 Haakon A. Martin
 by *[Signature]*
 and *[Signature]* Attorney

1.214,568.



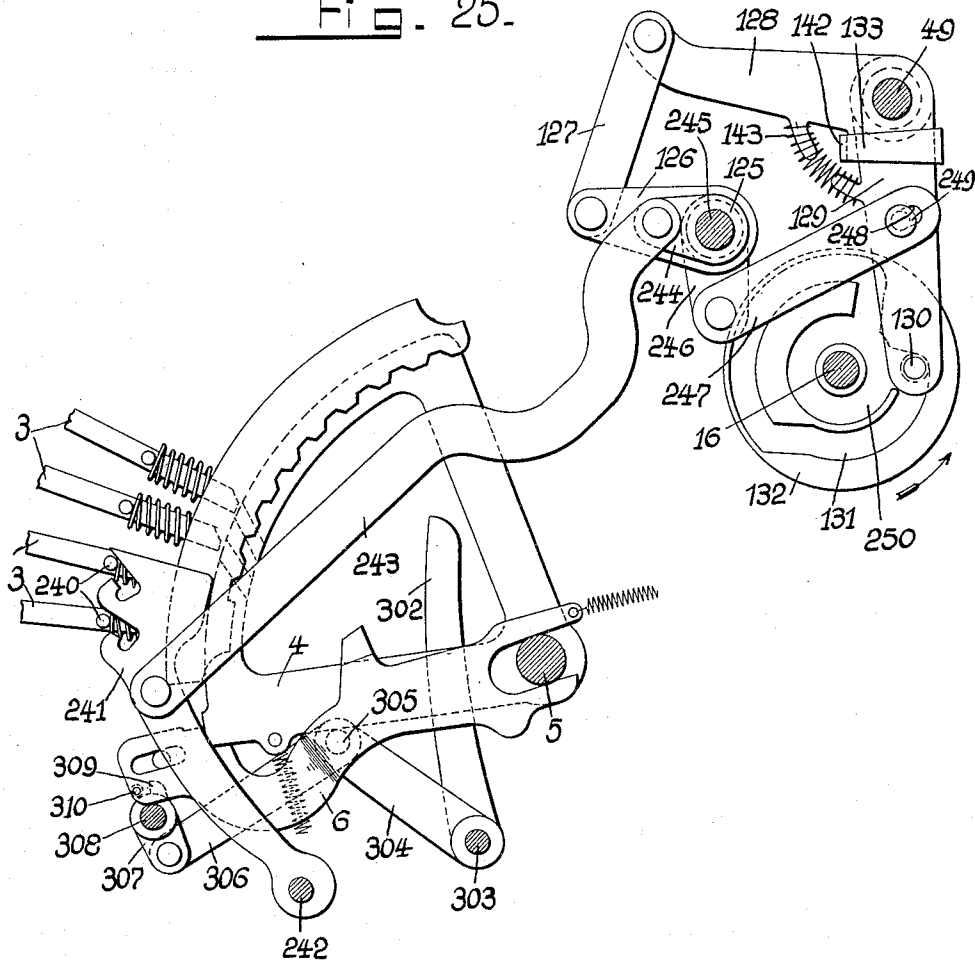
Witnesses
C. Kostermann
W. M. McLeathly

Inventor
Haakon A. Martin.
By [Signature]
and [Signature] Attorneys

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Patented Feb. 6, 1917.
 20 SHEETS—SHEET 15.

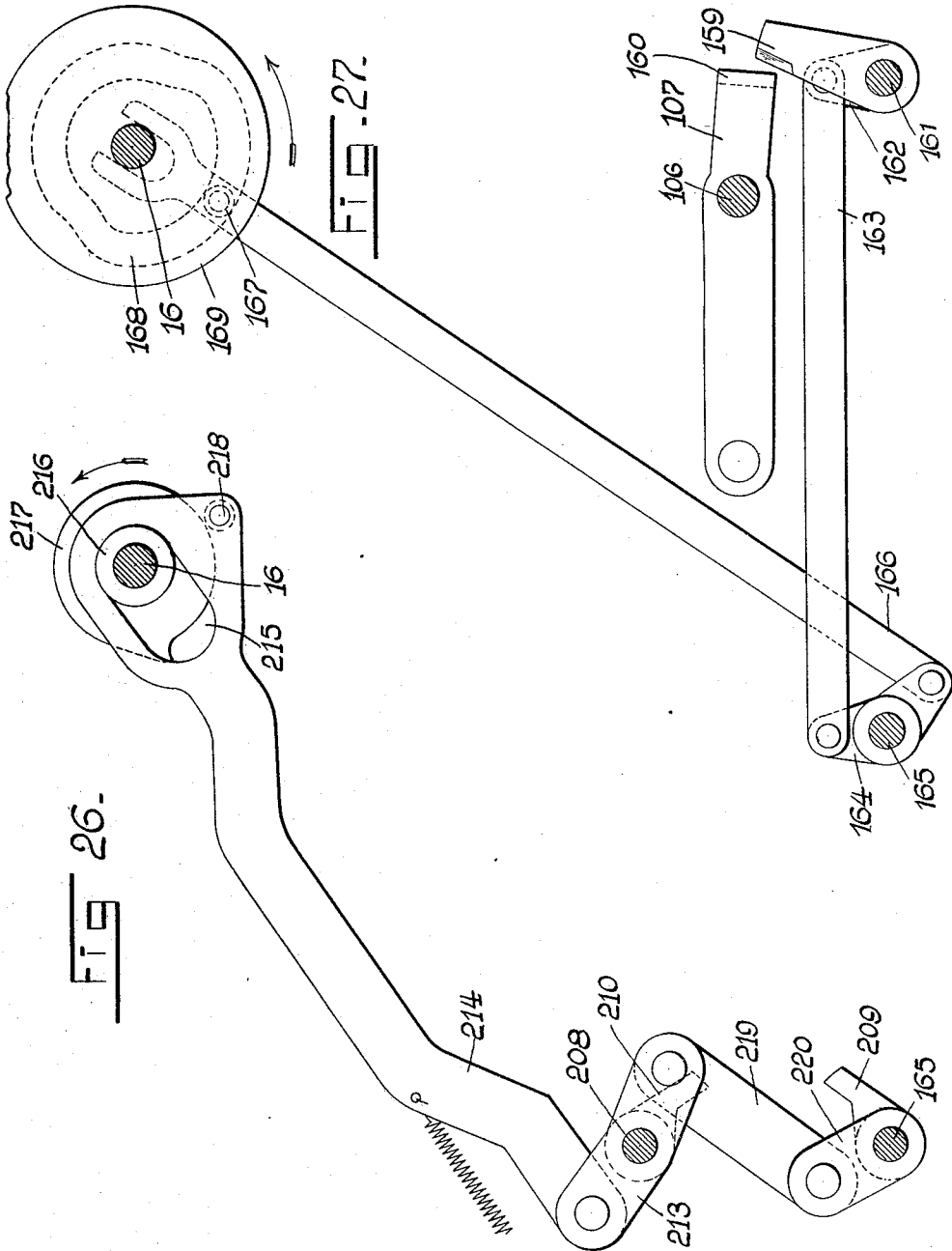
Fig. 25.



Witnesses
 C. Rostermann.
 W. M. McCarthy

Inventor
 Haakon A. Martin.
 By *H. A. Martin*
 and Robt. S. Ottorneys

1,214,568.



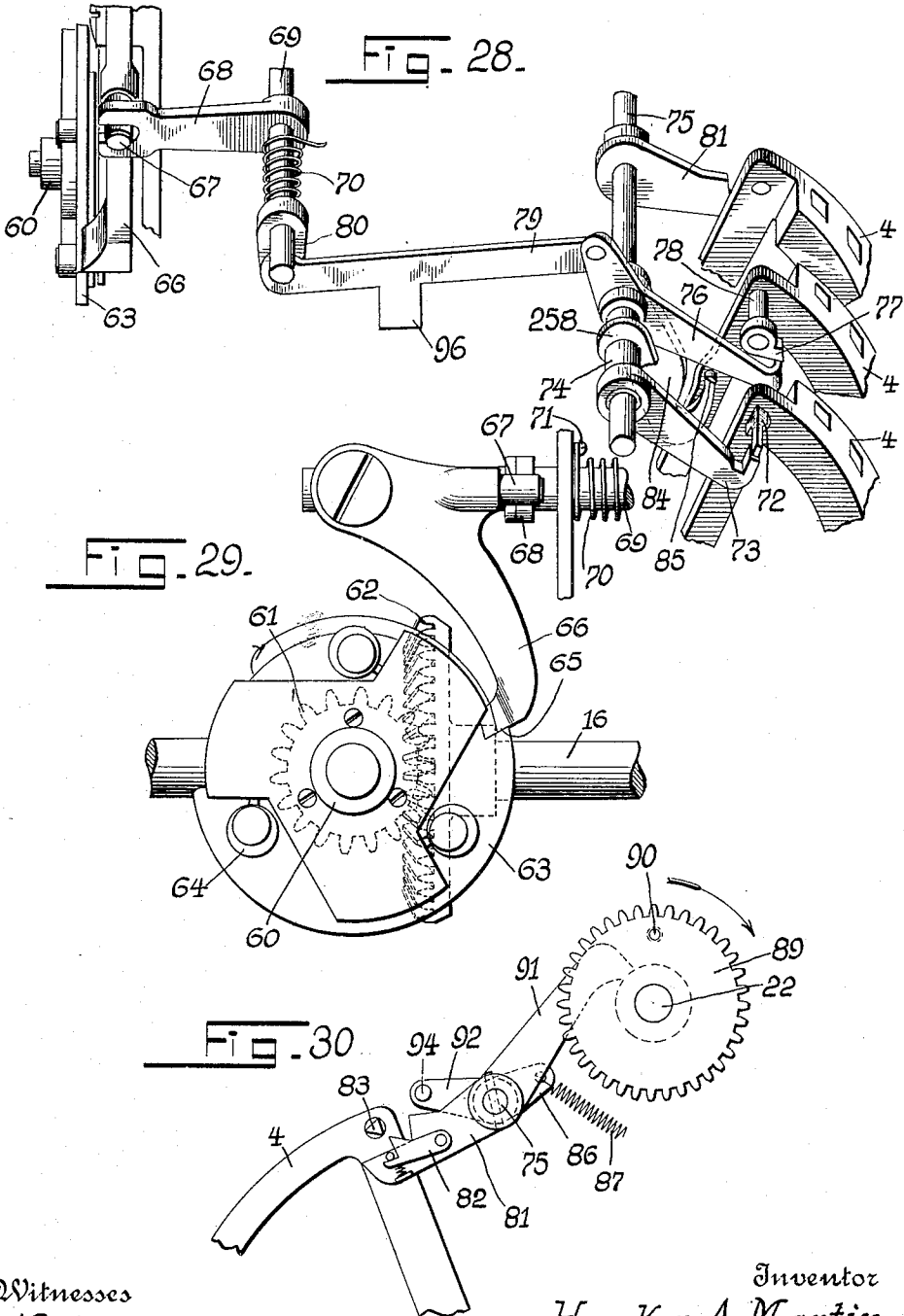
Witnesses
 C. Klostermann.
 W. M. McCarthy

Inventor
 Haakon A. Martin.
 By *[Signature]*
 and Robless, Attorneys

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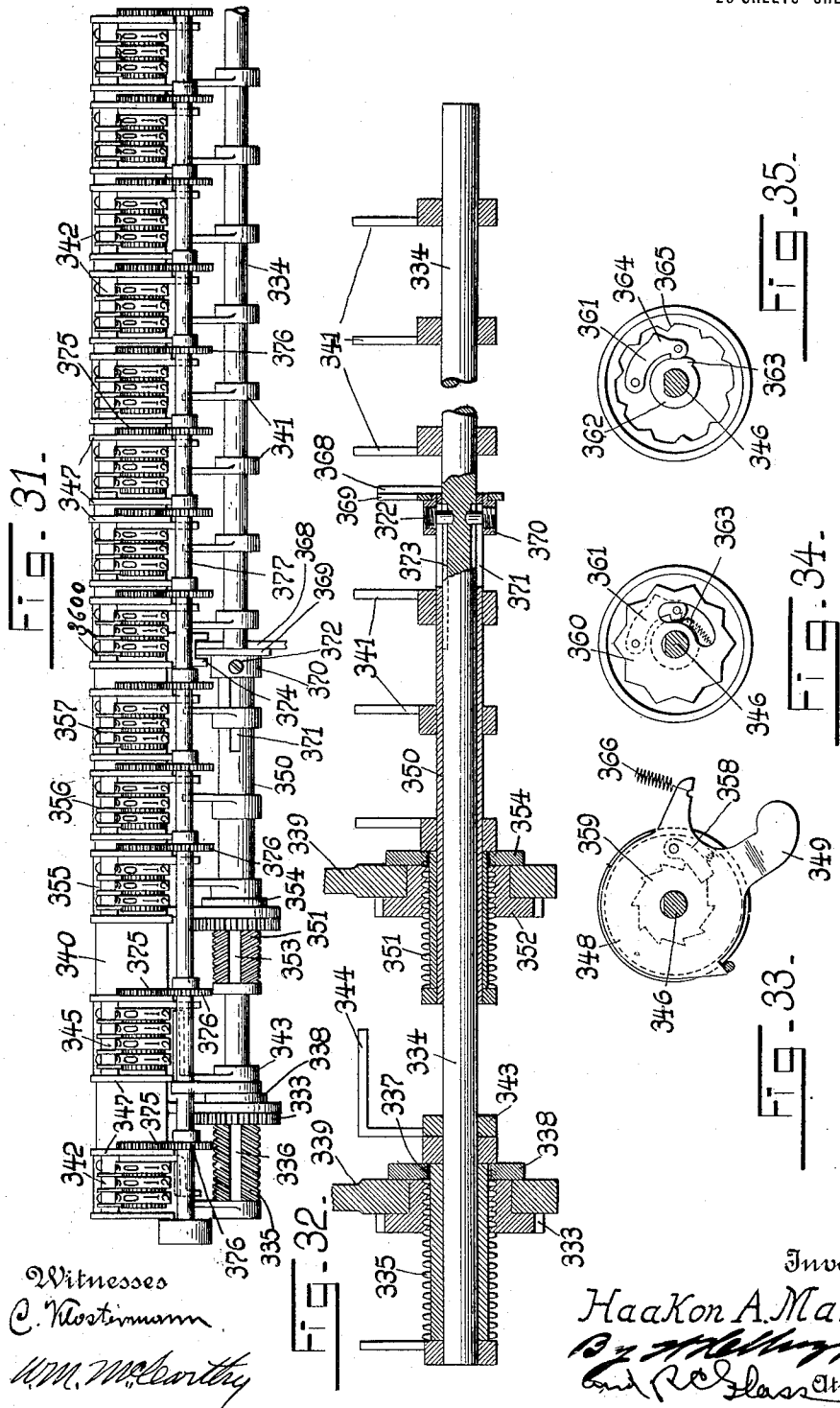
Witnesses
 C. Klotzmann
 W. M. McLearty

Inventor
 Haakon A. Martin
 by *[Signature]*
 and *[Signature]* Attorneys

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Patented Feb. 6, 1917.
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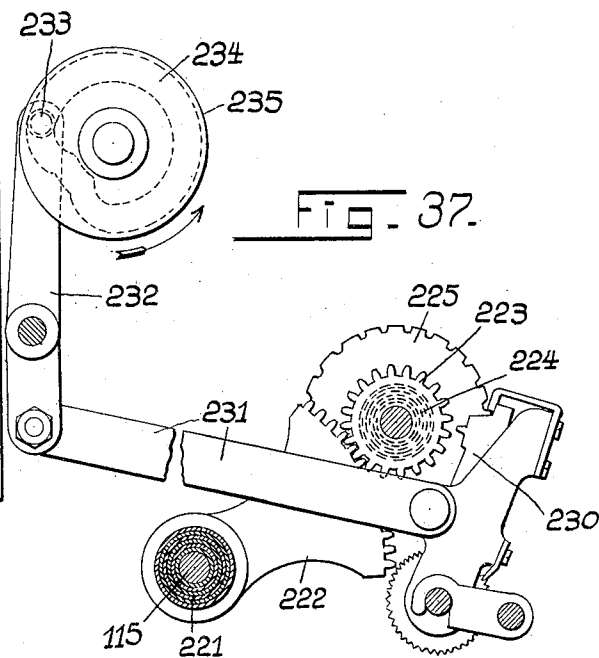
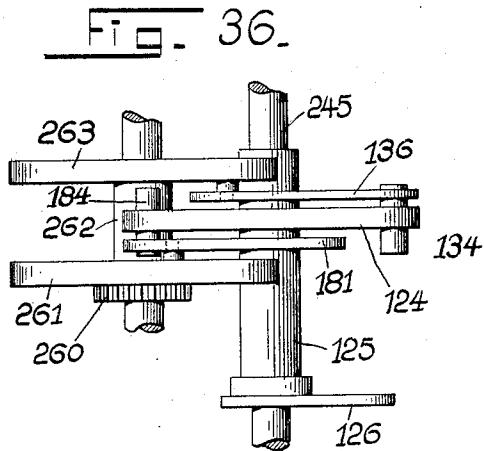
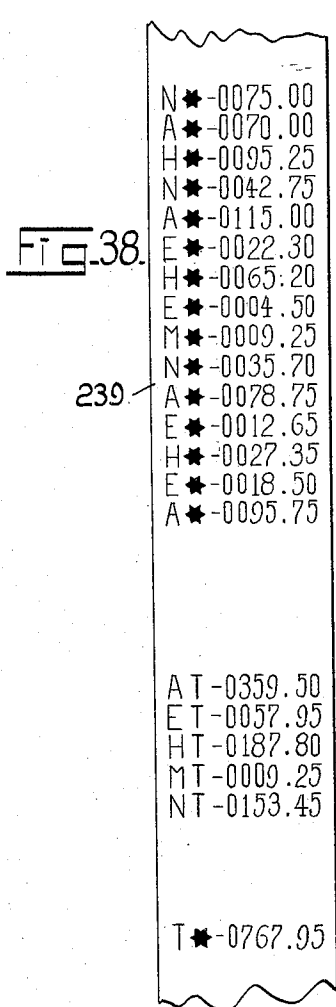
Witnesses
 C. Kustmann
 Wm. McCarthy

Inventor
 Haakon A. Martin.
 R. C. Glass Attorney

H. A. MARTIN.
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Witnesses
C. Rostmann
W. M. McCarthy

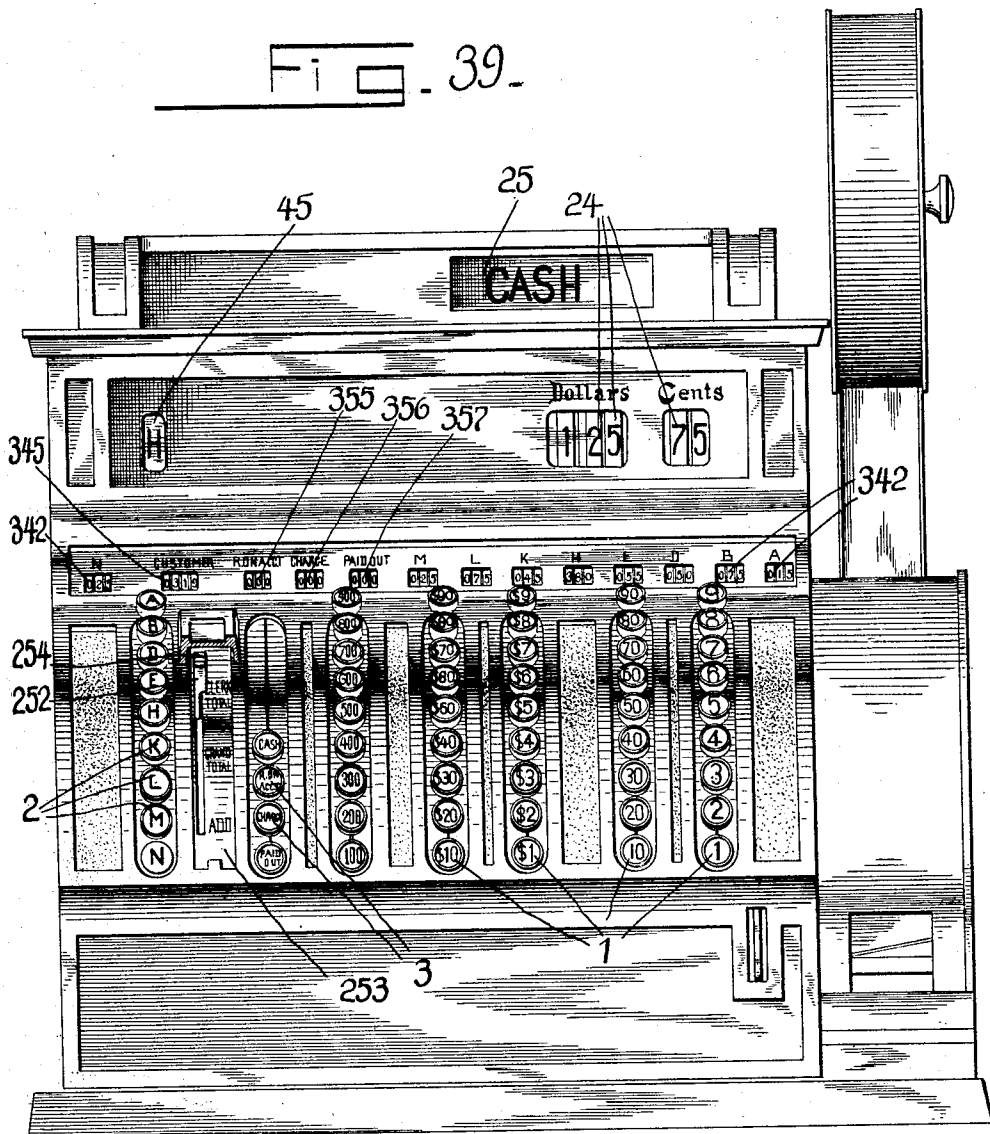
Inventor
Hakon A. Martin.
R. W. R. R. R.
W. R. R. R. Attorneys

H. A. MARTIN.
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Fig. 39.



Witnesses

C. Kleistmann,

J. B. Ricketts

Inventor

Haakon A. Martin.

by Richard
 and C. H. Brantton
 Attorneys.

UNITED STATES PATENT OFFICE.

HAAKON A. MARTIN, OF DAYTON, OHIO, ASSIGNOR TO THE NATIONAL CASH REGISTER COMPANY, (INCORPORATED IN 1906,) OF DAYTON, OHIO, A CORPORATION OF OHIO.

MULTIPLE-TOTAL-PRINTING CASH-REGISTER.

1,214,568.

Specification of Letters Patent.

Patented Feb. 6, 1917.

Application filed November 19, 1910. Serial No. 593,202.

To all whom it may concern:

Be it known that I, HAAKON A. MARTIN, a subject of the King of Norway, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Multiple-Total-Printing Cash-Registers, of which I declare the following to be a full, clear, and exact description.

10 This invention relates to improvements in accounting machines and more particularly to that class of machines employing a plurality of individual accumulators.

15 The principal object of this invention is to provide a plurality of individual accumulators for keeping separately the amounts of receipts of different clerks, departments of a store or the different transactions that occur in a mercantile establishment, and also to provide mechanism for accumulating the grand total of all of the individual accumulators.

20 Another object of this invention is to provide a lock for the operating mechanism to release which requires the conjoint operation of a plurality of keys.

25 Another object of this invention is to provide a totalizing mechanism by which any one of the aforesaid accumulators may be returned to zero, and by this action to position type carriers for recording the total previously shown by the reset accumulator.

30 A further object of this invention is partially to release the operating mechanism in preparing the totalizing mechanism for operation, so that a single key only is required to be operated fully to release the operating mechanism.

35 A still further object of this invention is to provide an improved form of resetting mechanism for the accumulators.

40 With these and incidental objects in view, the invention consists in certain novel features of construction and combination of parts, the essential elements of which are set forth in appended claims, and a preferred form of embodiment of which is hereinafter described with reference to the drawings which accompany and form part of the specification.

45 Figure 1 is a central transverse section taken through a machine of the type shown in the patent to Cleal and Reinhard granted April 13th, 1897, No. 580,378, with this invention applied thereto. Fig. 2 is a view

somewhat similar to Fig. 1 and taken alongside of the clerk's bank of keys. Fig. 3 is a vertical section taken through the clerk's indicator. Fig. 4 is an elevation of the left hand side of the machine. Fig. 5 is a side elevation showing the recording mechanism. Fig. 6 is a top plan view of the frame carrying the individual accumulators and also the grand total accumulator. Fig. 7 is an enlarged sectional view through one of the pinions showing the turn to zero plunger carried by the shaft upon which the pinions are mounted. Fig. 8 is a sectional view taken on lines 8—8 of Fig. 7. Fig. 9 is an enlarged partial top plan view of the various accumulators and actuating devices therefor. Fig. 10 is a horizontal section through the frame carrying the accumulators. Fig. 11 is a transverse sectional view through the sub-base in which the accumulators and actuating devices therefor are mounted. Fig. 12 is a view somewhat similar to Fig. 11 but looking in the opposite direction. Fig. 13 is a vertical section taken on line 13—13 of Fig. 12. Fig. 14 is an enlarged sectional view taken alongside of a manipulative device of the totalizing mechanism. Fig. 15 is a perspective view of a part of the frame carrying the grand total accumulator and one of the cams for rocking said accumulator into engagement with the actuating devices. Fig. 16 is a view similar to Fig. 15 but showing one of the cams for rocking the individual accumulators into engagement with their actuators. Fig. 17 is a view somewhat similar to Fig. 14 showing the totalizing manipulative device in position for controlling the recording of the total of the grand total accumulator. Fig. 18 is a view somewhat similar to Fig. 17 but showing the totalizing manipulative device in position for controlling the recording of the total of the individual accumulators. Fig. 19 is a perspective view of the transfer trip devices for the actuators of the individual and grand total accumulators. Figs. 20 and 21 are detail views of the connections for rocking the grand total and individual accumulators into engagement with the resetting devices, preparatory to the recording of the totals of the grand total and individual accumulators. Fig. 22 is a detail view partly in section of the resetting mechanism for the grand total and individual accumulators. Fig. 23 is an enlarged

view of the operating devices for the resetting mechanism. Fig. 24 is a front elevation of the mechanism shown in Fig. 22. Fig. 25 is a sectional view showing the mechanism for preventing engagement of the accumulators with the actuating devices therefor, when it is desired to record a transaction without entering it upon the accumulators. Fig. 26 is a view showing the mechanism for restoring the actuators after a transfer has taken place. Fig. 27 is an end elevation of the mechanism for alining the frame carrying the individual accumulators. Fig. 28 is a perspective view of the lock for the operating mechanism and the detents controlling same. Fig. 29 is a rear elevation of the lock for the operating mechanism. Fig. 30 is an end elevation of the devices for returning the key lock devices at the end of an operation of the machine. Fig. 31 is a front elevation of the special counters and operating devices therefor. Fig. 32 is an enlarged vertical sectional view of the shaft carrying the operating fingers for the special counters. Figs. 33, 34 and 35 are detailed views of the actuating and transfer devices for the special counters. Fig. 36 is a top plan view of the cams and connections controlled by the totalizing manipulative device. Fig. 37 is a sectional view showing the alining devices for the type carriers and the cam for operating said devices. Fig. 38 is a detailed view of a portion of the record strip. Fig. 39 is a front elevation of a machine embodying the invention showing the location of the special counters and the arrangement of the keyboard.

Described in general terms the machine comprises a plurality of individual accumulators which are mounted in a movable frame, any one of which accumulators may be brought into coöperative relation with actuators carried by differentially movable members, that are in turn controlled by banks of amount manipulative devices, such as keys. The movement of the frame carrying the individual accumulators is controlled by a differentially movable device which in turn is controlled by a bank of clerks' keys, the accumulators in this instance being shown as allotted to different clerks. A grand total accumulator is also provided, and the elements of this accumulator are rocked into engagement with racks carried by the differentially movable devices, which, as previously described, are controlled by the banks of amount keys, each time one of the individual accumulators is rocked into engagement with its actuators, which are also carried by the aforesaid differential devices. From this it will be seen that the total accumulation of all of the individual accumulators will be added upon the grand total accumulator. Indicators and type carriers are connected to the differen-

tially movable devices so that each transaction entered upon the accumulators will be indicated and recorded. A plurality of special counters is provided to register the number of transactions made by each clerk, and the number of special transactions such as "paid out," "charge," and "received on account," and a customer counter for registering the total number of all transactions. Mechanism is also provided for preventing the operation of any one of the accumulators when it is desired to indicate and record certain special transactions such as "paid out" and "charge."

A manipulative device forming a part of the total recording mechanism is constructed to be adjusted to three different positions. This manipulative device when in its lower position controls mechanism so that items may be entered upon the various accumulators. When this manipulative device is in its central position, mechanism is positioned for resetting the grand total accumulator and recording the total previously shown thereon. When in its upper position this manipulative device controls mechanism for resetting and recording the total of any one of the clerks' or individual accumulators.

The detailed description which is about to follow is divided under the following sub-headings, which will be taken up in the order here given: General principle of machine; Locking devices for the operating mechanism; Individual accumulators; Grand total accumulator; Recording mechanism; Throwout mechanism; Total recording mechanism; Special counters.

For the purpose of illustration this invention has been shown as applied to a type of machine the general principle of which is disclosed in the patent to Cleal and Reinhard, April 13th, 1897, and numbered 580,378, and the recording mechanism of which is shown in the patent to Thomas Carroll granted March 8th, 1904, numbered 754,049, and the application of E. J. Von Pein filed May 26th 1909, Serial No. 498,548, but it is to be understood that this invention is not limited to this particular type of machine, but may be applied to other well known forms of accounting machines.

General principle of machine.—The machine proper is provided with a plurality of banks of amount manipulative devices 1, see Figs. 1 and 39, and one bank each of clerks' keys 2, and special transaction keys 3, see Figs. 2 and 25 respectively. Each of the amount banks of keys 1 engage a detent 4 and slightly rotate said detent about a rock shaft 5 by which movement a retaining bar 6 is released and is drawn rearwardly by a spring 7 the ends of the latter being secured to the retaining bar and to a rod 8 mounted

in the extreme rear of the machine. By the rearward movement of the retaining bar 6 an upward extension 9 thereof will be withdrawn from a pin 10 projecting from a latch-
 5 ing bar 11, which is suitably mounted upon a segment 12 which in turn is loosely mounted upon the rock shaft 5. This latter shaft has fast thereto a downwardly and rearwardly extending arm 13 connected by a
 10 link 14, to an arm 15 which is rigidly mounted upon a main shaft 16. This shaft 16 is given a complete rotation once during each operation of the machine and through the arms 13 and 15 and link 14, rocks the shaft
 15 5 about 90 degrees.

Secured to the rock shaft 5 are a plurality of plates 17, one for each bank of amount keys, and each of these plates is provided with a shoulder 18 with which the released
 20 latch bar 11 engages at the end of the downward movement of the plates 17, so that when said plates are returned to normal position they will carry the released latch bars 11 and, the latter being mounted upon
 25 the segments 12, will also carry said segments. Pivotaly mounted upon the segments 12 below the latch bars 11 are arms 19 which carry spring pressed pawls 20. As the segments 12 are rotated rearwardly by
 30 the above described means, the pawls 20 will engage with the depressed keys and rock the arms 19 about their pivotal points, and said arms in turn will rock the latch bars 11 out of engagement with the shoulders 18 of the plates 17, so that said plates
 35 may continue their movements. The segments 12, controlled by the amount banks, engage with intermediate gears 21 which are loosely mounted upon a transverse shaft
 40 22, and these gears 21 in turn mesh with pinions 23 secured to indicators 24 which display the amount of the transaction at the front and back of the machine.

The special transaction keys 3 control a
 45 segment 12 in a similar manner, and this segment in turn controls devices for rotating a special transaction indicator 25 located above the amount and clerks' indicators as shown in Fig. 2. The means for driving this
 50 special indicator 25 is well known in the art and it is thought need not be shown more in detail.

The bank of clerks' keys 2, see Fig. 2, controls a segment 12 in a manner similar
 55 to the amount and special keys, but the segment is timed to move somewhat in advance of the segments which are controlled by the amount and special banks of keys, the purpose of which is to position the frame carrying the clerks' accumulators, previous to the
 60 operation of the actuators therefor, which are driven by the segments 12 of the amount banks of keys. A plate 26 which coöperates with the latch bar 11 of the segment 12, controlled by the clerks' keys is loosely mounted

upon the rock shaft 5, and is so positioned that when the retaining bar 6 of the clerk's bank of keys is released by the rocking of
 65 detent 4, and drawn rearwardly by its spring 7, the ends of which are fastened to the retaining bar 6 and a shaft 303, the said latch bar 11 will immediately engage with a shoulder 27 of plate 26. The plate 26 has a rearward extension 28 to which is pivoted the
 70 lower forward end of an arm 29, the upper end of which is provided with an elongated slot 30, through which extends the main shaft 16. This upper end of the arm 29 is also provided with anti-friction rollers 31 and 32 with which cams 33 and 34 respec-
 75 tively coöperate. These cams are arranged upon the shaft 16 in such a manner that upon the beginning of the rotation of the shaft the cam 33 will engage with the roller 31 and lower the arm 29 so as to rock the
 80 cam plate 26 in a clockwise direction and through the latch bar 11 rotate the segment 12 in a similar direction.

Near the end of the rotation of the shaft 16 the cam 34 will engage with the roller 32
 85 and restore the arm 29 and the cam plate 26 to which it is connected, to normal position as shown in Fig. 2. The rearward extension 28 of the cam plate 26 engages with a pin 37 in the return or anti-clockwise movement of
 90 the cam plate 26 and thereby restores the segment 12 to its normal position as shown in Fig. 2. Owing to the fact that the segment 12 of the clerks' bank is restored to its normal position at the end of each operation
 95 of the machine, it is necessary to provide a different form of indicator for the clerks than that provided for the amount banks of keys. This form of indicator will now be described.

The segment 12 meshes with an intermediate gear 21 similarly to the segments controlled by the amount keys, and this gear 21
 100 meshes with the pinion 23 which is secured to a short sleeve 38, loosely mounted upon a shaft 39 that supports the amount indicators 24. On the end of the sleeve 38, see Fig. 3, opposite to the end to which pinion 23 is secured is a disk 40 provided with a single
 105 tooth 41, which normally is in engagement with a pin 42 projecting from one of the sides of a hub 43, which is loosely mounted upon enlarged portions of the sleeve 38. This hub 43 is provided with a flange 44 to which is secured the clerk's indicator 45. A
 110 coiled spring 46 surrounds the sleeve 38 and has one end fast to said sleeve, while its other end is secured to the hub 43 carrying the clerk's indicator 45 and the tension of said spring is such as to keep the pin 42 in
 115 engagement with the tooth 41 of the disk 40 carried by said sleeve. From this it will be seen that as the segment 12 of the clerk's bank of keys is rotated clockwise the sleeve 38, carrying the disk 40, will be rotated in a
 120 125 130

similar manner and by the tooth 41 engaging with the pin 42 projecting from the hub 43, the clerk's indicator 45 will be rotated in a similar manner. Fastened to this indicator 45 is a ratchet wheel 47, with which a spring operated pawl 48 engages to hold the indicator wheel 45 in its adjusted position, while sleeve 38 is returned to its normal position at the end of the operation of the machine. This pawl 48 is loosely mounted upon a rock shaft 49 and is provided with a pin 50 which projects from the hub of said pawl.

The rock shaft 49 has extending therefrom a pin 51, which, upon the beginning of the operation of the machine, engages with the pin 50 and rocks the pawl 48 out of engagement with the ratchet wheel 47 to permit the spring 46 to rotate the hub 43 and indicator 45 carried thereby in an anti-clockwise direction until the pin 42 projecting from the hub 43 contacts with the tooth 41 of the disk 40. This rock shaft 49 has also secured thereto alining pawls 52, see Fig. 1 which engage with notches 53 formed in plates 54, one of which is secured to each one of the intermediate gears 21, and thereby properly aline the amount indicators 24 between the operations of the machine. This rock shaft 49 has extending downwardly therefrom an arm 55, which is provided at its lower end with an anti-friction roller 56, with which a cam 57 secured to the shaft 16 engages. The timing of this cam 57 is such that upon the beginning of the operation of the machine it will pass out of engagement with the roller 56 to permit a spring 58 interposed between the back frame of the machine and a lug 59 projecting from the arm 55 to rock the arm 55 and shaft 49 in a clockwise direction, by which movement the pawls 52 will be withdrawn from the alining plates 54 so that as the shaft 16 continues to rotate, rearward extensions of the cam plates 17 will engage with the rear edges of the segments 12, controlled by the amount banks of keys, and return the same to normal position, which operation is well known in the art and fully described and shown in the aforesaid Cleal and Reinhard patent.

Locking devices for the operating mechanism.—The machine is shown in a general way equipped with an electric driving device such as shown in the application of Kettering and Chryst filed September 23, 1907, Serial No. 394,187, and for a detailed description of same reference may be had to the said application. A sleeve 60 (Fig. 29) is connected to the armature shaft through a suitable clutch and gearing (not shown), and is provided with a bevel gear 61 which meshes with another bevel gear 62 secured to the main shaft 16. A disk 63 provided with rollers 64 which connect

the members of the clutch is fully shown in the aforesaid Kettering and Chryst application and is provided with a locking shoulder 65 which is engaged by a locking pawl 66 pivoted upon the back frame of the register casing. This pawl has projecting therefrom an anti-friction roller 67 which passes in the forked end of an arm 68 secured to a rock shaft 69 around which a spring 70 is coiled. The ends of this spring 70 are fastened to the shaft 69 and to a pin 71 extending from one of the intermediate frames of the machine and which frames also support the shaft 69. The tension of the spring 70 is such that it is normally exerting its power to rock the shaft 69 in a clockwise direction (Fig. 28) and thereby elevate the locking pawl 66 out of engagement with the notch 65 of the disk 63 but it is normally restrained by the following devices: The clerk's detent 4 (Fig. 28) is provided with a lug 72 at its upper end, with which the forward end of an arm 73 is arranged to contact. The rearward end of this arm 73 is secured to a sleeve 74 loosely mounted upon a shaft which extends transversely across the entire width of the machine. Secured to this sleeve 74 is a bell crank arm 76, the forwardly projecting member of which is arranged to contact with the under side of a projection 77, secured to a stud 78 extending from the detent 4 coöperating with the special keys 3. The upwardly extending member of the bell crank 76 is connected by a link 79, to the free end of an arm which is rigidly secured to the previously mentioned rock shaft 69. From this it will be seen that a key of both the clerk's bank and special banks of keys is required to be operated before the rock shaft 69 can be rotated by the spring 70 to release the pawl 66 from engagement with the disk 63. The shaft 75 is provided with forwardly extending arms 81, which, at their forward ends, are provided with spring pressed pawls 82, see Fig. 30, arranged to coöperate with lugs 83 projecting from the detents 4 that coöperate with the amount banks of keys. This shaft 75 near the left hand end thereof, see Fig. 28, is provided with a forwardly and downwardly extending arm 84 which normally is in engagement with a lug 85 projecting from the detent 4 operated by the special bank of keys. An arm 86, see Fig. 30, extends rearwardly from the shaft 75 and has attached to it one end of a spring 87, the other end of which is suitably secured to one of the side frames of the machine. This spring normally holds the arm 84 in contact with the lug 85 of the special key detent 4. When this detent is operated by any one of the special keys the lug 85 passes from above the forward end of the arm 84, and by the spring 87 the shaft 75 is rocked so as to move the pawls

82 carried by the arms 81 in the path of the lugs 83 projecting from the detents 4 of the amount banks and preventing the operation of said detents after any one of the special keys 3 has been depressed. From this it will be seen that it is necessary to depress the desired amount keys before the detent 4, coöperating with the special keys, is elevated.

To the right hand end of the shaft 16 is secured a gear 88, see Fig. 5, which meshes with a similar gear 89 secured to the right hand end of shaft 22. This gear 89 is provided with a pin 90, which, near the end of the rotation of said gear 89, will engage with a rearwardly and upwardly extending arm 91, see Fig. 30, which is loosely mounted upon the shaft 75, and rock said arm in anti-clockwise direction. This arm 91 is provided with a forwardly extending portion 92 which has projecting therefrom a stud 94 that engages with the upper side of the right hand arm 81, and rocks said arm and shaft 75 to which it is secured in an anti-clockwise direction, to enable the forward end of the arm 84, carried by said shaft 75, see Fig. 28, to pass below the lug 85 carried by the special key detent 4, and thereby be held by said lug in the position to which it is rocked by the arm 91 upon the return of the special detent 4 to normal position.

Near the end of the rotation of the shaft 16 a pin 95, see Fig. 2, carried by the cam 34, will engage with a downwardly extending projection 96 of the link 79 and move said link forwardly so as to rock the arms 73 and 76 in a clockwise direction, see Fig. 28, to carry said arms out of the paths of the lugs 72 and 77 carried by the detents co-operating respectively with the clerk's and special banks of keys in order that said detents may be returned to their normal position, it being understood that the retaining bars 6 which coöperate with said detents are returned to their normal position previous to the return of the arms 73, 76 and 81, in a manner similar to that shown in the aforementioned Cleal and Reinhard patent. The return of the arms 73 and 76 by the link 79 as just described, will also rock the shaft 69 so as to carry the locking pawl 66 into position to engage the shoulder 65 of the detent 63 at the end of the operation of the machine.

A crank handle 97, see Fig. 5, is provided in case it is desired to operate the machine manually. This handle has a one-way connection with a pinion 98 which meshes with an intermediate gear 99, that in turn meshes with the above described gear 89.

Individual accumulators.—There are nine clerks' or individual accumulators, one for each of the keys of the clerk's bank, the elements of which are in the form of pinions.

The similar denominational elements or pinions of the various accumulators are grouped, that is, the elements or pinions of the units denomination are mounted adjacent to each other and so are all of the elements of each of the other denominations. With this construction the frame carrying these various accumulators will need considerably less movement in bringing any set of accumulator elements into coöperative relation with the actuators therefor than if the elements of each accumulator were grouped.

The segment 12, which is controlled by the clerk's bank of keys, has an extension 35 which meshes with a pinion 36 secured to a larger pinion 100, see Figs. 2 and 4. The pinion 100 meshes with a similar pinion 101 that is provided with a hub 102, see Fig. 6, having internal threads 103 which mesh with the threads of a worm 104 loosely mounted upon a reduced portion 105 of a rod 106 that is suitably fastened to the side frames of the machine. The inner end of the worm 104 is pinned to the left hand end of a rock frame 107, see Fig. 10, which is loosely mounted upon the rod 106. This frame at its forward end supports a shaft 108 upon which are mounted the pinions or elements 109 of the individual accumulators. A sub-base 110 supports the frame 107 and the individual accumulators 109, and this base is secured to the base of the machine proper by tie bars 111, see Figs. 1, 4 and 11.

The pinion 101 and hub 102 thereof are suitably mounted in the left hand side-frame of the sub-base 110, see Fig. 6, so as to prevent any lateral movement of said pinion, but at the same time freely to allow the rotation of said pinion. From this it will be seen that as the pinion 103 is rotated by the extension 35 of the clerk's segment 12, through the intermediate pinions 36 and 100, the worm 104 and frame 107 to which said worm is connected, will be shifted laterally thereby positioning the accumulator relative to the actuators hereafter described corresponding to the clerk's key depressed.

Referring now to Fig. 1, it will be seen that each of the segments 12 controlled by the amount banks of keys, is provided with an anti-friction roller 112 which is arranged to play in an elongated slot 113 in an upwardly extending arm 114. These arms 114 are pivoted upon a shaft 115 and each one has a segmental extension 116 which meshes with a pinion 117 loosely mounted upon the rod 106. Secured to the hub of each one of the pinions 117 is a larger pinion 118 (Figs. 1, 9 and 11) which meshes with teeth 119 formed upon the upper edge of the lower member of a yoke shaped bar 120. Each one of these bars 120 is provided with flanges 121 which engage with the upper and lower edges of a guide plate

122 secured to one of the frames of the sub-base 110. From this it will be seen that the differential movements of the segments 12, will, through the pinions 117 and 118, move the bars 120 differentially. The lower member of these differential yoke shaped bars carry actuating racks 123 for the elements 109 of the individual or clerks' accumulators.

After the frame 107 carrying the individual accumulators has been properly positioned, as heretofore described, the said frame will be rocked so as to carry the positioned accumulator into engagement with the actuating racks 123 by the following described mechanism: A centrally pivoted beam or member 124 is secured to one end of a sleeve 125, see Fig. 14, which is loosely mounted upon a shaft 245, the latter being in horizontal alinement with the shaft 22. The other end of this sleeve 125 carries a forwardly extending arm 126, see Figs. 25 and 36, connected by a link 127, to the forward end of an arm 128 which is loosely mounted upon the rock shaft 49. Mounted upon the rock shaft 49 adjacent to the arm 128 is a downwardly extending arm 129, which, at its lower end, carries a roller 130 that plays in a cam groove 131 of a disk 132 secured to the main shaft 16. A flange 133 of the arm 128 overlaps the rear edges of the arm 129 so that when the said arm 129 is rocked anti-clockwise by the cam disk 132 it will, through the flange 133, rock the arm 128 in a similar direction. This movement of the arm 128 through the link 127 and arm 126, rocks the sleeve 125 anti-clockwise in Fig. 25 and clockwise in Fig. 14, it being understood that the member 124 will rock with said sleeve 125. The forward end of the member 124 carries a pin 134 which projects from both sides of said beam or member 124. Normally this pin rests in a recess 135 formed in the forward edge of the upper end of a pitman 136, the upper end of this pitman 136 being also provided with a zig-zag slot 137 through which the sleeve 125 carrying the beam 124 plays. The lower end of the arm 136 is fastened to the forward end of an arm 138, which is rigidly secured to a rock shaft 139 mounted within the side frames of the sub-base 110. Extending upwardly from the ends of the rock shaft 139 are plates 140 provided with cam slots 141 at their upper ends, in which play the ends of the shaft 108 carrying the accumulator pinions or elements 109. From this it will be seen that as the beam 124 is rocked clockwise (Fig. 14) by the above described mechanism, the pitman 136 will similarly rock the shaft 139 and by the cam slots 141 formed in the upper ends of plates 140, rock the accumulator frame 107 about the shaft 106 and thereby carry the positioned accumulator into engagement with the actuat-

ing racks 123 carried by the lower member of the differentially movable yoke shaped bars 120, after which the said bars 120 will be actuated by the segments 12 distances in proportion to the amount keys depressed. After the differential bars 120, carrying the actuating racks 123, have been actuated, the frame 107 will be rocked back to its normal position, carrying the accumulator elements out of engagement with the actuating racks 123, by the cam disk 132 which will rock the arm 129 in an anti-clockwise direction (Fig. 25) so that the forward edge of said arm will engage with a lip 142 of a forward portion of the flange 133 and rock the sleeve 125 and beam 124 carried thereby to its normal position, as shown in Fig. 14, by the arms 126 and 128 and the link 127.

It will be noticed that the shape of the cam 131 is such that, in restoring the arm 128 to its normal position the arm 129 will be rocked farther than when rocking the arm from normal position. The purpose of this is to enable the arm 129 to have a slight independent movement of the arm 128, which independent movement of the arm 128 is used when it is desired to record and indicate an item without entering it upon any one of the totalizers as will hereinafter be more fully described. A spring 143 interposed between the arms 128 and 129 keeps the rear edge of the arm 129 in contact with the rear lip of the flange 133 carried by the arm 128.

The actuating racks 123, see Figs. 11 and 12, are mounted upon the differential bars 120 so as to have an independent movement thereof to effect transfers. These racks are provided with elongated slots 144 through which pins 145 project into the differential bars 120. Each of these racks 123 is held by a pawl 146, see Fig. 12, against the tension of a spring 147, the ends of which are secured to the rack and to the differential bar 120. The pawl 146 is pivoted to the differential bar and has a pin 148 projecting through a slot 149 formed in the differential bar 120 and into an elongated slot 150, see Fig. 11, formed in the member 151 of a trip mechanism which is loosely pivoted upon a rod 152 supported by the side-frames of the sub-base 110. This member 151 of the trip mechanism is connected by a rod 153, see Fig. 19, with another member 154 of the trip mechanism which is also pivoted upon the rod 152. The member 154 of the trip mechanism is in position to be engaged by an enlarged tooth 155 of one of the accumulator pinions 109 as the said pinion moves from nine to zero and thereby lowers both members of the trip mechanism so as to depress the pawl 146 thereby permitting the spring 147 to move the actuating rack of the next higher denomination an additional tooth to effect the transfer. This method of trans-

ferring is well known in the art and it is thought needs no further description here. As shown in Fig. 9 the forward end of the member 154 of the trip mechanism lies adjacent to its corresponding rack 123 and is directly beneath one of the accumulator pinions 109. The depth of the teeth of the racks 123 is great enough to permit the free rotation of said pinions with their enlarged teeth 155. The member 154 of each trip mechanism is positioned so as to be engaged in the rotation of its companion pinion by the enlarged tooth only of said pinion, the other teeth passing idly over the member 154.

When the accumulator pinions 109 are in normal position, that is, out of engagement with the actuating racks 123, they are engaged by retaining pawls 156, see Fig. 11, so as to prevent any accidental movement of said pinions. When the pinions are rocked into engagement with the rack these pawls 156 will be rocked out of engagement with said pinions by the lower inclined edges of uprights 157 mounted rigidly upon a cross rod 158 secured in the sub-base 11. The purpose of withdrawing these retaining pawls is to reduce the friction upon the pinions 109 as they are rotated by the actuating racks 123.

After the frame 107 carrying the individual accumulators has been properly positioned an alining pawl 159 (Figs. 4, 6, and 27) will be rocked into one of the notches 160 formed in the rear tie bar of the frame 107, to insure the proper engagement of the positioned accumulator with its actuating racks. This pawl 159 is fast upon a shaft 161 suitably mounted in the sub-base 110 and said shaft has extending upwardly therefrom an arm 162 connected by a link 163, to the upwardly extending arm of a bell crank 164 which is loosely mounted upon a shaft 165 also secured in the sub-base 110. The downwardly extended portion of the bell crank 164 has secured to it the lower end of a pitman 166, the upper end of which is forked so as to straddle the main shaft 16. Near its upper end the pitman 166 is provided with an anti-friction roller 167 which plays in a cam groove 168 formed in a disk 169 secured to the shaft 16. The shape of this cam groove 168 is such that after the accumulator frame 107 has been positioned by the clerk's segment 12, and before the positioned accumulator has been rocked into engagement with its actuating racks, the alining pawl 159 will be rocked into one of the notches 160 formed in the rear cross bar of frame 107, and held there until the frame is rocked carrying the accumulator out of engagement with the actuating racks 123, after which the pawl 159 will be returned to its normal position, to permit the return of the accumulator frame 107 to its normal position.

Grand total accumulator.—The grand total accumulator is somewhat similar to the individual accumulators and comprises a plurality of pinions, which are mounted in a frame that is adapted to be rocked, so as to carry the pinions into engagement with an additional set of racks carried by the differentially movable yoke shaped bars, which also carry the racks for actuating the individual accumulators.

The grand total accumulators pinions 170, see Figs. 1, 6, 9, 10, 11 and 12 are mounted upon a shaft 171 supported by spacing frames 172 which are pinned to a transverse bar 173 provided with rearward extensions 174 through which the previously described rod 106 passes. The frames 172, see Figs. 6 and 10, are for the purpose of properly spacing the accumulator pinions 170.

The bar 173 of the grand total accumulator frame has at each end a forwardly extending lug 175 which in turn has a laterally extending stud 176. These studs 176 enter cam slots 177, see Figs. 14 and 15, of plates 178 which are secured near the ends of a rock shaft 179 suitably mounted in the sub-base 110. Near one end of this rock shaft, see Fig. 14, is rigidly secured thereto a forwardly extending arm 180 to which is secured the lower end of a pitman 181, the upper end of said pitman having a zigzag slot 182 somewhat similar to the zigzag slot 137 formed in the pitman 136, as previously described in connection with the individual accumulators. The sleeve 125 of the beam 124 passes through the slot 182 of the pitman 181. The rear upper edge of the pitman 181 is provided with a recess 183 in which projects a pin 184 extending from the rear end of the beam 124. As previously described, this beam 124 is rocked clockwise in Fig. 14, so that this pin 184 will elevate the pitman 181 and thereby rock the shaft 179 anti-clockwise. The cam slot 177 of the plates 178, which are secured to the rock shaft 179, will elevate the frame, carrying the grand total accumulator pinions 170 into engagement with actuating racks 185 mounted upon the upper members of the differentially movable yoke shaped bars 120. While these accumulator pinions 170 are in engagement with the racks 185, the bars 120 will be adjusted differentially in proportion to the amount keys depressed, as previously described. After the item has been entered upon the grand total accumulator, the frame carrying said accumulator will be rocked, carrying the pinions 170 out of engagement, by the return of the cam plates 178 to normal position. Spring pressed retaining pawls 186 are suitably mounted in the frame carrying the grand total accumulator, and as the said frame is rocked, carrying the accumulator pinions 170 into engagement with the actuating racks 185, the upper ends of the

retaining pawls 186 will contact with the underside of the upper arms of the differentially movable members 120 and thereby be rocked out of engagement with the accumulator pinions 170, so as to reduce the friction while the racks are actuating the said pinions.

The racks 185 are mounted upon the differential bars 120, similarly to the lower set of racks 123, by pins 188 which project from the upper members of the differential bars 120, through elongated slots 189 formed in the said racks 185, see Figs. 11 and 12. These actuating racks are held with one end of the slots 189 formed therein in contact with the pins 188, against the tension of coiled springs 190, by pawls 191 which are pivoted upon the upper member of the differential bars 120. The ends of the spring 190 are fastened to the actuating racks 185 and to the upper members of the differential bars 120. The accumulator pinions 170 are each provided with an enlarged tooth 192, which, as ten is accumulated upon any one of said pinions, will engage with one member 193 of a transfer trip mechanism, see Figs. 11, 12, and 19, which is pivotally mounted upon a transverse rod 194 and rock said member. This member 193 is connected by a rod 187 with a companion member 195 which is also pivoted upon the rod 194, and is provided with an elongated slot 196 at its forward end, in which plays a stud 197 of the pawl 191. From this it will be seen that as the enlarged tooth 192 of the grand total accumulator pinion engages the member 193, the forward end thereof will be elevated, which in turn will elevate the locking nose of the pawl 191 from engagement with the actuating rack 185 of the next higher denomination, so as to permit the spring 190 to move this rack an additional step in order to effect the transfer. As previously mentioned in connection with the actuating racks 123 of the individual accumulator, this style of transfer is well known in the art and it is thought no further description of it need be given.

As previously described, the driving plates 17 secured to the rock shaft 5, see Fig. 1, have rearward extensions which engage with the rearward edge of the segments 12, and return said segments to their normal positions from their previously adjusted positions during the first part of the operation of the machine. These segments carry the rollers 112, which play in the slots 113 in the arms 114, connected to the differential bars 120, so that upon the return of the segments 12 the rollers 112 will also return the bars 114 to their home positions. To cause the return of the bars 114 and the differential bars 120 when printing totals, the following mechanism is provided: Pivoted loosely upon the shaft 115 near each side of

the machine, are arms 198 the free ends of which support a transverse rod 199. This rod has secured thereto an arm 200 to which is fastened the lower end of a pitman 201, the upper end of which is slotted as at 202 and through which the main shaft 16 extends. The upper end of the pitman 201 is provided with a roller 203 which plays in a cam groove 204 in a disk 205 which is secured to the shaft 16. Upon the rotation of the shaft 16 the cam groove 204 will elevate the pitman 201, and near the end of the upward movement of said pitman 201 the rod 199 carried by the arms 198 will contact with the rear edges of the arms 114, and positively restore said arms to their normal position, as these arms, owing to the openings formed in their upper ends, are not fully restored by the rollers 112 carried by the segments 12. The pitman 201 also carries a roller 206 which is engaged by a camming portion 207 of the disk 205, and thereby quickly restores the pitman 201 to its normal lowermost position. This restoring frame, comprising the arms 198 and cross rods 199, which is actuated by the cam disk 205, is depended upon entirely to return the arms 114 to their normal positions in total recording operations which will be herein-after more fully described.

Any of the racks which have been given a transferring movement must be reset with relation to the differential bars and the following mechanism is employed to perform this function: The above described return of the arms 114 will also carry the differential bars 120 to their normal positions and immediately after said differential bars 120, which carry the actuating racks 123 and 185, reach their normal positions, shaft 165 mounted in the sub-base 110 and a shaft 208 mounted in the side frames of the machine will be rocked. Pawls 209 and 210, see Figs. 1, 12 and 26, carried by the shafts 165 and 208 respectively will engage with pins 211 and 212 projecting from the actuating racks 123 and 185, and return any of said racks that have been released by the trip mechanism to effect a transfer as previously described. The shafts 165 and 208 are rocked in the following manner: An arm 213 is secured at its center to the upper shaft 208, see Fig. 26, its forward end being secured to the lower end of a pitman 214, the upper end of the latter being provided with an elongated slot 215 which is arranged to slide upon a hub 216 of a cam disk 217 secured to the main shaft 16. This cam disk is so timed as to engage with a roller 218 projecting from the upper end of the pitman 214 and move said pitman upwardly and rearwardly, which movement will rock the arm 213 and the upper shaft 208 clockwise so that the arms 210 carried thereby will engage with the pins 212 of the displaced ac-

tuating racks 185. A link 219 connects the rear end of the arms 213 and the upper end of an arm 220 which is secured to the shaft 165. The rocking of the shaft 208, as previously described, will, through the link connection 219 and the arm 220, rock the shaft 165 in a counter clockwise direction so that the pawls 209 will engage with the pins 211 of any of the displaced racks 123.

Recording mechanism.—As previously mentioned, the recording mechanism is very similar to that disclosed in the patent to Thomas Carroll granted March 8, 1904, No. 754,049, and the application of E. J. Von Pein filed May 26, 1909, Serial No. 498,548, and only a general description of it will be given, as details may be had by reference to said patent and application.

Referring to Fig. 1, it will be seen that the arms 114, coöperating with the amount segments 12, are provided at their pivotal points with nested sleeves 221 which surround the transverse shaft 115. At their other ends the sleeves 221, see Fig. 37, carry segments 222 which engage with pinions 223 fast to one end of nested sleeves 224, the other ends of said sleeves carrying type carriers 225. The roller 112 (Fig. 2) which drives the arm 114 coöperating with the clerk's segment 12 is mounted on a bracket 226 which is secured to the extension 35 of said segment. This is caused by the location of the pitman 29 for driving the cam plate 26 which in turn drives the segment 12 of the clerk's bank of keys. The arm 114 coöperating with the segment 12 of this particular bank of keys is loosely mounted upon the shaft 115 and is arranged to contact with a stud 227 carried by an arm 228 which is rigidly secured to the shaft 115, the stud 227 being normally held in contact with the rear edge of the arm 114 by a coiled spring 229, the ends of which are secured to the arms 114 and 228. This shaft 115 extends through to the recording mechanism and carries a segment similar to the segments 222 shown in Fig. 37 which positions one of the type carriers 225. After the type carriers 225 have been properly positioned, alining devices 230 are rocked into engagement with the pinions 223 by a link 231 which connects the alining devices 230 and a pivoted arm 232, the upper ends of the latter being provided with a roller 233, that plays in a cam groove 234 in a disk 235 secured to a driving shaft. The shape of the cam groove 234 is such that the alining devices 230 are rocked into engagement with the pinions 223, immediately after the type carriers 225 have been positioned, as previously stated, and are held in engagement therewith until the record strip platen 236 and the check strip platen 237 are operated, to take an impression upon the record strip 238 and the check strip 239 respectively, see Fig. 5. As the segment 12,

controlled by the clerk's bank of keys, is returned to its normal position at the end of the operation of the machine, and the other segments controlled by the amount banks and the special banks of keys remain in their displaced position until the succeeding operation of the machine, and as the operation of the platens 236 and 237 as disclosed in the aforesaid patent to Carroll and application of Von Pein does not occur until near the end of the operation of the machine it will be seen that the one-way connection between the arm 114 and its type carrier 225, as just described, is necessary in order to record a character designating in which clerk's accumulator the item was entered. During the operation of the platens 236 and 237 the alining devices 230 are held in engagement with the pinions 223, and after said operation they are rocked out of engagement therewith, which permits the spring 229 connecting the arm 114 coöperating with the clerk's banks of keys and the arm 228, to carry the pin 227 into contact with the rear edge of the arm 114, which movement also returns the clerk's type carrier 225 to its normal position.

Throwout mechanism.—In many mercantile establishments credit accounts are kept and as the clerks' accumulators and the grand total accumulator represent the receipts only of the various clerks, it is desired, when "credit" transactions are recorded upon the machine, to indicate and list said transactions, but not to enter them upon the accumulators. This is also true of "paid out" transactions, while with "received on account" transactions the amounts received are entered upon the various accumulators. Very simple mechanism for accomplishing this object is provided and the operation thereof is as follows: The four special keys shown in Fig. 25 represent the following transactions, beginning with the uppermost key: "cash", "received on account", "charge" and "paid out". When either the "charge" or "paid out" key is depressed, its key pin 240 will engage an inclined portion of the front edge of an arm 241, which is pivoted upon a cross rod 242 suitably mounted in the machine frame. To the arm 241 is connected the forward end of a link 243 to the rearward end of which an arm 244 is also connected. This arm 244 is fast to a shaft 245 which is in horizontal alinement with the shaft 22 upon which the intermediate gears 21 are mounted. At its left hand end the shaft 245 carries a downwardly extending arm 246, connected by a link 247 to the arm 129 by a slot and pin connection 248 and 249 respectively. As the arm 241 is rocked clockwise upon the depression of either the "charge" or "paid out" key, the arm 244 and shaft 245 will be rocked in a similar direction,

the movement of which will carry the roller 130, projecting from the lower end of the arm 129, into a circular recess 250 formed in the cam disk 132. From this it will be seen that upon the rotation of the shaft 16, the cam groove 131 of the disk 132 will have no effect upon the arm 129, and consequently the beam 124, shown in Figs. 14 and 36, will not be rocked, thus preventing the rocking of the frames carrying the accumulator pinions 109 and 170. The other two keys of the special bank which represent "received on account" and "cash" will have no effect upon the arm 241, see Fig. 25, and consequently roller 130 carried by the arm 129 will not be drawn into the circular recess of the cam disk 132. At the end of the operation of the machine, the coiled spring 143 interposed between the arms 128 and 129 will rock the arm 129 in an anti-clockwise direction so as to carry the roller 130 into the groove 131 of the disk to enable the rocking in of the accumulators with their actuators. The above described slot and pin connection is to enable movement of the arm 129 independently of the link 247 when an amount is to be entered upon the accumulators.

Total recording mechanism.—The total recording mechanism is of that type wherein the type carriers comprising a part of said mechanism are controlled by the accumulator elements, and this particular form of mechanism employs devices for positively resetting the accumulator elements to their normal or zero positions, and thereby setting the type carriers to represent the amount previously shown on the accumulator. This form of total recording mechanism distinguishes from a type which is well known in the art, by positively setting the type carriers, whereas the form largely used depends upon springs to adjust the type carriers under the control of the accumulator elements.

When it is desired to record the total of any one of the clerks' accumulators a manipulative device forming a part of the total recording mechanism is adjusted to its uppermost position, which adjustment elevates the detent coöperating with the special keys so that it is necessary to depress one of the clerks' keys only, in order to release the machine, and the depressing of any one of the clerks' keys determines the particular accumulator from which the total is to be recorded. When it is desired to reset the grand total accumulator, the previously mentioned manipulative device is adjusted to an intermediate position which movement elevates the clerk's detent, thereby partially releasing the operating mechanism which is fully released upon the depression of the "cash" key of the special key bank.

The positioning of the manipulative device of the total recording mechanism to its uppermost or intermediate position adjusts the pitmen connecting the beam with the frames carrying the clerks' accumulators and the grand total accumulator, so that upon the operation of the machine the accumulator elements carried by the respective frames will be rocked into engagement with the set of actuating racks opposite to those which they engage when items are entered upon the said accumulators, and incidentally with the adjustments of these pitmen, resetting devices for the accumulators will be connected to the operating mechanism, so that the accumulator elements may be reset to zero, and, through the medium of the differential bars, position the type carriers for recording the totals.

The manipulative device 251 which forms a part of the total recording mechanism is capable of being adjusted to three positions as shown in Figs. 14, 17 and 18. This manipulative device is in the form of a segmental plate and is mounted upon the rock shaft 5. A portion of this manipulative device or plate 251 extends forwardly and is provided with a handle 252, which extends through a suitable slot (not shown) in a plate 253, suitably secured to one of the intermediate frames of the machine. A spring drawn latch 254 is pivotally mounted upon the plate 251, and a portion of this latch is arranged to engage notches 255 formed upon the under side of the plate 253. The latch 254 indicates to the operator when the manipulative device or plate 251 is in its proper position to record the desired transaction. This manipulative device has attached to its forward edge a segmental plate 256 which is provided with notches 257. A pawl 258 secured to the shaft 75 is arranged to engage with these notches 257, so that after the shaft 75, carrying said pawl is rocked by the operation of the special and clerks' keys, as previously described, this pawl 258 will engage with one of the notches 257, and thereby prevent the operation of the manipulative device 251. The plate 256 carried by the manipulative device 251, if the latter is not properly positioned, will prevent the rocking of the shaft 75 and consequently prevent the release of the machine.

Upon the adjustment of the manipulative device 251 to its uppermost position a segmental rack 259 carried by the upper rear edge of the plate 251, will rotate a pinion 260 loosely mounted upon the shaft 16. This pinion, as shown in Fig. 36, is fast to the side of a disk 261, which disk is secured to one end of a sleeve 262, the other end of this sleeve carrying a similar disk 263. Upon the rotation of the pinion 260 by the

adjustment of the manipulative device 251 to its uppermost position (shown in Fig. 18), the disk 263 will be rotated to such an extent that a cam groove 264 formed therein will draw the upper end of the pitman 136 rearwardly, by a roller 265 which extends from the upper end of said pitman into the cam groove 264, as fully shown in Fig. 18. This rearward movement of the upper end of the pitman 136 will withdraw the recess 135 away from the pin 134 carried by the forward end of the beam 124, and engage a recess 266 formed in the rear edge of the upper end of the pitman 136 with the pin 184, which projects from both sides of the rear end of the aforesaid beam 124. Now, as the beam 124 is rocked clockwise by the mechanism previously described, when the machine is operated, the pitman 136 will be elevated instead of being lowered, and this elevation of the pitman will rock the shaft 139 carrying the plates 140 counter clockwise, and through the peculiar formation of the cam grooves 141 formed in the upper end of said plates, will rock upwardly the frame 107 carrying the individual or clerks' accumulators, so that the elements 109 of the clerks' accumulators will engage with the upper set of racks 185, instead of the lower set of racks 123 carried by the differential bars 120.

Incidentally with the shifting of the pitman 136 a cam slot 267 formed in the manipulative device or plate 251, will rock a shaft 268 by an arm 269 which carries a roller 270 that plays in said cam slot 267. The shaft 268 which extends across the machine has secured near the center thereof a rearwardly and downwardly extending arm 271 which carries at its extreme end a roller 272 that plays in an elongated slot 273 formed in a pitman 274. This pitman at its forward end is provided with a recess 275, and at its rear end with an elongated slot 276 through which the main shaft 16 passes. Normally the slot 275 formed in the forward end of the pitman 274 is out of engagement with a roller 277, projecting from the upper end of a segmental plate 278 pivoted approximately at its center upon the rock shaft 5. When the manipulative device 251 is moved to its upper position, the forward end of the pitman 274 will be lowered, so as to carry the recess 275 into engagement with the roller 277 mounted on the segmental plate 278. The pitman 274 at its upper rearward edge is enlarged and equipped with rollers 279 and 280, see Fig. 23, the former playing in a cam groove 281 formed in a disk 282 secured to the shaft 16, while the latter roller 280 plays upon the periphery of the disk 282. The shape of the disk 282 and the cam groove 281 formed therein, is such that immediately after the rocking of the positioned accumulator into

mesh with the actuating racks, the said pitman 274 will be moved forwardly, which movement, if the manipulative device 251 is in its upper position, will rock the segmental plate 278 clockwise in Fig. 18, or counter clockwise as shown in Fig. 22. The lower edge of the plate 278 is provided with teeth 283, which mesh with rack teeth 284 formed upon the upper edge of a yoke shaped plate 285, the lower portion of which is provided with elongated slots 286 through which pins 287, extending from the sub-base project so as to guide the movement of said plate 285. This plate has secured thereto a rack plate 288, which engages with a wide pinion 289 mounted by a spline 289^a upon the shaft 108 carrying the individual or clerk's accumulator, see Figs. 6 and 22. This pinion 289 is of the same width as any of the denominational groups of the clerks' accumulators. This is necessary so that the rack 288 and the pinion 289 may be brought into coöperative relation, no matter what accumulator elements are in engagement with the actuating racks 185.

The previously described plates 140 carried by the rock shaft 139, and which are used for rocking the accumulator pinions 109 into engagement with the racks 123 or the racks 185, are provided with camming plates 290, see Figs. 5 and 16, which are arranged to engage with enlarged heads 291 of rods 292, mounted in cylindrical recesses 293 formed in the ends of the shaft 108, see Fig. 10. These rods 292 are connected by a plate 294, which plays in a longitudinal groove 295 formed in the shaft 108. This plate is provided with camming recesses 296, which, when the rods are shifted in one direction, elevate plungers 297 into annular grooves 298 formed upon the inner periphery of the accumulator pinions 109, see Figs. 7, 8, and 10. The relation of the cam plates 290 carried by the plates 140 with the enlarged heads 291 of rod 292 is such that, when the plates 140 are rocked to throw the accumulator pinions 109 into engagement with the lower set of racks 123, the camming plate 294 will not be shifted, so that springs 299 (Figs. 7, 8 and 10) surrounding the plungers 297 will hold said plungers in the recesses 296 of the connecting plate 294 and out of the grooves 298 of the pinions 109. When the aforesaid plates 140 are rocked in a direction to throw the accumulator pinions 109 into engagement with the upper set of actuating racks 185, the camming plate 294 will be shifted by one of the plates 290 engaging with the enlarged head 291, so that the recesses 296 will elevate the plungers 297 against the tension of their springs 299 and thereby project the upper ends of said plungers 297 into the grooves 298. The pinion 289 which is splined to the shaft 108 carrying the accumulator pinions

109 is only given nine-tenths of a rotation by the rack 288, so that if any of the accumulator pinions 109 of the accumulator that is to be reset stand at zero, the plungers 297 will not engage with the shoulders 300 of these pinions and consequently the racks 185 engaging with these pinions will not be moved, but those pinions that have been displaced and which stand at positions other than zero will be engaged by the plungers 297, and rotated backwardly the distance they have been advanced from zero. The rotation of these pinions 109 by the plungers 297 is in the reverse direction from their movement when actuated by the racks 123, and when said pinions 109 are moved into engagement with the racks 185, and then rotated by the plungers 297 carried by the shaft 108, they will drive the racks 185 and the differential bars 120 in the same direction, to position the type carriers for recording the total, as when items are entered upon the accumulator and listed on the recording mechanism. Upon the return of the accumulator pinions 109 to their normal or intermediate position by the plates 140, the other cam plate 294 will engage with the enlarged head 291 cooperating therewith and thereby return the plate 294 having the camming recesses 296 into the position shown in Fig. 10 with the plungers 297 resting in the recesses 296.

The pinion 289 is splined to the shaft 108 by a feather 289^a, see Fig. 22, which permits the pinion 289 to be shifted on the shaft 108 with the individual accumulator elements independently of the shaft, but compels the rotation of the shaft when the pinion is rotated. To prevent the lateral displacement of the shaft 108 when the frame 107 carrying the individual or clerk's accumulator is shifted, this shaft near its right hand end (Figs. 5 and 10) passes through a forked projection 110^a of the right hand frame of the sub-base 110, and on each side of the forked projection a collar 110^b is secured to the shaft, thereby preventing lateral movement thereof.

From the above description it will be seen that in the recording of the total, the pinions 118 in mesh with the rack teeth 119 formed on the differential bars 120 will be rotated, and, through the pinions 117 meshing with the segmental racks 116, position the bars 114 so that the type carriers 225 may be properly positioned to record the total. For the reason that it is necessary to position the bars 114 in the recording of the total independently of the segments 12 controlled by the amount banks, it is necessary to open the upper end of the slots 113 formed in these bars. After the total is recorded the bars 114 are returned to their normal position, as shown in Fig. 1, by the rod 199 carried by the arm 198 as previously described in detail.

Upon the movement of the total manipulative device 251 to its uppermost position, a pin 301 carried by said manipulative device, see Figs. 14 and 25, will engage with the free end of an arm 302 as the said manipulative device reaches its upper position, and rock this arm and a shaft 303 to which it is secured, clockwise (Fig. 25). This shaft 303 has an arm 304 extending forwardly therefrom provided with a pin 305, which engages the under side of the detent 4 of the special key bank and elevates it, so that the outer surface of the detent will pass beneath the special keys 3 and thereby prevent their depression. The pin 305 carried by the arm 304 has attached thereto one end of a link 306, the other end being fastened to an arm 307 loosely mounted upon a rock shaft 308. Extending upwardly from the hub of the arm 307 is a finger 309, which engages with a roller 310 of the retaining bar 6 which cooperates with the detent 4 of the special key bank, this finger thereby holding the retaining bar in its forward position, so as to prevent the plate 17 secured to the rock shaft 5, from picking up the latch bar 11 of the segment 12 cooperating with the special key bank. The plate 17, latch bar 11 and segment 12 carrying the latch bar which cooperates with the special keys 3, have not been shown in Fig. 25 as they are identical with the parts bearing the same reference numerals shown in Fig. 1. By thus elevating the detent 4 cooperating with the special key bank, the pawl 77, see Fig. 28, carried by said detent, will pass from over the forward end of the arm 76, so that upon the depressing of a clerk's key corresponding to the particular accumulator it is desired to reset and thereby record the total thereof, the locking pawl 66 (Fig. 29) will be released from engagement with the locking notch 65 formed in the disk 63.

It is to be understood that the segment 12 cooperating with the clerk's bank of keys, positions the frame 107 carrying the clerks' accumulators and the type carrier 225 bearing the clerks' initials in the same manner in total recording operations as it does in operations in which items are registered and recorded.

In the movement of the total manipulative device 251 to its uppermost position, for controlling the operation of the total recording mechanism of any one of the clerks' accumulators, the pitman 181, which rocks the grand total accumulator into engagement with either the racks 123 or 185, is adjusted to an intermediate position, which renders it inoperative in connection with the pins 134 and 184 carried by the beam 124, as shown in Fig. 21. With this beam in this position, it will be obvious that the grand total accumulator will remain in its normal intermediate position between the

racks 123 and 185. This operation of the pitman is effected by a cam groove 311 formed in the disk 261, which, as previously described, is rotated by the movement of the total manipulative device 251. Projecting into said groove 311 is a pin 312, extending from the upper end of the pitman 181, and the shape of the groove 311 is such that the said pitman will be moved to an intermediate position, as shown in Fig. 21, by the movement of the total manipulative device 251 to its uppermost position.

As the grand total accumulator is never shifted laterally, it is only necessary in the recording of the total therefrom to engage the accumulator pinions 170 with the racks 123, instead of the racks 185 with which they are engaged when items are entered thereon, and, furthermore, it is desired to prevent the operation of a clerk's key, and incidentally to release the devices that were actuated by the operation of the clerk's key, so as to make it necessary to depress the "cash" key alone when the total manipulative device is positioned to control the recording of the total from the grand total accumulator.

When the total manipulative device 251 is moved to its intermediate position, as shown in Fig. 17, the cam disk 261 will force the upper end of the pitman 181 forwardly, so that a notch 313 therein will straddle the pin 134, whereby as the beam 124 is rocked clockwise, as viewed in said figure, upon the operation of the machine, shaft 179 carrying the plates 178 will be rocked in a similar manner, and will thereby carry the total accumulator pinions 170 into engagement with the lower set of racks 123. This movement of the manipulative device 251 will carry the upper end of the pitman 136, which controls the rocking of the frame 107 carrying the clerks' accumulators, into an intermediate position relative to the pins 134 and 184 projecting from the beam 124, as fully shown in Fig. 20. This movement of the manipulative device 251 to an intermediate position, will, through the cam slot 267, rock the shaft 268, similarly to the manner in which said shaft is rocked as the manipulative device is moved into its uppermost position, which causes the recess 275 in the pitman 274 to engage with the roller 277 of the plate 278, from which it will be seen that the yoke shaped plate 285 (Fig. 17) will be driven in the same manner as when the manipulative device 251 is in its uppermost position.

The rocking of the frame, carrying the grand total accumulator pinions 170 into engagement with the actuating racks 123, as just described, will also carry a pinion 314, see Fig. 6, which is pinned to the shaft 171 carrying said accumulator pinions into engagement with a rack plate 315 secured

to the lower member of the yoke shaped plate 285, see Fig. 17. It will be remembered that the cam for rocking the beam 124, which controls the rocking of the frames carrying the grand total and the individual accumulators into engagement with the different sets of racks, is timed so as to establish a cooperative relation between the pinions and said racks, previous to the movement of the yoke shaped plate 285 by the cam disk 261 in the total recording operation.

The shaft 171 is very similar to the shaft 108 which carries the clerks' accumulators, and is provided with a longitudinal slot 316, see Fig. 10, in which plays a laterally movable bar 317, which is provided with camming recesses 318. At each end the bar 317 has secured thereto a disk 319, which is arranged to be engaged by inclined lugs 320, see Figs. 6 and 15, carried by the plates 178. These lugs 320 are so positioned upon the plates 178, that when the plates 178 are rocked to cam the frame carrying the grand total accumulator into engagement with the racks 123, for a total recording operation, the bar 317 will be shifted to the right in Figs. 6 and 10, so that the camming recesses 318 formed in this bar, will elevate plungers 321 which are suitably mounted in the shaft 171. As these plungers are elevated, their upper ends will protrude above the surface of the shaft 171 and into an annular groove formed upon the inner periphery of each one of the accumulator pinions 170. In this position the previously described yoke shaped frame 285 is moved rearwardly by the cam 282, see Figs. 22 and 23, which movement of the said plate 285 will rotate the pinion 314 secured to the shaft 171 nine-tenths of a complete rotation. By this movement of the shaft 171, the elevated plungers 321 will engage the shoulders projecting inwardly from the grand total accumulator pinions 170, which shoulders are similar to the shoulders 300 of the clerks' accumulator pinions 109, as shown in Fig. 7, and rotate the pinions 170 backwardly the distances they have previously been rotated forwardly in the entering of items thereon. This backward movement of the pinions 170 will move the racks 123 rearwardly, and thereby move the differential bars 120 upon which said racks are mounted. This movement of the differential bars 120 in the total recording operation is similar to the movement of said bars in the item entering operation, and is brought about by the accumulator pinions engaging with the opposite set of racks from which they engage in the operation of entering items upon the accumulator, consequently this movement of said bars will set the type carriers 225 to record the total, the same as these type carriers are positioned in the listing of items. A spring 322 assists the cam disk 282 in the return of the plate

285, and also holds this plate in its normal position against accidental displacement, when the pitman 274 is disengaged from the segmental plate 278, by the movement
5 of the manipulative device 251 to its lowermost position, in which position the mechanism of the machine is prepared for the entering of items upon the individual and the grand total accumulators. When the cam
10 disks 261 and 263 adjust the upper ends of the pitmen 181 and 136 respectively to an intermediate position, the sides of the horizontal portion of the zigzag slots formed in the upper end of these pitmen will engage
15 with the sleeve 125, and thereby prevent any accidental displacement of the pitmen due to friction or any other cause.

As previously mentioned, the positioning of the manipulative device 251 to its intermediate position to prepare for the recording of the grand total, will lock out or prevent the operation of the clerks' keys, and this lockout mechanism will now be described. Referring to Fig. 14, it will be
20 seen that the manipulative device 251 near its pivotal point is provided with a camming shoulder 323, which, when the said manipulative device is moved to its intermediate position, will engage with a roller 324 projecting from the upper rear end of an
30 arm 325, the lower forward end of which is loosely mounted upon the rod 303. Attached to this arm 325 is a forwardly extending arm 326, which has extending from its free end a pin 327 normally engaging the under side of the clerk's detent 4, see Fig. 4. Attached to the arm 326 by this pin 327 is a link 328, which is also connected to an arm 329 loosely mounted upon the rock shaft 308.
40 From the hub of this arm 329, see Fig. 2, projects a finger 330 which is arranged to engage with a pin 331 projecting from the retaining bar 6 for the detent for the clerk's bank of keys. From this it will be seen that as the manipulative device 251 is moved to its intermediate position, the arms 325 and 326 will be rocked counter clockwise, as shown in Figs. 4 and 14, and the pin 327 will engage with the under side of the detent 4 and elevate it, so that inclined recesses 332, which normally cooperate with the inner ends of the clerks' keys 2, will be carried out of cooperative position with these keys, and the forward edge of the clerk's detent will
55 be positioned to prevent the operation of any clerk's key. This movement of the detent 4 will carry the lug 72, see Fig. 28, projecting therefrom, from over the forward edge of the pawl 73, thereby partially releasing the lock for the operating mechanism. This movement of the arms 325 and 326 by the shoulder 323, will, through the link 328, rock the arm 329 so that the finger 330, projecting from the hub of said arm, will con-

tact with the pin 331 of the retaining bar 6, 65 and hold said bar in its normal forward position against the action of its spring 7. This operation of the clerk's detent 4 by the manipulative device 251, leaves the locking pawls 66 for the operating mechanism under
70 the control of the special key bank, and thus the machine may be released by the depressing of the "cash" key.

Special counters.—There is provided a series of special counters for counting separately the number of transactions entered upon the machine by each clerk, and also a customer counter for registering the total number of transactions made by all of the clerks. In addition to this there are provided special counters for "received on account", "charge" and "paid out". These counters are mounted in horizontal alignment above the banks of keys, and are arranged to be actuated by laterally movable
85 devices, which are first positioned relative to the counter to be operated, and then rocked to actuate the counter.

The intermediate gear 21 driven by the segment 12 cooperating with the clerk's bank of keys, meshes with a pinion 333 loosely mounted upon a transverse shaft 334. The hub of this pinion 333, see Fig. 32, has threads formed upon the inner periphery thereof, which engage with the threads of a
95 worm 335 secured to the shaft 334. The threads of the worm 335 are partially cut away to form longitudinal slots 336 upon opposite sides of said worm, as shown in Figs. 31 and 32, and into these slots pass prongs 100 337 of a disk 338, secured to one of the supporting arms 339 for the actuating mechanism of the special counters. These counters project downwardly from a tie bar 340 suitably secured to the side and intermediate
105 frames of the machine. The purpose of the longitudinal grooves 336 formed in the worm 335, and the prongs 337 of the disks 338, is to prevent the rotation of the worm and the shaft 334 to which it is secured, but at the
110 same time to permit a lateral movement of said shaft and worm, caused by the rotation of the pinion 333 driven from the intermediate gear 22.

The shaft 334 carries a plurality of arms 115 341, one for each of the clerks' special counters 342, and also an arm 343 which is provided with a lateral extension 344 for the customer counter 345. The wheels of each one of the special counters are mounted upon
120 a short shaft 346 which is supported by a bracket 347 suitably mounted upon the tie bar 340. Adjacent to the units wheel of each of the counters is a disk 348, see Fig. 33, which has a depending arm 349, arranged to
125 be engaged by one of the arms 341 and actuated, as hereinafter described. The arms 341 are so spaced upon the shaft 334 as to

engage with one arm 349 only of the disks 348 during a single operation of the machine. The extension 344 of the arm 343 secured to the shaft 334 is long enough to engage at every operation with its arm 349, no matter which one of the other arms 341 carried by said shaft is in engagement with its respective arm 349.

A sleeve 350 (Fig. 32) surrounds the shaft 334 and carries a worm 351 at one end thereof, which engages with threads formed upon the inner periphery of the hub of a pinion 352, this pinion meshing with the intermediate gear 21 which is driven by the segment 12 controlled by the special bank of keys. The worm 351 is provided with longitudinal grooves 353 similar to the grooves 336 formed in the worm 335. A disk 354 secured to one of the supporting arms 339 projecting from the tie bar 340, is provided with suitable prongs which play in the groove 353, to prevent rotary movement of the worm 351 and the sleeve 350, but to permit longitudinal movement of said sleeve and worm. This sleeve 350 is provided with arms, similar to the arms 341 fastened to the shaft 334, and arranged to engage with dependent arms 349 of disks 348, mounted upon the shafts 346 of the special counters "received on account," "charge" and "paid out," which are numbered respectively 355, 356 and 357. The arms 341 secured to the sleeve 350 are mounted in a similar manner to the arms carried by the shaft 334, so that only one of the special transaction counters will be actuated during a single operation of the machine. As previously stated, a disk 348 for each of the special counters is mounted adjacent to the units wheel of each counter, and this disk is provided with a pawl 358 which engages with a ratchet 359 secured to the units counter wheel. The units counter wheel on its side opposite from that on which the ratchet 359 is mounted, carries a star wheel 360, upon which is mounted a spring drawn pawl 361. Spring pressed alining pawls 3600 (Fig. 31) mounted on the cross bars of the brackets 347 engage the notches in the star wheels 360 to aline the counter wheels. This pawl is drawn into contact with the periphery of a disk 362 provided with a single tooth 363. When the units wheel moves from nine to zero the free end of the pawl 361 will ride up the tooth 363, and a shoulder 364 on the pawl will engage with one of a series of projections 365 formed upon the tens wheel, and carry said wheel one space, after which the pawl 361 passes off of the tooth 363, freeing the shoulder 364 of said pawl of the projection 365. The tens wheel of each of the special counters is also provided with a star wheel 360 and a pawl 361 for transferring to the hundreds wheels. Individual springs 366

return the actuating disks 348 to their normal positions, as shown in Fig. 33, after they have been moved forwardly by the arms 341.

The rocking of the shaft 334 and the sleeve 350 to actuate the special counters, is accomplished by a cam disk 367, see Fig. 4, secured to the shaft 16 and which reciprocates a pitman 368 upon each operation of the machine. The forward end of this pitman is attached to an arm 369, which arm is provided with a hub 370, see Fig. 32, loosely mounted upon the end of the sleeve 350 opposite from the end carrying the worm 351. This sleeve 350, near the end upon which the arm is mounted, is equipped with longitudinal slots 371 through which pins 372 extend from the hub 370. These pins also extend into longitudinal grooves 373 formed in diametrically opposite sides of the shaft 334. This construction permits a longitudinal movement of the shaft 334 and the sleeve 350 independent of the arm 369, but when this arm is rocked by the cam 367 and pitman 368, the shaft and sleeve will also be rocked, as will be obvious by reference to Figs. 4 and 32. To prevent lateral movement of the arm 369 and the hub 370, due to friction when the shaft 334 or the sleeve 350 is moved longitudinally, a forked arm 374, see Fig. 31, straddles the upper end of the arm 369 and pitman 368, which forked arm is suitably secured to the tie bar 340.

Each of the shafts 346 carrying the special counter wheels has secured thereto outside of the brackets 347 carrying these shafts, a pinion 375, see Fig. 31, which meshes with a similar pinion 376 secured to a transverse shaft 377. This shaft is supported by brackets 378, see Fig. 5, extending from the tie bar 340. The right hand end of this shaft as viewed in this figure is provided with a collar 379, provided with notches 380, with which prongs of a suitable wrench may engage, so that this shaft may be rotated by the turning of the wrench when applied thereto. The turning of this shaft will, through the gears 376 and 375, rotate all of the shafts 346 upon which the wheels of the various special counters are mounted. The shafts 346, as shown in Figs. 33, 34 and 35, have cut away flat portions upon one side, which engage with flat portions of the recesses formed in the disks 362, so that these disks will move with the shafts during the rotation thereof. The single teeth 363 of the disks 362 will engage with the free ends of the pawls 361, and carry any of the displaced wheels back to their normal zero positions.

Referring now to Fig. 4, it will be seen that the shaft 377 carries a disk 381 provided with a notch 382. When this shaft is

rotated the periphery of the disk 381 will engage with the forward upper edge of a pawl 383, projecting forwardly from the sleeve 74, carrying the pawls 73 and 76, see Fig. 28, which pawls control the releasing of the operating mechanism. From this it will be seen that while the special counters are being reset it is impossible to release the operating mechanism, and, furthermore, it will be apparent that when the operating mechanism is released, the forward end of the pawl 383 carried by the sleeve 74 will enter the notch 382 of the disk 381, and thereby prevent the resetting of the special counters during the operation of the machine. Flashes 384 of a well known form, see Fig. 2, are provided for concealing the indication during the operation of the machine, and, at the end of the operation of the said machine, are moved to display the indication, these flashes being suitably connected and driven from the main shaft 16, as is well known in the art, and not necessary to describe further.

With this detailed description it is believed that the invention is clearly set forth, but a general description of the operation of the machine in entering items upon the accumulators, and also the movements of the various parts in total recording will be given. Assuming that clerk A has made a cash sale of \$9.50, he first depresses keys representing the amount of the sale and the cash key and his initial key, which is the uppermost key in the clerk's bank. The operation of the cash key and the clerk's key will release the latching pawl 66 for the operating mechanism, as fully shown in Figs. 28 and 29. Immediately upon the beginning of the operation of the machine, the shoulder 27 formed on the plate 26, see Fig. 2, will engage with the latch bar 11 of the clerk's segment 12, which has previously been released by the operation of the clerk's key, and rotates said segment about the shaft 5 until the inner end of the clerk's key contacts with the pawl 20, and rocks said latch bar out of engagement with the shoulder 27. This movement of the segment, through the extension 35 thereof, will rotate the pinion 101, see Figs. 4 and 6, which will shift the frame carrying the clerks' or individual accumulators 109 to the left, as viewed in Fig. 6, so as to bring the right hand pinion of each group into position to be rocked into engagement with the lower racks 123 carried by the differential bars 120. The manipulative device 251 being in the position shown in Fig. 14, the beam 124 will lower the pitman 136, and, through the cam plates 140, rock the frame 107 so as to carry the pinions 109 into engagement with the racks 123. During this movement of the frame 107, the pitman 181 will be elevated by the beam 124, which movement will rock

the shaft 179 and the cam plates 178 carried thereby counter clockwise, and rock the frame carrying the grand total accumulator, so as to carry the elements or pinions of said accumulator into engagement with the set of racks 185, carried by the upper member of the differential bars 120.

Immediately after the engagement of the accumulator pinions 109 and 170 with their respective racks, the plates 17, see Fig. 1, which have by this time moved to the limit of their forward movement, will pick up the latch bars 11 of the dimes and units of dollars bank of keys, and carry said latch bars and segments 12 in a clockwise direction until arrested by the depressed keys. This movement of the segments 12, will, through the rollers 112 carried thereby, move the bars 114 so that the segmental rack portions 116 of said bars will rotate the pinions 117, and, through the pinions 118 attached to the previously mentioned pinions move the differential bars 120 carrying the actuating racks 123 and 185, to an extent in proportion to the movement of the segments 12, and thereby actuate the pinions of the positioned clerk's accumulator and the grand total accumulator. If an amount has previously been entered upon clerk A's accumulator, and this amount in connection with the \$9.50 would necessitate a transfer, the enlarged tooth 155 of the accumulator pinion which passes from nine to zero, will contact with the forward end of the member 154 of the trip mechanism, see Figs. 11 and 19, and rock said member about the rod 152, so that the other member 151 of the trip mechanism will depress the latching pawl 146 and permit the actuating rack 123 of the next higher denomination to advance one step by its spring 147, as plainly shown in Fig. 12. The same also would be true of any one of the actuating racks 185 of the grand total accumulator, that is, the enlarged tooth 192 of the accumulator pinion 170 will engage with the member 193 of the trip mechanism, and through the companion member 195 elevate trip pawl 191, to permit the actuating rack 185 of the next higher denomination to advance the pinion coöperating therewith one step, in addition to the registering movement imparted to the pinion by the rack. After the amount has been accumulated upon clerk A's and the grand total accumulator, the pitmen 136 and 181 will be actuated by the beam 124, see Fig. 14, and restore the frames carrying the accumulators to their normal intermediate positions between said racks. After the accumulator frame 107 carrying the clerk's accumulator pinions 109 is rocked to its intermediate position, said frame will then be shifted laterally by the return of the clerk's segment 12 due to the extension 28 of the plate 26, see Fig. 2, engaging with the pin

37 projecting from the extension 35 of the said segment 12, while the differential members or bars 120 remain in their displaced position. This is caused by the different timing of the devices for actuating the plates 17 and 26, as shown in Figs. 1 and 2. Upon the succeeding operation of the machine, the differential members 120 will be returned to their normal positions by the extensions of plates 17, while the frame 107 carrying the clerks' accumulators is positioning the desired accumulator to have a new item entered thereon.

The movement of the segments 12 cooperating with the various banks of keys, will, through the intermediate gears 22, set the indicators 24, 25 and 45 to indicate the kind and amount of transaction and the clerk making it. Owing to the fact that the segment 12 cooperating with the clerk's bank of keys is returned to its normal position at the end of each operation of the machine, pawl 48, shown in Fig. 2, will hold the clerk's indicator 45 in its adjusted position, against the tension of the coil spring 46 shown in Fig. 3, no such pawls being necessary for retaining the amount and transaction indicators in their displaced positions, because of the fact that the segments 12 controlling the movements of said indicators, are not returned to their normal positions until the beginning of the succeeding operation of the machine.

The differential movements of the segments 12 will be imparted to the type carriers 225 by the bars 114 and intermediate connections, as fully shown in Figs. 1, 2 and 37. After the type carriers have thus been positioned, an impression will be taken upon the record strip 238 and the check strip 239, by platens 236 and 237 respectively. The movement of the segment 12 controlled by clerk A's key, will, through the intermediate gear 22 and pinion 333 meshing therewith, shift the shaft 334, see Figs. 2, 31 and 32, so as to bring the arm 341 mounted upon the right hand end of the shaft 334 into position to engage with the dependent arm 349 of the disk 348 of clerk A's special counter, and upon the further operation of the machine rock the shaft 334, so as to actuate the units wheel one step by the disk 348. This shifting of the shaft 334 will not move the extension 344 of the arm 343, which is secured to the said shaft, out of cooperative relation with the dependent lug 349 of the disk 348 which actuates the units wheel of the customer counter 345, so that one will be added upon the said customer counter also.

When it is desired to enter a "charge" or "paid out" transaction on the machine, the keys representing the amount and the clerk making the transaction, as well as the key corresponding to the transaction, will be

depressed. The depressing of the special key, will, by the connection shown in Fig. 25, rock the arm 129 so as to carry the roller 130 into the circular recess 250 of the cam disk 132. As this arm 129 controls the rocking of the beam 124 (Fig. 14), it will be seen that neither of the pitmen 136 and 181 will be operated, and consequently neither of the frames carrying the clerks' accumulators or the grand total accumulator will be rocked, although the frame 107 carrying the clerks' accumulators will be positioned corresponding to the clerk's key depressed. The movement of the segments 12 controlled by the various keys used in the special transaction, will however, position the indicators and type carriers so as to indicate and record the transaction, the same as if it were a cash transaction. If it is now desired to record a total of clerk A's accumulator, the manipulative device 251 is moved to its uppermost position, as shown in Fig. 18, which movement through the rack portion 259 and the pinion 260, rotates the disk 263 so as to move the upper end of the pitman 136 rearwardly, to engage the slot 266 formed in the upper rear edge of the pitman 136 with the pin 184 projecting from the rear end of the beam 124. This movement of the manipulative device 251, will, through the pin 301 carried thereby, which engages with the upper end of the arm 302 (Fig. 25), rock said arm so that pin 305 carried by the arm 304 connected to the arm 302, will elevate the detent 4 cooperating with the special bank of keys. This movement of the special detent 4 will carry the lug 77, see Fig. 28, from over the forward end of the arm 76, thereby partially releasing the operating mechanism, this movement of the detent also locking out the special keys 3. Upon the depression of clerk A's key the machine will be fully released, and during the operation of the machine the beam 124 will be rocked clockwise as shown in Fig. 18, and elevate the pitman 136, which movement will rock the shaft 139 and the cams 140 carried thereby counter clockwise, so as to raise clerk A's accumulator pinions into engagement with the racks 185 (Fig. 12) instead of the racks 123 with which they engage when items are entered upon the accumulator. This movement of the manipulative device also rocks the forward end of the pitman 274 into engagement with the stud 277 projecting from the plate 278. After the pinions of A's accumulator have been rocked into engagement with the racks 185, cam disk 282 (Fig. 23) will move the pitman 274 forwardly and downwardly, which movement will rock the plate 278 counter-clockwise as viewed in Fig. 22, and thereby drive the yoke shaped plate 285 an invariable extent toward the rear of the machine. The rocking upwardly of

the frame 107 carrying the clerk's accumulator will also bring the wide pinion 289 into engagement with the rack plate 288 carried by the upper member of the yoke shaped plate 285, this occurring previous to the rearward movement of said plate 285. The rearward movement of the plate 285 will, through the rack 288 carried thereby, rotate the pinion 289 and the accumulator shaft 108 to which said pinion is secured, nine-tenths of a complete rotation. This rotation of the shaft 108, will, through the plungers 297 which have previously been elevated, by the shifting of the bar 294 laterally, due to the camming device 290 carried by the right hand plate 140, rotate the displaced pinions of the accumulator rearwardly, distances corresponding to the extent they are moved from their normal or zero position. This positive movement of the accumulator pinions will, through the racks, differentially adjust the bars 120 carrying said racks, distances corresponding with the movement of said pinions, which movement of the differential bars 120 will be conveyed to the type carriers 225, through the previously described intervening connections, after which the platens 236 and 237 will be actuated to take impressions upon the record and the check strips respectively.

After the accumulator pinions 109 have been reset they are rocked out of engagement with the racks 185 by the link 136, and then the accumulator frame 107 is returned to its normal position by the segment 12 controlled by the clerk's bank of keys. Upon the succeeding operation of the machine the frame composed of the arms 198 and cross rod 199, see Fig. 1, is elevated at the beginning of the operation of the machine, and by said rod 199 contacting with the rear edge of the arms 114, the differential bars or members 120 carrying the two sets of racks 123 and 185 are returned to their normal positions.

In recording the total of the grand total accumulator, the manipulative device 251 is adjusted to its intermediate position, which movement will cause the cam 261, see Fig. 17, to shift the upper end of the pitman 181 into engagement with the pin 134 of the beam 124, so that, when the latter is rocked clockwise, the frame carrying the accumulator pinions 170 will be depressed, to bring the said pinions into engagement with the lower set of actuating racks, and incidentally carry the pinion 314 into engagement with the rack 315, carried by the lower member of the yoke shaped resetting plate 285. The movement of the manipulative device to its intermediate position will engage the forward end of the pitman 274 with the plate 278, the same as when the manipulative device is moved to its uppermost position, so that upon the operation of the

machine the resetting plate 285 will be actuated. This movement of the manipulative device 251 to its intermediate position will, through the camming lug 323 projecting from the manipulative device, see Figs. 4 and 14, rock the arms 325 and 326, so that the pin 327 carried in the upper forward end of the arm 326 will elevate the detent of the clerk's bank, thereby carrying the lug 72 projecting from this detent from over the forward edge of an upturned portion of the pawl 73, thereby partially releasing the operating mechanism. This movement of the detent will also carry the recesses 332 formed therein, from out of coöperative relation with the inner ends of the clerks' keys, and bring the outer surface of said detent into the path of said keys and thereby lock the same from operation. Upon the depression of the "cash" key the machine will be fully released, and upon the operation thereof, the accumulator pinions 107 will be rocked into engagement with the racks 123, after which the resetting plate 285 will be moved rearwardly by its cam disk 282, which will rotate the shaft 171, by the rack 315 carried by the resetting plate 285 and the pinion 314 secured to the shaft 171. The rocking of the accumulator pinions 170 into mesh with the racks 123 will shift the bar 317 mounted in the shaft 171 longitudinally, see Fig. 10, by the camming device 320 carried by the left hand plate 178, see Fig. 6, engaging with the disk 319 extending from the left hand side of the bar 317. This shifting of the bar 317 will move plungers 321 carried by the shaft upwardly, so that the upper ends thereof will engage with shoulders upon the accumulator pinions 170 similar to the shoulders 300 formed upon the accumulator pinions 109, as shown in Fig. 7, when the said shaft is rotated. The rotation of the shaft 171 occurs shortly after the pinions 170 and the racks 123 are brought into coöperative relation, and this rotation of the shaft will reset the accumulator pinions 170 to their zero or normal positions, and thereby adjust the bars 120 differentially, the movement of which bars will be communicated to the type carriers in the manner previously described, after which an impression is taken upon the record strip and also on the check strip. The differential bars 120 are returned to their normal positions after the recording of the total, on an operation of the machine, by the bar 199 as previously described in connection with the recording of the clerk's total.

In Figs. 20 and 21 the positions of the upper ends of the pitmen 136 and 181 are shown when the total is recorded from the grand total accumulator and from the clerk's accumulator respectively. From Fig. 20 it will be seen that when the pitman 181 is connected to the pin 134 to record the grand total, the pitman 136 which controls

the rocking of the frame 107 carrying the clerks' accumulators, is in an intermediate position relative to the pins 134 and 184 so that said pitman 136 will not be actuated by the movement of the beam 124. In Fig. 21 just the reverse is shown, that is, the clerk's pitman 136 controlling the clerks' accumulators is connected to the pin 134 of the pitman 124, while the pitman 181 controlling the grand total accumulator is in an intermediate position, and held from any vertical movement by the sides of the horizontal portion of the zigzag slot formed in the upper end thereof engaging with the sleeve 125, which is also true of the horizontal portion of the slot of the clerk's pitman 136 when said pitman is in an intermediate position.

In Fig. 38 there is shown a portion of the record strip 239 having thereon a series of items recorded by several clerks, after which is recorded the various totals of the items entered thereon by the clerks, and also the grand total. The type carrier 225 controlled by the special bank of keys bears suitable characters to designate the different transactions recorded on the check and record strips; for instance, as shown in Fig. 38, the asterisk in connection with a clerk's initial designates a "cash" transaction. This type carrier also is provided with duplicate "T" characters which, when said type carrier is in normal or home position, are in position to record on the check and record strips. This designation in connection with any one of the clerks' initials indicates that that particular clerk's accumulator has been reset, and the total therefrom recorded. It will be recalled that in adjusting the manipulative device 251 preparatory to the recording of the total from any one of the clerks' accumulators the part of the locking mechanism controlled by the keys of the special key bank is released, so that all that is necessary completely to unlock said mechanism is the depressing of the clerk's key corresponding to the accumulator from which it is desired to record the total. From this it will be seen that the type carrier 225 controlled by the special bank of keys is not moved from normal position and consequently the "T" character designating a total will be recorded in connection with an initial character designating the particular accumulator reset.

In the adjustment of the manipulative device 251 for the recording of the grand total that part of the locking mechanism controlled by the clerks' initials will be released, thereby doing away with the necessity of depressing one of the clerks' keys and completely unlocking the machine by the operation of the "cash" key of the special key bank. The type carrier controlled by the bank of clerks' keys besides carrying initial types also is provided with duplicate "T"

type characters, which are in position to print on the check and record strips when the said type carrier is in normal or home position.

From the above description it will be obvious that in recording the grand total all that is necessary is the adjustment of the manipulative device 251 to an intermediate position, the depressing of the "Cash" key and the operation of the machine which will result in the printing of a line of characters in the order in which they are printed at the bottom of the record strip 239 shown in Fig. 38. From this figure it will be readily seen that the items recorded, clerks' totals and the grand total, are readily distinguishable one from another.

In some of the claims which follow there is recited one set of racks for actuating the individual accumulators and another set of racks for actuating the grand total accumulator, both sets of which control type carriers for recording items entered upon the various accumulators and the totals thereof. By these claims it is intended to cover any construction employing two sets of actuators for registering items upon individual and grand total accumulators, and which actuators control type carriers for recording items and the totals thereof, no matter whether the actuators are connected and operated by the same mechanism or are independently operated, or whether there is a single set of type carriers common to both sets of actuators or independent sets of type carriers controlled by their respective set of actuators.

While the form of mechanism herein shown and described is admirably adapted to fulfil the objects primarily stated it is to be understood that it is not intended to confine the invention to the one form of embodiment herein shown and described as it is susceptible of embodiment in various forms all coming within the scope of the claims which follow.

What is claimed is:

1. In a machine of the class described, the combination with an accumulator comprising a plurality of movable elements, of differentially movable members, and devices carried thereby for actuating the accumulator elements, operating means for driving the differentially movable members and actuating devices in entering items upon the accumulator, type carriers, controlled by the differentially movable members, for recording the items entered upon the accumulator and the total thereof, and means for driving the differentially movable members by the accumulator elements in the same direction to take totals as they are driven in entering items upon the accumulator.

2. In a machine of the class described, the combination with an accumulator com-

prising a plurality of movable elements, of differentially movable members for actuating the accumulator elements, the differential members and accumulator elements being normally out of engagement, operating means for engaging the differential members and accumulator elements and driving the differential members in entering items upon the accumulator, type carriers, controlled by the differential members, for recording the items entered upon the accumulator and the total thereof, and means controlling the engagement of the accumulator elements and the differential members in such a manner that the said members may be driven by the accumulator elements in the same direction to take totals as they are driven in entering items upon the accumulators.

3. In a machine of the class described, the combination with an accumulator comprising a plurality of movable elements, of actuators therefor, operating means for driving the actuators in entering items upon the accumulator, type carriers, controlled by the actuators, for recording the items entered upon the accumulator and the total thereof, accumulator driving devices carried by the actuators, and means for controlling the engagement of the accumulator elements and the devices controlled so that the actuators may be driven by the accumulator elements in the same direction in the taking of totals as they are driven in entering items upon the accumulator.

4. In a machine of the class described, the combination with an accumulator comprising a plurality of movable elements, of actuators therefor, operating means for driving the actuators in entering items upon the accumulator, type carriers, controlled by the actuators, for recording the items entered upon the accumulator and the total thereof, an adjustable total lever, devices set by said lever, and controlling the engagement of the accumulator elements and the actuators constructed so that the actuators are driven by the accumulator elements in the same direction in the taking of totals as they are driven in entering items upon the accumulator.

5. In a machine of the class described, the combination with an accumulator comprising a plurality of movable elements, of actuators therefor, means for driving the actuators in entering items upon the accumulator, type carriers, controlled by the actuators, for recording the items entered upon the accumulator and the total thereof, and means for causing movement of the accumulator into engagement with the actuators constructed so that the actuators may be driven by the accumulator elements in the same direction in the taking of totals as they are driven in entering items upon the accumulator.

6. In a machine of the class described, the combination with an accumulator comprising a plurality of movable elements, of a pivoted frame carrying said accumulator, a plurality of differentially movable devices, two sets of racks carried by the said devices, type carriers, controlled by the differentially movable devices, for recording the items entered upon the accumulator and the total thereof, and means for moving the accumulator elements into engagement with one set of racks, to be driven thereby when items are entered, and for moving the accumulator elements into engagement with the other set of racks, to drive said racks when totals are to be recorded.

7. In a machine of the class described, the combination with an accumulator comprising a plurality of movable elements, of a movable frame carrying said accumulator, a plurality of differentially movable devices, two sets of racks carried by the said devices, type carriers, connected to the differentially movable devices, for recording items entered upon the accumulator and the totals thereof, and means for determining whether the accumulator elements are to be moved into engagement with one set of racks to be driven thereby, or into engagement with the other set of racks to drive the devices carrying said racks.

8. In a machine of the class described, the combination with an accumulator comprising a plurality of movable elements, of a movable frame carrying said accumulator, a plurality of differentially movable devices, two sets of racks carried by the said devices, type carriers, connected to the differentially movable devices, for recording items entered upon the accumulator and the total thereof, operating mechanism for moving the frame and connecting the accumulator elements with either set of racks, and an adjustable lever for determining whether the frame carrying the accumulator shall be moved to bring the accumulator elements into engagement with one set of racks, to be driven thereby in entering the items, or into engagement with the other set of racks to drive the devices and thereby record the total.

9. In a machine of the class described, the combination with an accumulator comprising a plurality of movable elements, of a movable frame carrying said accumulator, a plurality of differentially movable devices, two sets of racks carried by said devices, type carriers, connected to the differentially movable devices, for recording items entered upon the accumulator and the total thereof, means for determining which set of racks shall be engaged by the accumulator elements, and means actuated during an operation of the machine for engaging the accumulator elements with the set of

racks determined by the determining mechanism, the accumulator being engaged with one set of racks only when items are entered and with the other set of racks only when the total is recorded.

10. In a machine of the class described, the combination with an accumulator comprising a plurality of movable elements, of a movable frame carrying said accumulator, a plurality of differentially movable devices, two sets of racks carried by said devices, type carriers, connected to the differentially movable devices, for recording items entered upon the accumulator and the total thereof, and means, actuated during an operation of the machine, for engaging the accumulator elements with either set of racks dependent whether it is desired to enter an item upon the accumulator or record the total therefrom.

11. In a machine of the class described, the combination with an accumulator comprising a plurality of movable elements, of a plurality of differentially movable devices, two sets of racks carried by said devices, one set above and the other set below the accumulator elements, type carriers, connected to the differentially movable devices, for recording items entered upon the accumulator and the total thereof, means for engaging the accumulator with one set of racks and driving it therefrom in entering items, and mechanism controlling the engagement of the accumulator with the other set of racks, and the driving of the latter by the accumulator elements, thus recording the total.

12. In a machine of the class described, the combination with an accumulator comprising a plurality of movable elements, of a plurality of differentially movable devices, two sets of racks carried by said devices, one set above and the other set below the accumulator elements, type carriers, connected to the differentially movable devices, for recording items entered upon the accumulator and the total thereof, means for engaging the accumulator with one set of racks and driving the elements thereof by said racks in entering items, and mechanism, including an adjustable lever, controlling engagement of the accumulator with the other set of racks and the driving of the latter by the accumulator elements, thus recording the total.

13. In a machine of the class described, the combination with an accumulator comprising a plurality of movable elements, of a plurality of differentially movable devices, two sets of racks carried by said devices, one set above and the other set below the accumulator elements, type carriers, connected to the differentially movable devices, for recording items entered upon the accumulator and the total thereof, means for

engaging the accumulator with one set of racks and driving the elements thereof by said racks in entering items, and mechanism controlling engagement of the accumulator with the second set of racks and the resetting of the elements of the accumulator, thereby setting the type carriers to record the total of the items entered by the first set of racks.

14. In a machine of the class described, the combination with an accumulator comprising a plurality of movable elements, of a plurality of differentially movable devices, two sets of racks carried by said devices, type carriers, connected to the differentially movable devices, for recording items entered upon the accumulator and the total thereof, means for engaging the accumulator with one set of racks and driving the elements thereof by said racks in entering items, a totalizing lever connected to position the engaging means so that it will engage the accumulator with the other set of racks, and means for driving the differentially movable devices by the accumulator elements when the latter are connected to the last mentioned set of racks for the purpose of recording the total.

15. In a machine of the class described, the combination with an accumulator comprising a plurality of movable elements, of a plurality of differentially movable devices, two sets of racks carried by said devices, type carriers, connected to the differentially movable devices, for recording items entered upon the accumulator and the total thereof, means for moving the elements of the accumulator into engagement with either set of racks dependent upon whether an item is to be entered or a total recorded, and a manipulative device for determining which set of racks the accumulator shall engage.

16. In a machine of the class described, the combination with an accumulator comprising a plurality of movable elements, of a plurality of differentially movable devices, two sets of racks carried by said devices, type carriers, connected to the differentially movable devices, for recording items entered upon the accumulator and the total thereof, oscillatory camming devices for moving the elements of the accumulator into engagement with either set of racks dependent upon whether an item is to be entered or a total recorded, and a manipulative device for determining which set of racks the accumulator shall engage.

17. In a machine of the class described, the combination with an accumulator comprising a plurality of movable elements, of a plurality of differentially movable devices, two sets of racks carried by said devices, type carriers, connected to the differentially movable devices, for recording items entered upon the accumulator and the total

thereof, a centrally pivoted member having an oscillatory movement at each operation of the machine, and connections between the pivoted member and the accumulator for moving the latter into engagement with either set of racks dependent on whether it is desired to add an item to the accumulator elements or to record the total therefrom.

18. In a machine of the class described, the combination with an accumulator comprising a plurality of movable elements, of a movable frame carrying said accumulator, a plurality of differentially movable devices, two sets of racks carried by said devices, type carriers, connected to the differentially movable devices, for recording items entered upon the accumulator and the total thereof, a centrally pivoted member having an oscillatory movement at each operation of the machine, connections between the pivoted member and the frame carrying the accumulator, for moving the elements of the latter into engagement with either set of racks, dependent whether it is desired to add an item to the accumulator or record the total therefrom, means controlling the connections, and mechanism for locking the controlling means during an operation of the machine.

19. In a machine of the class described, the combination with an accumulator comprising a plurality of movable elements, of differentially movable devices, two sets of racks carried by said devices, type carriers, connected to the differentially movable devices, for recording items entered upon the accumulator and the total thereof, means for establishing a coöperative relation between the accumulator elements and the different sets of racks dependent on whether it is desired to enter an item or to record the total, and means for driving the type carriers to record the total by the accumulator elements while the latter are in engagement with one set of the racks.

20. In a machine of the class described, the combination with an accumulator comprising a plurality of movable elements, of differentially movable devices, two sets of racks carried by said devices, type carriers, connected to the differentially movable devices, for recording items entered upon the accumulator and the total thereof, means for establishing a coöperative relation between the accumulator elements and the different sets of racks dependent on whether it is desired to enter an item or to record the total, a shaft supporting the accumulator elements, and means for rotating the shaft, thus resetting the accumulator elements while the latter are in engagement with one set of the racks, and thereby positioning the type carriers for recording the total.

21. In a machine of the class described, the combination with an accumulator com-

prising a plurality of wheels, of a shaft for supporting said wheels, differentially movable devices, two sets of racks carried by said devices, type carriers, connected to the differentially movable devices, for recording items entered upon the accumulator and the total thereof, means for establishing a coöperative relation between the accumulator wheels and the different sets of racks, dependent on whether it is desired to enter an item or to record the total, normally inoperative means for rotating the supporting shaft for the accumulator wheels, mechanism for rendering the shaft rotating means operative when the accumulator wheels are in coöperative relation with one set of the racks, and means carried by the shaft for resetting the accumulator wheels and through the differential devices positioning the type carriers for recording the total, while said wheels are in coöperative relation with said one set of the racks.

22. In a machine of the class described, the combination with an accumulator comprising a plurality of wheels, of a shaft for supporting said wheels, two sets of racks, type carriers, controlled by said racks, for recording items entered upon the accumulator wheels and the total thereof, means for establishing a coöperative relation between the accumulator wheels and the different sets of racks, dependent on whether it is desired to enter an item or to record the total, normally inoperative means for rotating the supporting shaft for the accumulator wheels, mechanism for rendering the shaft rotating means operative, and normally inoperative devices carried by the shaft for resetting the accumulator wheels when they are in coöperative relation with one set of racks and thereby controlling the positioning of the type carriers for recording the total, the said devices being rendered operative as an incident to the establishment of coöperative relation between the accumulator wheels and said one set of racks.

23. In an accounting machine, the combination with an accumulator comprising a plurality of movable elements, of two sets of racks, type carriers, controlled by said racks, for recording the items entered upon the accumulator and the total thereof, means for driving the accumulator elements by one set of the racks when items are entered upon the accumulator and driving the other set of racks by the accumulator elements when it is desired to record the total, and means for holding the accumulator elements in an inoperative position relative to both sets of racks when it is desired to record transactions of predetermined classes.

24. In an accounting machine, the combination with an accumulator comprising a plurality of movable elements, of a pivoted

frame supporting said elements, two sets of racks normally out of engagement with the movable elements of the accumulator, type carriers, controlled by said racks, for recording the items entered upon the accumulator and the total thereof, means for rocking the accumulator elements into engagement with one set of racks and driving said elements by the racks when items are to be entered, and rocking the elements into engagement with the other set of racks and driving the latter by said elements when it is desired to record totals, and means for holding the accumulator elements in an inoperative position relative to the racks when it is desired to record transactions of predetermined classes.

25. In an accounting machine, the combination with an accumulator comprising a plurality of movable elements, of a pivoted frame supporting said elements, two sets of racks normally out of engagement with the movable elements of the accumulator, type carriers, controlled by said racks, for recording the items entered upon the accumulator and the total thereof, a pivoted member and connections for rocking the frame and thereby the accumulator elements into engagement with either set of racks, means for rocking the pivoted member, and means for disabling the rocking means for the pivoted member.

26. In an accounting machine, the combination with an accumulator comprising a plurality of movable elements, of two sets of racks normally out of engagement with the movable elements of the accumulator, type carriers, controlled by said racks, means for engaging the accumulator elements with either set of racks, means for driving the accumulator elements by one set of racks thereby entering items upon the accumulator and driving the other set of racks by said accumulator elements and thereby positioning the type carriers to record totals, and mechanism for preventing the operation of the accumulator engaging means when desired.

27. In an accounting machine, the combination with an accumulator comprising a plurality of movable elements, of two sets of racks normally out of engagement with said elements, type carriers, controlled by said racks, for recording items entered upon the accumulator and the total thereof, a pivoted member and connections for engaging the accumulator with one set of racks in the accumulation of items and with the other set of racks in the recording of the total, mechanism for actuating the pivoted member, and special keys for disabling said actuating mechanism.

28. In an accounting machine, the combination with an accumulator comprising a plurality of movable elements, of actuators

therefor, differentially movable members controlling the movement of the actuators in the entering of items upon the accumulator, mechanism also controlled by the differentially movable members for indicating each item entered in the accumulator, type carriers connected to the actuators, and means for positioning the actuators independently of the differentially movable members and under the control of the accumulator elements for the purpose of recording a total without indicating the same.

29. In an accounting machine, the combination with an accumulator comprising a plurality of movable elements, of actuators therefor, differentially movable members controlling the movement of the actuators in the entering of items upon the accumulator, mechanism actuated by the differentially movable members for indicating each item entered in the accumulator, type carriers connected to the actuators for recording items and totals, and means for driving the actuators by the accumulator elements independently of the differentially movable members for the purpose of recording a total without indicating the same.

30. In an accounting machine, the combination with a plurality of individual total accumulators, and a grand total accumulator, of differentially movable devices each carrying two racks, one rack for actuating the individual accumulators and the other for actuating the grand total accumulator and normally out of engagement with the accumulators, and means for establishing a coöperative relation between the grand total and the individual accumulators and their respective sets of racks during an operation of the machine.

31. In an accounting machine, the combination with a plurality of individual total accumulators, of a movable frame supporting said accumulators, a grand total accumulator, a second movable frame carrying the grand total accumulator, differentially movable devices and two sets of racks carried thereby, one set for actuating the individual total accumulators and the other set for actuating the grand total accumulator and normally out of engagement with the accumulators, and means for operating the two accumulator supporting frames to engage the grand total accumulator and the desired individual total accumulator with their respective sets of racks during an operation of the machine.

32. In an accounting machine, the combination with a plurality of individual total accumulators each comprising a plurality of movable elements, of retaining pawls for said elements, a frame for supporting said accumulators and pawls, an accumulator comprising a plurality of movable elements for accumulating the grand total of the in-

dividual accumulators, retaining pawls for the elements of the grand total accumulator, a second frame for supporting the said elements and retaining pawls, differentially movable devices, and two sets of racks carried thereby, one set for actuating the individual total accumulators and the other set for actuating the grand total accumulator and normally out of engagement with the accumulators, means for rocking the accumulators into engagement with their respective sets of racks during an operation of the machine, and mechanism for disengaging the retaining pawls from the accumulator elements as an incident to the engagement of said elements with the racks.

33. In an accounting machine, the combination with a plurality of individual total accumulators, and a grand total accumulator, of differentially movable devices, each carrying two racks, one rack for actuating the individual total accumulators and the other for actuating the grand total accumulator, means for establishing a cooperative relation between the accumulators and their respective sets of racks during an operation of the machine, type carriers, controlled by the differentially movable devices, for recording the items entered on the various accumulators, and mechanism for preventing the establishment of cooperative relation between the racks and the accumulators when it is desired to record transactions of certain classes.

34. In an accounting machine, the combination with a plurality of individual total accumulators, and a movable frame supporting said accumulators, of a grand total accumulator and a second movable frame carrying the grand total accumulator, differentially movable devices and two sets of racks carried thereby, one set for actuating the individual total accumulators and the other set for actuating the grand total accumulator, type carriers, controlled by the differentially movable devices, for recording the items entered on the various accumulators, means for operating the two accumulator supporting frames to engage the grand total accumulator and the desired individual total accumulator with their respective sets of racks, and manipulative devices and connections for preventing the operation of said operating means when it is desired to record items of certain classes.

35. In an accounting machine, the combination with a plurality of individual total accumulators, and a grand total accumulator, of differentially movable devices and two sets of racks carried thereby, one set for actuating the individual total accumulators and the other set for actuating the grand total accumulator, type carriers, controlled by said devices, for recording the items entered upon the various accumulators

and the totals thereof, means for establishing cooperative relation between the accumulators and their respective sets of racks when items are entered upon the accumulators, and means for reversing the engagement of the accumulators and the racks in the recording of totals.

36. In an accounting machine, the combination with a plurality of individual total accumulators, and a set of actuating racks common thereto, of a grand total accumulator, and a second set of actuating racks for the latter accumulator, type carriers, controlled by both sets of racks, for recording items entered upon the accumulators and the totals thereof, means for establishing cooperative relation between the individual total and the grand total accumulators and their respective sets of racks in entering items upon the accumulators, and means for reversing the cooperative relation between the sets of racks and the accumulators in the recording of totals.

37. In an accounting machine, the combination with a plurality of individual total accumulators, and a set of actuating racks common thereto, of a grand total accumulator, and a second set of actuating racks for the latter accumulator, type carriers, controlled by both sets of racks, for recording items entered upon the accumulators and the totals thereof, means for moving the individual and the grand total accumulators into engagement with their respective sets of racks in entering items upon the accumulators, and means for reversing the engagement of the accumulators and racks in the recording of totals.

38. In an accounting machine, the combination with a plurality of individual total accumulators, and a set of actuating racks common thereto, of a grand total accumulator, and a second set of actuating racks for the latter accumulator, type carriers, controlled by both sets of racks, for recording items entered upon the accumulators and the totals thereof, means for moving the individual and the grand total accumulators into engagement with their respective sets of racks and driving same by said racks in entering items upon the accumulators, and means for reversing the order of engagement of the accumulators and racks and driving the racks by the accumulators in the recording of totals.

39. In an accounting machine, the combination with a plurality of individual total accumulators, of a set of actuators common thereto, means for establishing operative relation between any one of the accumulators and the actuators for the purpose of entering items upon said accumulators, a grand total accumulator and actuators therefor, type carriers, controlled by both sets of actuators, for recording items en-

tered on the accumulators and the totals thereof, and means for establishing operative relation between the individual accumulators and the actuators for the grand total accumulator and between the grand total accumulator and the actuators for the individual total accumulators in the recording of totals.

40. In an accounting machine, the combination with a plurality of individual total accumulators and a grand total accumulator, of actuators therefor, means for establishing coöperative relation between the actuators and the grand total accumulator and one of the individual accumulators during an operation of the actuators, for the purpose of entering items upon said accumulators, a printing mechanism, controlled by the actuators, for recording the items entered upon the accumulators and the totals thereof, and mechanism, including a single selective device, for determining whether a total is to be recorded from the grand total accumulator or from one of the individual total accumulators.

41. In an accounting machine, the combination with a plurality of individual total accumulators and a grand total accumulator, of actuators therefor, means for rocking the grand total accumulator and one of the individual accumulators into engagement with the actuators during an operation of the actuators, for the purpose of entering items upon said accumulators, a printing mechanism, controlled by the actuators, for recording the items entered upon the accumulators and the totals thereof, and mechanism, including a single selective device, for determining whether a total is to be recorded from the grand total accumulator or one of the individual accumulators.

42. In an accounting machine, the combination with a plurality of individual total accumulators and a grand total accumulator, of means for entering items upon the grand total accumulator and any one of the individual total accumulators during an operation of said means, means for recording the items as they are entered upon the various accumulators and the totals thereof, and selective means for determining whether an item is to be entered upon the accumulator or a total recorded from the grand total accumulator or from one of the individual accumulators.

43. In an accounting machine, the combination with a plurality of individual total accumulators and a grand total accumulator, of means for entering items upon the grand total accumulator and any one of the individual total accumulators during an operation of said means, means for recording the items as they are entered upon the various accumulators and the totals thereof, and an adjustable device and connections for de-

termining whether an item is to be entered upon the accumulators or a total recorded from the grand total accumulator or from one of the individual accumulators.

44. In an accounting machine, the combination with a plurality of individual total accumulators and a grand total accumulator, of actuators for entering items upon the grand total accumulator and a selected one of the individual total accumulators during an operation of the actuators, the said accumulators and actuators being normally out of engagement, means for rocking the selected individual total accumulator and the grand total accumulator into engagement with the actuating mechanism for recording the items as they are entered upon the various accumulators and the totals thereof, and an adjustable device and connections for determining whether an item is to be entered upon the accumulators or a total recorded from the grand total accumulator or one of the individual accumulators.

45. In an accounting machine, the combination with a plurality of individual total accumulators and a grand total accumulator, of actuators for entering items upon the grand total accumulator and a selected one of the individual total accumulators during an operation of the actuators, the said accumulators and actuators being normally out of engagement, means for rocking the selected individual total accumulator and the grand total accumulator into engagement with the actuators, mechanism, controlled by the actuators, for recording the items as they are entered upon the various accumulators, and the totals thereof, an adjustable device and connections for determining whether an item is to be entered upon the accumulators or a total recorded from the grand total accumulator or one of the individual accumulators during an operation of the machine, and means for resetting the selected accumulator, brought into operation when the adjustable device is positioned, thus recording the total from either the grand or individual accumulators.

46. In an accounting machine, the combination with a plurality of individual total accumulators and a grand total accumulator, of actuators for entering items upon the grand total accumulator and a selected one of the individual total accumulators during an operation of the actuators, the said accumulators and actuators being normally out of engagement, means for selecting the individual total accumulator to be operated by the actuators, a centrally pivoted member and mechanism for imparting thereto an oscillatory movement during an operation of the machine, connections between the pivoted member and accumulators and actuated by said member for moving the grand total accumulator and the selected individual

total accumulator into engagement with the actuators to be operated thereby, mechanism controlled by the actuators for recording items as they are entered upon the various accumulators and the totals thereof, and an adjustable manipulative device controlling the connections between the pivoted member and the accumulators so that an item may be entered upon the selected individual total accumulator and grand total accumulator or a total recorded from either the grand total accumulator or one of the individual total accumulators.

47. In an accounting machine, the combination with a plurality of individual total accumulators and a grand total accumulator, of actuators for entering items upon the grand total accumulator and a selected one of the individual total accumulators during an operation of the machine, the said accumulators and actuators being normally out of engagement, means for selecting the individual total accumulator to be operated by the actuators, a centrally pivoted member and mechanism for imparting thereto an oscillatory movement during an operation of the actuators, connections between the pivoted member and accumulators and actuated by said member for moving the grand total accumulator and the selected individual total accumulator into engagement with the actuators to be operated thereby, mechanism, controlled by the actuators, for recording items as they are entered upon the various accumulators and the totals thereof, an adjustable manipulative device controlling the connections between the pivoted member and the accumulators so that an item may be entered upon the selected individual total accumulator and grand total accumulator or a total recorded from either the grand total accumulator or one of the individual total accumulators, and devices also controlled by the adjustable manipulative device in the positioning of the latter device for the total recording operation of either the individual or grand total accumulator for resetting the selected accumulator to zero and thereby positioning the type carriers for recording the total.

48. In an accounting machine, the combination with a plurality of individual total accumulators and a grand total accumulator, of actuators for entering items upon the grand total accumulator and a selected one of the individual total accumulators during an operation of the actuators, the said accumulators and actuators being normally out of engagement, means for selecting the individual total accumulator to be operated by the actuators, a centrally pivoted member and mechanism for imparting thereto an oscillatory movement, adjustable pitmen normally connected to the free ends of the

pivoted member and connections for moving the grand total accumulator and the selected individual total accumulator into engagement with the actuators to be operated thereby, mechanism controlled by the actuators for recording items as they are entered upon the various accumulators and the totals thereof, and an adjustable manipulative device controlling the pitmen so that an item may be entered upon the selected individual total accumulator and grand total accumulator or a total recorded from either the grand total accumulator or one of the individual total accumulators.

49. In an accounting machine, the combination with a plurality of individual total accumulators and a grand total accumulator, of actuators for entering items upon the grand total accumulator and a selected one of the individual total accumulators during an operation of the actuators, the said accumulators and actuators being normally out of engagement, means for selecting an individual total accumulator and establishing coöperative relation between the actuators and the selected accumulator and the grand total accumulator, type carriers, controlled by the actuators, for recording the items as they are entered on the various accumulators and the totals thereof, mechanism, including a cam disk, for operating said relation establishing means, and manipulative devices for positioning the establishing means in an inoperative position relative to the cam disk of the operating mechanism when it is desired to record transactions of predetermined classes.

50. In an accounting machine, the combination with a plurality of individual total accumulators and a grand total accumulator, of actuators for entering items upon the grand total accumulator and a selected one of the individual total accumulators during an operation of the actuators, the said accumulators and actuators being normally out of engagement, means for selecting the individual total accumulator to be operated by the actuators, a centrally pivoted member, and mechanism for imparting thereto an oscillatory movement during an operation of the machine, for the purpose of engaging the selected individual and the grand total accumulators with the actuators, type carriers controlled by the actuators, for recording the items as entered upon the various accumulators, and manipulative devices for preventing the aforesaid mechanism from imparting an oscillatory movement to the pivoted member and thereby preventing the engagement of the actuators with the selected individual and grand total accumulators when it is desired to record transactions of predetermined classes.

51. In an accounting machine, the combi-

nation with an operating mechanism, of means for locking the same, means requiring the conjoint operation of a plurality of keys for releasing the locking means, and a
 5 manipulative device which when operated renders the locking means capable of operation by the actuation of a single key.

52. In an accounting machine, the combination with an operating mechanism, of
 10 means for locking the same, means requiring the conjoint operation of a plurality of keys for releasing the locking means, a manipulative device which when operated renders the locking means capable of operation
 15 by the actuation of a single key, and means controlled by the manipulative device for locking all the rest of the keys.

53. In an accounting machine, the combination with an operating mechanism, of
 20 means for locking the same, a spring normally tending to release the locking means, devices for restraining the locking means from being released by its spring, a plurality of keys for operating the restraining de-
 25 vices, and a manipulative device which when operated actuates one of the restraining devices so that the operation of a single key will release the locking means for the operating mechanism.

30 54. In an accounting machine, the combination with an operating mechanism, of means for locking the same, a bank of clerks' keys and a bank of transaction keys, means requiring the conjoint operation of a clerk's
 35 key and a transaction key for releasing the locking means, a plurality of individual total accumulators corresponding in number to the clerks' keys, an additional accumulator for accumulating the grand total of
 40 all of the clerks' accumulators, actuators for said accumulators, type carriers, controlled by the actuators, for recording items entered on the various accumulators and the totals thereof, means, controlled by the clerks' keys
 45 and the operating mechanism, for establishing coöperative relation between the actuators and the grand total accumulator and any one of the clerks' accumulators, mechanism, including an adjustable manipulative
 50 device, for controlling the recording of a total from either the grand total accumulator, or any one of the clerks' total accumulators, and means, controlled by said controlling mechanism, for rendering the lock-
 55 ing means releasable by a key of one bank dependent on whether the manipulative device is in position for recording a clerk's total or a grand total.

55. In an accounting machine, the combination with an operating mechanism, of
 60 means for locking the same, a bank of clerks' keys and a bank of transaction keys, means requiring the conjoint operation of a key in each bank for releasing the locking means,

a plurality of individual total accumulators 65
 corresponding in number to the clerks' keys, an additional accumulator for accumulating the grand total of all of the clerks' accumulators, actuators for said accumulators, type
 70 carriers, controlled by the actuators, for recording items entered on the various accumulators and the totals thereof, means, controlled by the clerks' keys and the operating mechanism, for establishing coöperative relation between the actuators and the grand
 75 total accumulator and any one of the clerks' total accumulators, mechanism, including an adjustable manipulative device, for controlling the recording of a total from either the grand total accumulator or any one of the
 80 clerks' total accumulators, and means, controlled by the adjustment of the manipulative device, for rendering the locking means capable of operation by the actuation of a key of one of the banks, and also for
 85 preventing the operation of the keys of the other bank.

56. In an accounting machine, the combination with an accumulator comprising a plurality of wheels, of a shaft for support-
 90 ing said wheels, devices, carried by the shaft and normally out of operative relation with the wheels on said shaft, for restoring said wheels to zero, means for rotating the shaft normally disconnected therefrom, and mech-
 95 anism for connecting the shaft and resetting means and thereafter rotating said shaft, operative relation between the devices carried by the shaft and wheels thereon being established as an accompaniment to the connect-
 100 ing of the shaft and rotating means therefor.

57. In an accounting machine, the combination with a shaft and a plurality of accumulating pinions mounted thereon, of means
 105 normally out of engagement with the shaft for rotating the same, devices, carried by the shaft and normally out of operative relation with the pinions on said shaft, for restoring said wheels to zero, and means, ac-
 110 tuated upon the operation of the machine, for moving the shaft and engaging it with the rotating means therefor and as an accompaniment thereto establishing operative relation between the devices carried by the
 115 shaft and the pinions mounted thereon.

58. In an accounting machine, the combination with a shaft and a plurality of accumulating pinions mounted thereon, of means
 120 normally out of engagement with the shaft for rotating the same, normally depressed plungers carried by the shaft for engaging the pinions mounted thereon when said plungers are elevated, a longitudinally movable device for elevating the plungers,
 125 means, actuated upon the operation of the machine, for engaging the shaft and rotating means therefor and thereafter rotating said

shaft, and camming devices for shifting the longitudinally movable device, brought into operation upon the engagement of the shaft and the resetting means therefor.

59. In an accounting machine, the combination with a series of special counters upon which are registered the number of sales entered in the machine by each clerk, of a second series of counters upon which are registered the numbers of different classes of transactions entered in the machine, an actuating device for each of the special counters, a pair of longitudinally movable devices, one for each series of counters, having fingers corresponding in number to the actuating devices of each series, independent means for shifting each of the longitudinally movable devices to bring one of the fingers of each movable device into operative relation with its corresponding actuating device of each series, and mechanism common to both of the longitudinally movable devices for rocking said devices and thereby operating the actuating devices for the special counters with which the positioned fingers are in operative relation.

60. In an accounting machine, the combination with independent series of special counters upon one series of which are entered the number of sales of different clerks and upon the other series are registered the number of different classes of transactions entered in the machine, of an actuating device for each of the special counters, a longitudinally movable shaft having a plurality of fingers one for each of the actuating devices for one of the series of counters, one only of said fingers being in operative relation with its actuating device at a time, a sleeve mounted upon the shaft and having a plurality of fingers, one for each of the actuating devices for the other series of counters, independent means for shifting the shaft and sleeve to bring one each of the fingers of said shaft and said sleeve into operative relation with its corresponding actuating device, and mechanism common to the shaft and sleeve for rocking the same and thereby operating the actuating devices for the special counters with which the positioned fingers are in operative relation.

61. In an accounting machine, the combination with differentially movable members; of indicating, accumulating and recording mechanisms controlled thereby for the purpose of indicating, accumulating and listing items; and means controlling the recording mechanism by the accumulating mechanism and independently of the differentially movable members whereby a total is recorded without indicating the same.

62. In an accounting machine, the combination with differentially movable members; of indicating, accumulating and recording mechanisms controlled thereby for the pur-

pose of indicating, accumulating and listing items; and means actuating the recording mechanism by the resetting of the accumulating mechanism and independently of the indicating mechanism whereby a total is recorded without indicating the same.

63. In an accounting machine, the combination with an accumulator, of a normally inoperative actuating means therefor, recording mechanism for listing the items entered in the accumulator and for listing the total thereof, means for predetermining whether an item or a total is to be listed, a plurality of devices and means for rendering the actuating means operative so constructed as to require the operation of more than one of said plurality of devices when items are listed and only a single device when totals are recorded.

64. In an accounting machine, the combination with an accumulator, of a normally inoperative actuating means therefor, recording mechanism for listing items entered in the accumulator and for listing the total thereof, means requiring the operation of a plurality of devices for rendering the actuating means operative when it is desired to list items, means for predetermining whether an item or total is to be listed, and mechanism controlled by the predetermining means for rendering the actuating means operative by the operation of a single device when it is desired to list a total.

65. In an accounting machine, the combination with an accumulator, of a normally inoperative actuating means therefor, recording mechanism for listing items entered in the accumulator and for listing the total thereof, means requiring the operation of a plurality of devices for rendering the actuating means operative when it is desired to list items, means for predetermining whether an item or total is to be listed, and mechanism controlled by the predetermining means for rendering the actuating means operative by the operation of a single device when it is desired to list a total and for rendering inoperative the remainder of said devices.

66. In a machine of the class described, the combination with an accumulator comprising a plurality of movable elements, of differentially movable members for actuating the accumulating elements, the differentially movable members and the accumulating elements being normally out of engagement, operating means for driving the differentially movable members, type carriers controlled by the differentially movable members, for recording the items entered upon the accumulator and the total thereof, and means driven by the operating mechanism for engaging the accumulating elements with the differentially movable members in an item entering operation and

also in a total taking operation in such a manner that said members may be driven by the accumulating elements in the same direction to take totals as they are driven in entering items.

67. In a machine of the class described, the combination with an accumulator, comprising a plurality of movable elements, of differentially movable members, and devices carried thereby for actuating the accumulator elements, operating means for driving the differentially movable members in an item entering operation, type carriers controlled by the differentially movable members for recording the items entered upon the accumulator and the total thereof, and means, driven by the operating means, for driving the differentially movable members by the accumulator elements in the same direction to take totals as they are driven in adding items upon the accumulator.

68. In a machine of the class described, the combination with an accumulator, comprising a plurality of movable elements, of differentially movable members, for actuating the accumulator elements, the differential members and accumulator elements being normally out of engagement, operating means, for engaging the differential members in entering items upon the accumulator, type carriers, controlled by the differential members, for recording the items entered upon the accumulator and the total thereof, means, controlling the engagement of the accumulator elements and the differential members during an operation of the operating means in such a manner that said members may be driven by the accumulator elements in the same direction to take totals as they are driven in entering items upon the accumulator, and means, driven by the operating means, for actuating the accumulating elements in total taking operations.

69. In a machine of the class described, the combination with indicating, accumulating, and recording mechanisms, of differentially movable members, constantly connected to said indicating mechanism, of actuators for the recording mechanism and the accumulating mechanism actuated by the differentially movable members in item entering operations, and means for driving the actuators under the control of the accumulating elements while the differentially movable members are in zero position whereby the total on the accumulating mechanism is recorded by the recording mechanism without the indicating mechanism indicating the same.

70. In a machine of the class described, the combination with a plurality of accumulators each comprising a plurality of accumulating elements, of a shaft, for carrying all of said accumulating elements, devices, carried by said shaft, for connecting

the elements of any accumulator with said shaft, means, for shifting said accumulators on said shaft so that said devices may be in operative relation with the elements of the desired accumulator, and means, for rotating said shaft to carry the elements of the desired accumulator to zero position.

71. In a machine of the class described, the combination with a plurality of accumulators, each comprising a plurality of denominational elements, of a shaft carrying said elements, a driving member for said shaft, normally out of operative connection therewith, manipulative means, and mechanism, controlled thereby, for operatively connecting the shaft with its driving member and with the elements of any one of said accumulators for turn to zero operations.

72. In a machine of the class described, the combination with a shaft, of a plurality of accumulators, each comprising a plurality of movable elements mounted on said shaft, members, carried by said shaft, for connecting the shaft with the elements of any one of said accumulators, means for effecting relative movement between the shaft and said accumulating elements to establish operative relation between the elements of any desired accumulator and said members, and means, for rotating said shaft to carry accumulating elements in operative relation with said members to zero position.

73. In a machine of the class described, the combination with a plurality of accumulators each comprising a plurality of movable elements, of a shaft, for supporting all of said elements, devices carried by said shaft, normally out of operative relation with said elements, and for restoring the elements of any one of the accumulators to zero position, means for effecting relative movement between said shaft and said accumulating elements so that the elements of any one of the accumulators are in position to have operative relation established between the same and said devices, means for rotating the shaft, normally disconnected therefrom, and mechanism, for connecting the shaft and said rotating means so that said shaft may be rotated, operative relation between the devices carried by the shaft and the elements of the accumulator being established as an accompaniment to the connection of the shaft and the rotating means therefor.

74. In a machine of the class described, the combination with an operating mechanism, of a shaft, a plurality of accumulators each comprising a plurality of denominational elements mounted on said shaft, members carried by said shaft, for connecting said shaft with the elements of any one of said accumulators, manipulative means, means operated by the operating mechanism and controlled by the manipulative means for effecting relative move-

ment between the shaft and the accumulating elements to establish operative relation between the elements of any desired accumulator and said members, and means operated by the operating mechanism for rotating said shaft to carry the accumulating elements in operative relation with said members to zero position.

75. In a machine of the class described, the combination with a main operating mechanism, of a plurality of individual total accumulators and a grand total accumulator, differentially movable devices, two sets of racks carried thereby, one set for actuating the individual accumulators and the other set for actuating the grand total accumulator and normally out of engagement with the accumulators, means operated by the main operating mechanism for effecting relative movement between the individual total accumulators and their set of racks to select the desired individual accumulator for actuation, and means operated by the main operating mechanism for establishing a coöperative relation between the grand total and the individual accumulators and their respective sets of racks.

76. In a machine of the class described, the combination with a main operating mechanism, of a plurality of individual total accumulators and a grand total accumulator, differentially movable devices, two sets of racks carried thereby, one set for actuating the individual accumulators and the other set for actuating the grand total accumulator and normally out of engagement with the accumulators, means operated by the main operating mechanism for effecting relative movement between the individual total accumulators and their set of racks to select the desired individual accumulator for actuation, and means operated by the main operating mechanism for rocking the accumulators into engagement with their respective sets of racks.

77. In a machine of the class described, the combination with an operating mechanism, of means for locking the same, a plurality of classes of manipulative means, means normally requiring the conjoint operation of manipulative means of the different classes for releasing the locking means, and a differentially movable device which when operated renders the locking means capable of actuation by the operation of manipulative means of one class.

78. In a machine of the class described, the combination with an operating mechanism, of means for locking the same, and three classes of manipulative means the manipulative means of any two classes being operable in conjunction to release the locking means.

79. In a machine of the class described, the combination with a main operating mechanism, of locking means therefor, two classes of manipulative means, a restraining device for the locking means disabled by the manipulative means of one class, a second restraining device for the locking means disabled by the manipulative means of the other class, and independent manipulative means for disabling either one of said restraining devices.

80. In a machine of the class described, the combination with a main operating mechanism, of locking means therefor, two classes of manipulative means, a restraining device for the locking means disabled by the manipulative means of one class, a second restraining device for the locking means disabled by the manipulative means of the other class, and independent manipulative means for disabling either one of said restraining devices and for locking against operation the manipulative means adapted to control the restraining device disabled by the independent manipulative means.

81. In a machine of the class described, the combination with a main operating mechanism, of locking means therefor, two classes of manipulative means, a restraining device for the locking means disabled by the manipulative means of one class, a second restraining device for the locking means disabled by the manipulative means of the other class, and a differentially movable manipulative device which when moved to one position disables one restraining device and to another position disables the other restraining device and when in a third position permits the disabling of both restraining devices by the two classes of manipulative means.

82. In a machine of the class described, the combination with a main operating mechanism, of locking means therefor, two restraining devices for the locking means, clerks' keys and transaction keys, the clerks' keys being constructed to disable one restraining device and the transaction keys being constructed to disable the other restraining device, and a total lever movable to three positions and adapted to disable one restraining device when in one position and the other restraining device when in another position and adapted to permit disabling of both restraining devices by the keys when in another position.

In testimony whereof I affix my signature in the presence of two witnesses.

HAAKON A. MARTIN.

Witnesses:

ROY E. GLASS,
CARL W. BEUST.