

J. F. OHMER.
TICKET PRINTING AND AUDITING MACHINE.
APPLICATION FILED JULY 24, 1908.

974,511.

Patented Nov. 1, 1910.

9 SHEETS-SHEET 1.

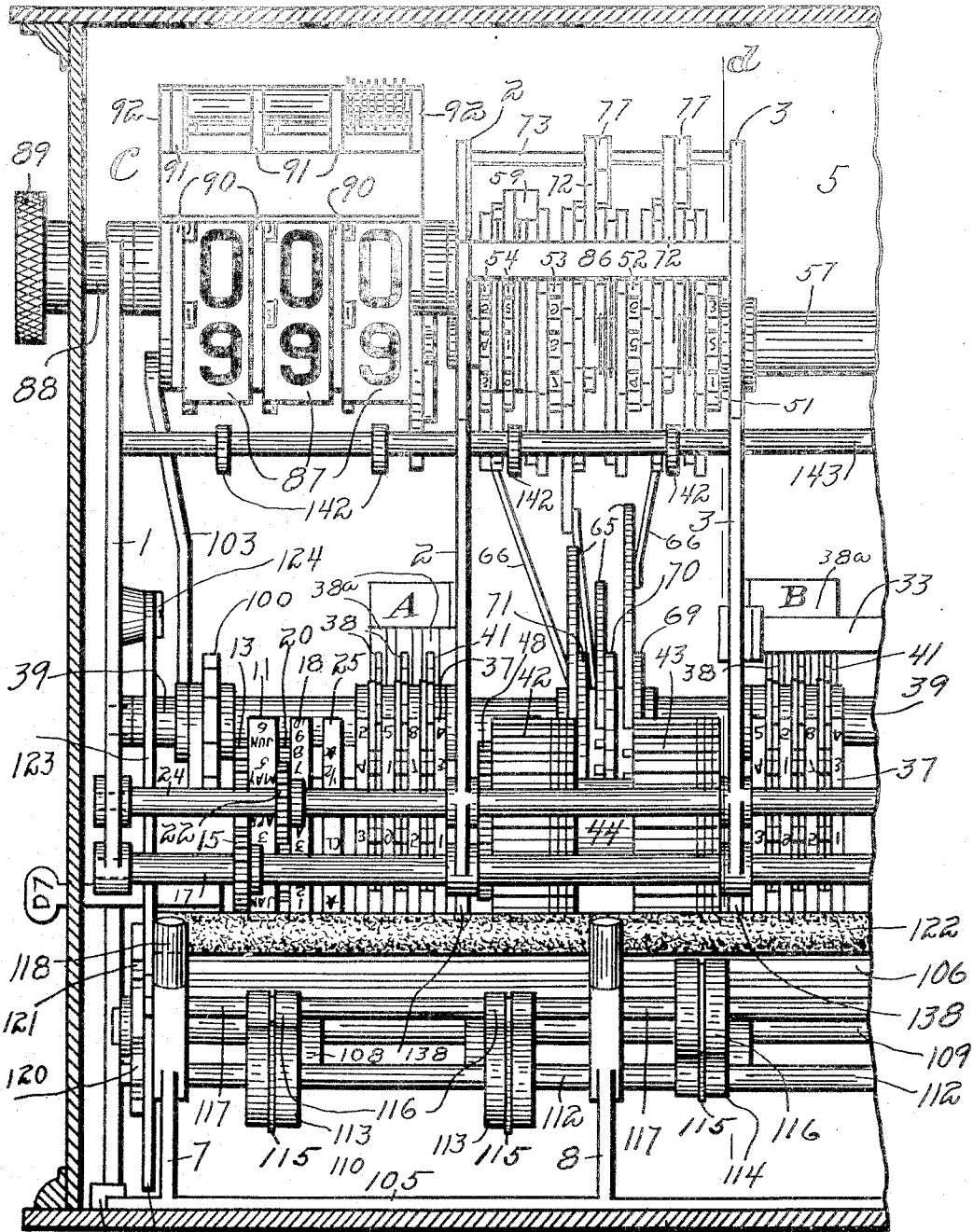


Fig. 1.

Witnesses

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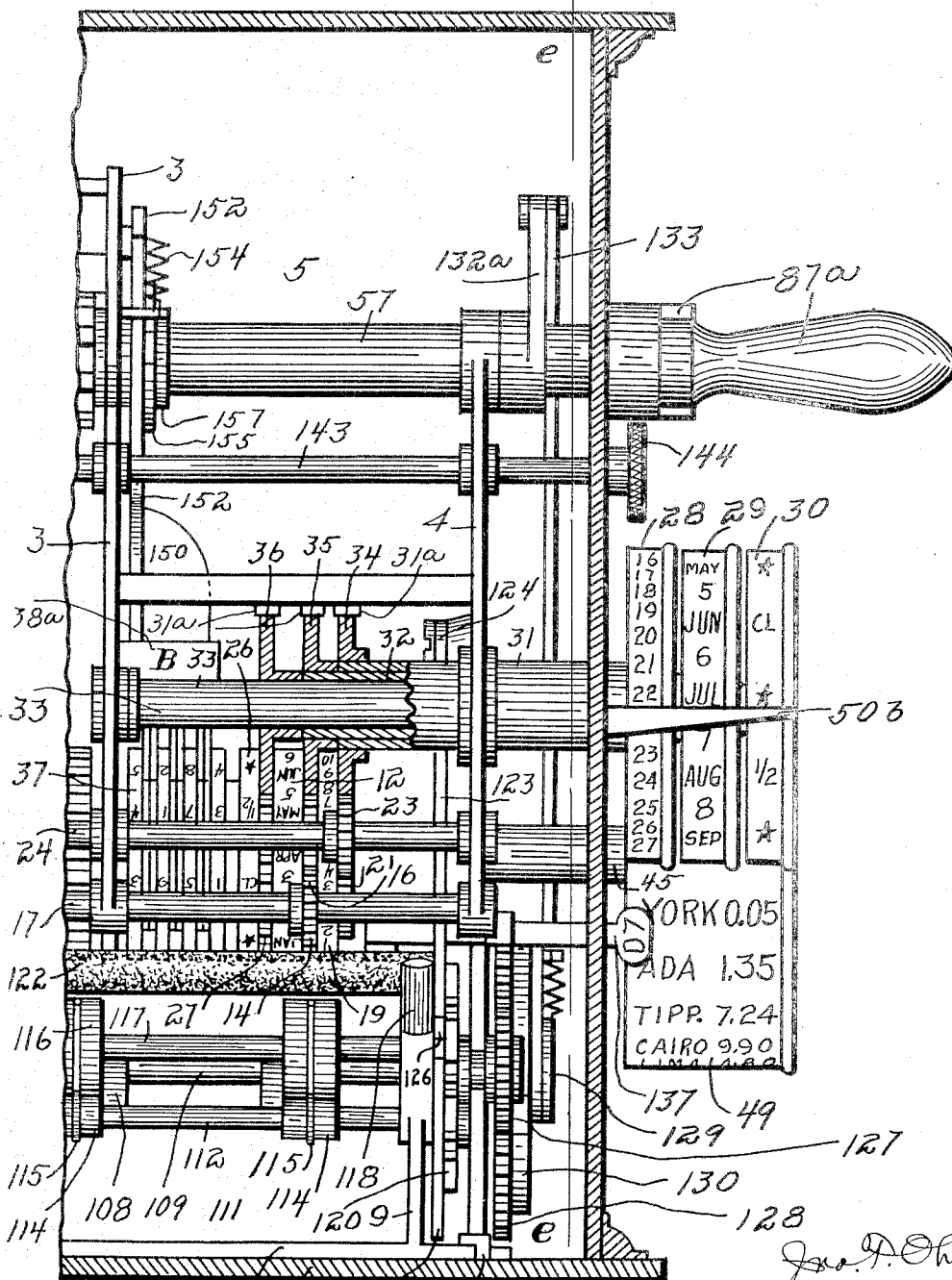


Fig. 1a.

Witnesses
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TICKET PRINTING AND AUDITING MACHINE.

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9 SHEETS—SHEET 3.

974,511.

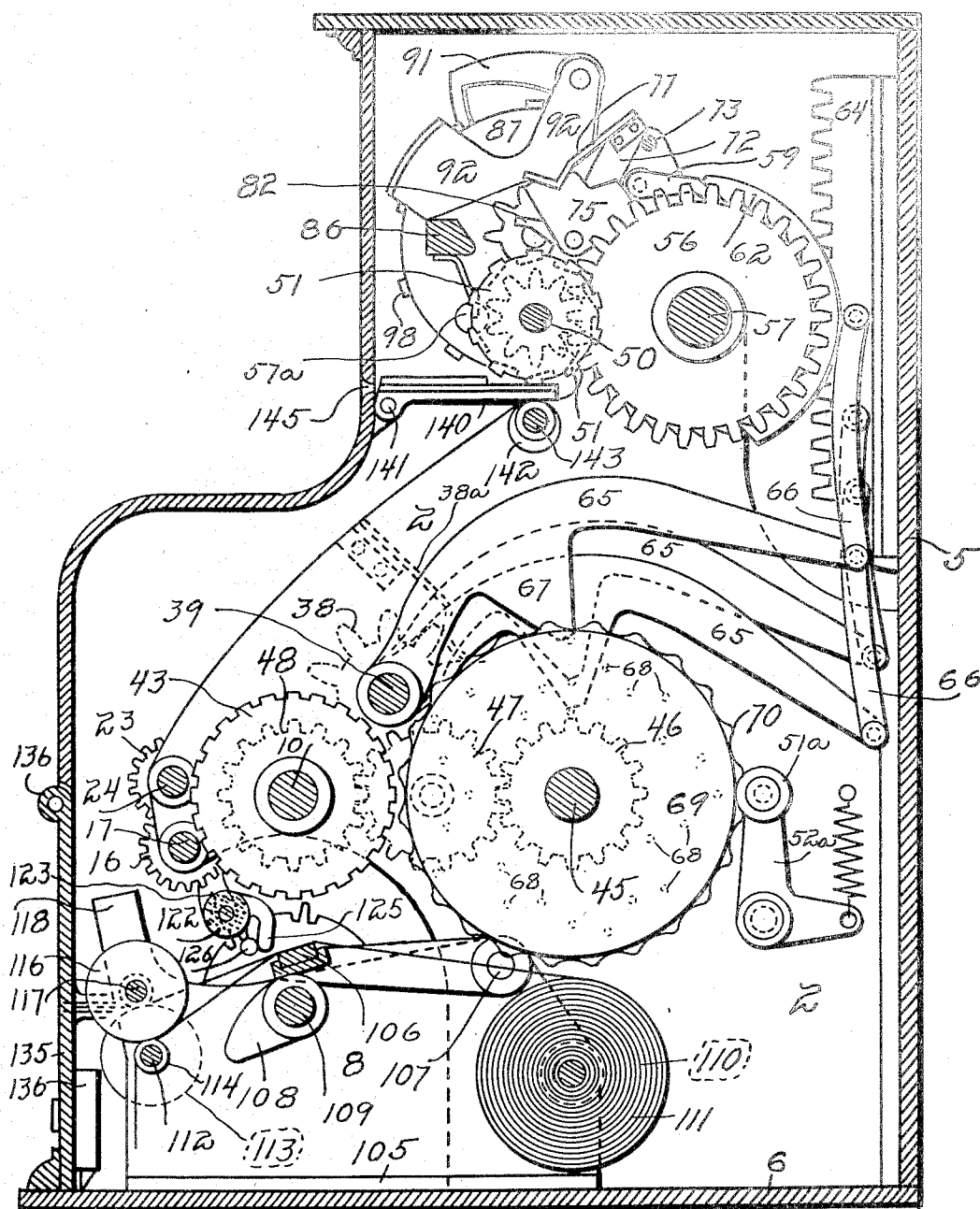


Fig. 2. Jno. P. Chmer.

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Fig.

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9 SHEETS—SHEET 4.

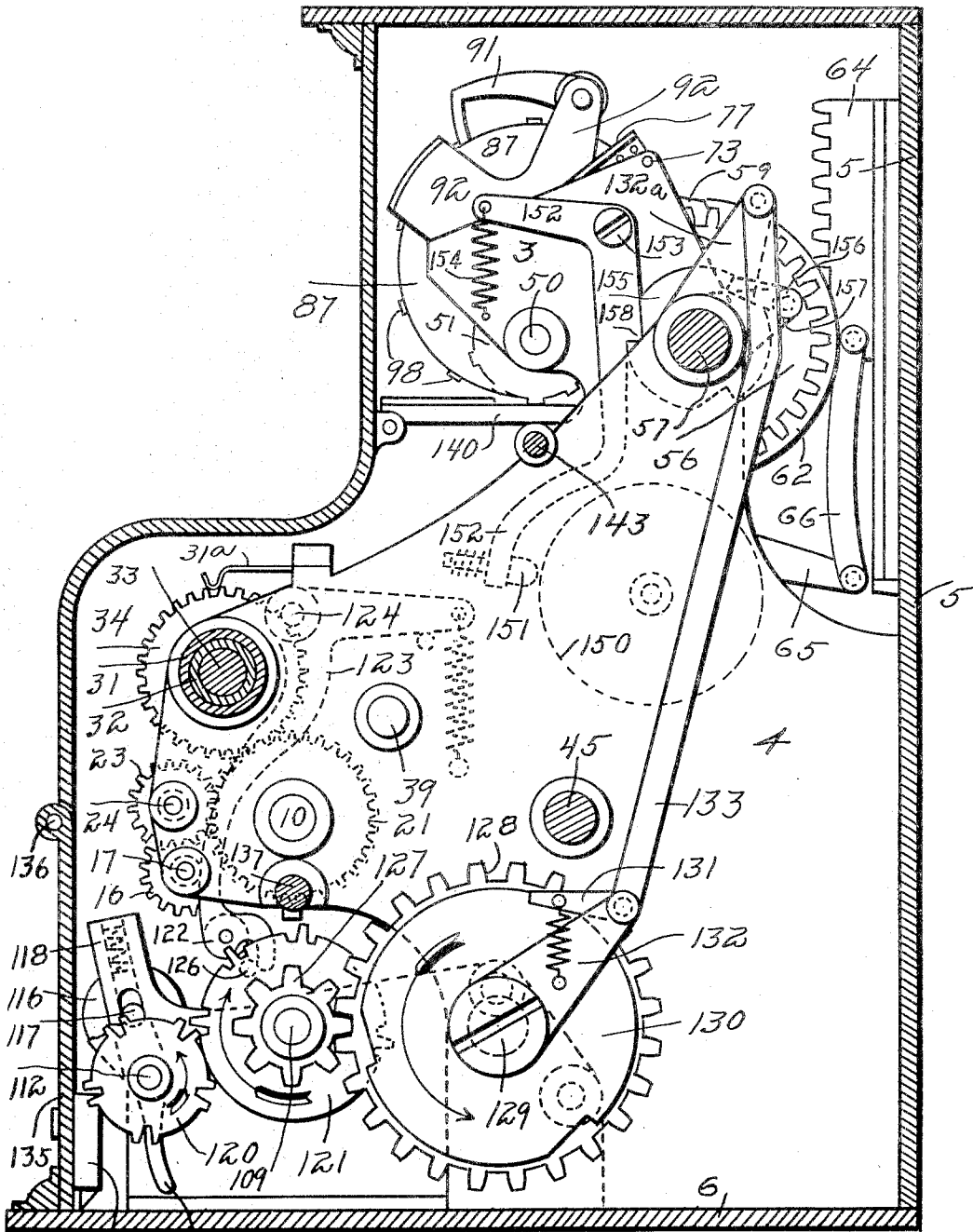


Fig. 3.

Witnesses

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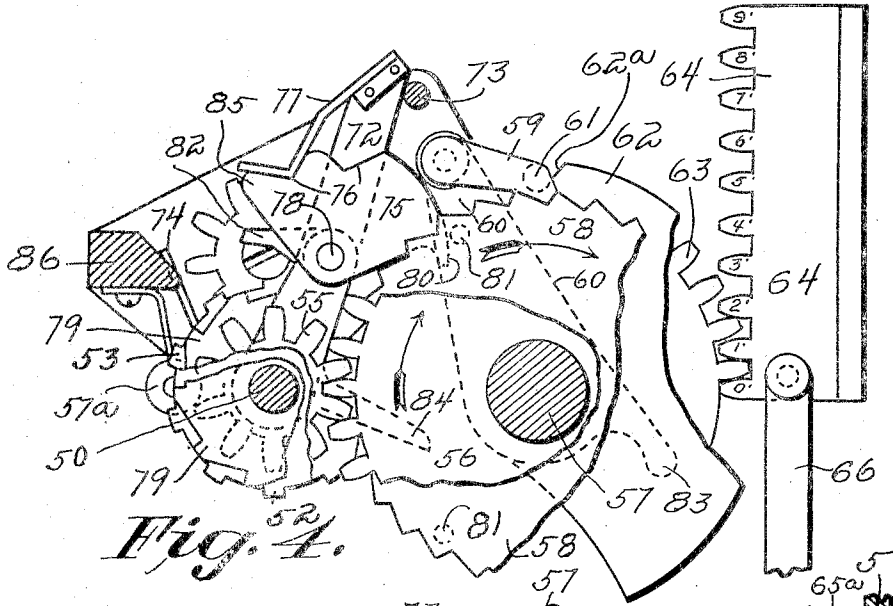


Fig. 4.

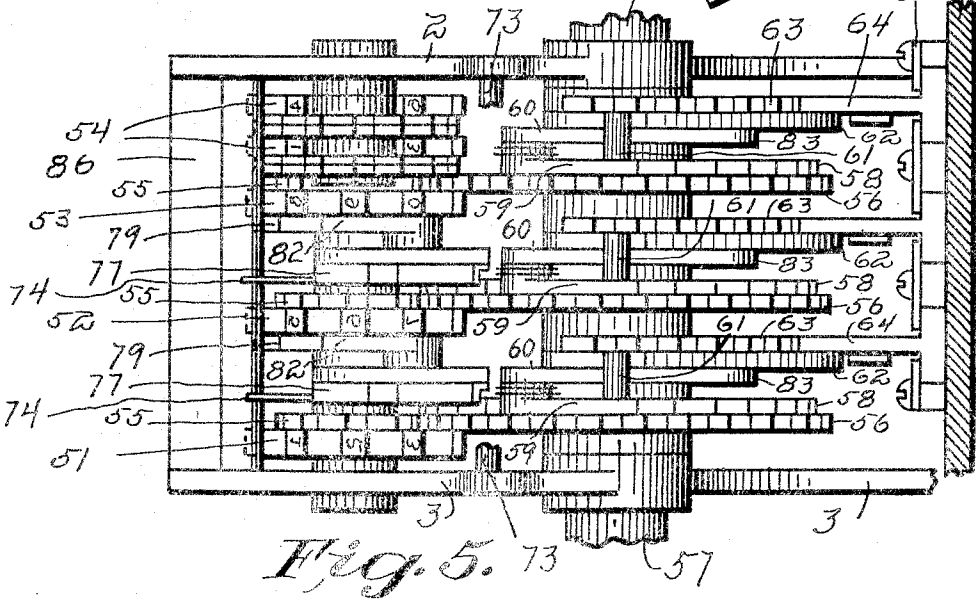


Fig. 5.

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9 SHEETS—SHEET 6.

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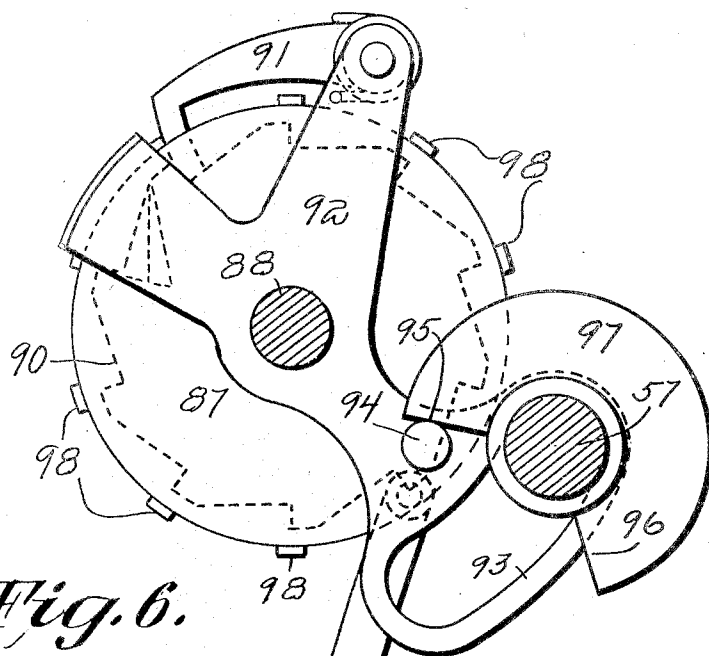


Fig. 6.

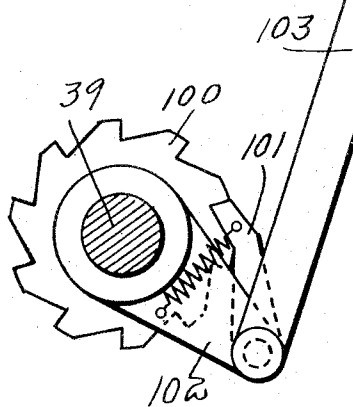
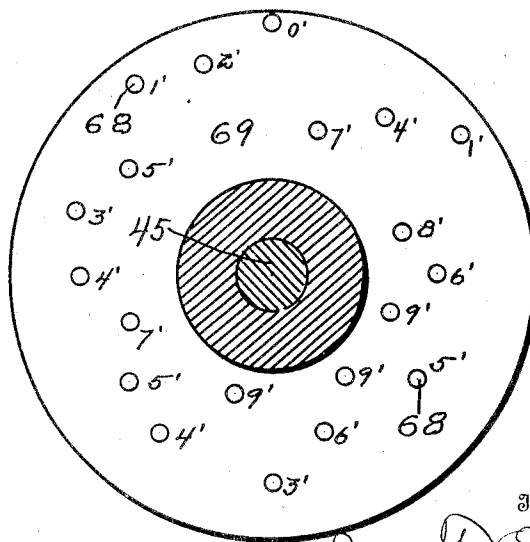


Fig. 7.



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Witnesses

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974,511.

4	2	0	5	3	2	4	7
CAIRO	990	1	2	4	2	★	JUL 22 1904
PERU	320	1	2	4	1	★	JUL 22 03
TIPP	724	1	2	4	0	★	JUL 22 03
YORK	005	1	2	3	9 1/2		JUL 22 07
ADA	135	1	2	3	8	★	JUL 22 07
LIMA	480	1	2	3	7 CL		JUL 22 07

Fig. 9.

Fig. 11.

4	2	0	5	3	2	4	7
CAIRO	990	1	2	4	2	★	D7
PERU	320	1	2	4	1	★	D7
TIPP	724	1	2	4	0	★	D7
YORK	005	1	2	3	9 1/2		D7
ADA	135	1	2	3	8	★	D7
LIMA	480	1	2	3	7 CL		JUL 22 07

D7 JUL. 22 CL 1237 LIMA 480

NEW YORK CENTRAL R.R. CO.

GOOD FOR ONE CONTINUOUS
TRIP FROM

DAYTON O.

TO

STATION PRINTED ABOVE.

Fig. 8.

Fig. 10.

D7 JUL 22 12 42 ★ CAIRO 990

D7 JUL 22 12 41 ★ PERU 320

D7 JUL 22 12 40 ★ TIPP 724

D7 JUL 22 12 39 1/2 YORK 005

D7 JUL 22 12 38 ★ ADA 135

D7 JUL 22 12 37 CL LIMA 480

NEW YORK CENTRAL R.R. CO.

GOOD FOR ONE CONTINUOUS TRIP
FROM

DAYTON O.

TO STATION PRINTED ABOVE.

Witnesses

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9 SHEETS—SHEET 8.

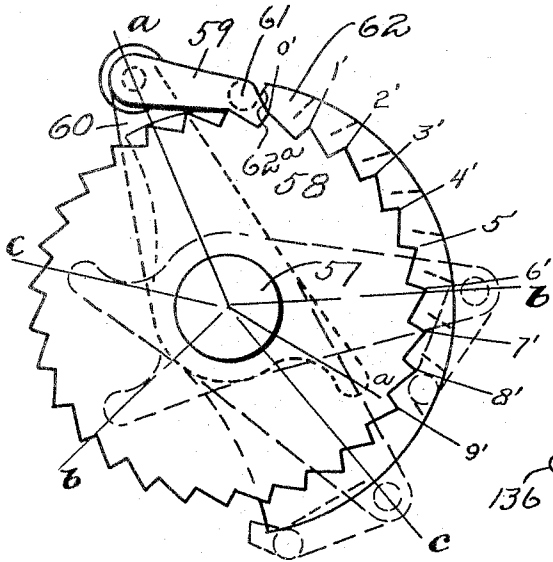


Fig. 14.

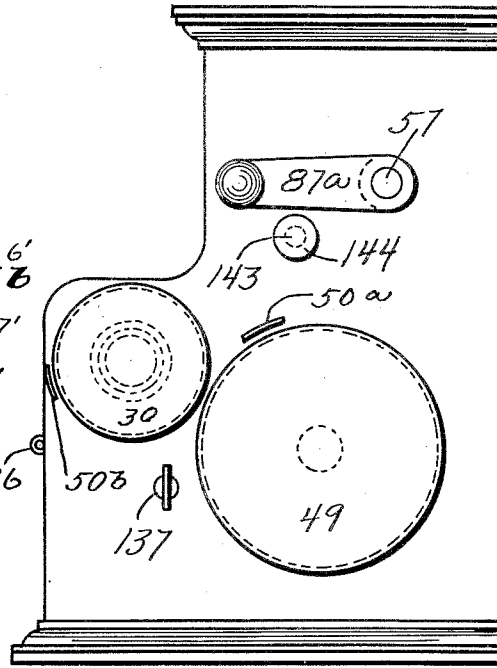


Fig. 12.

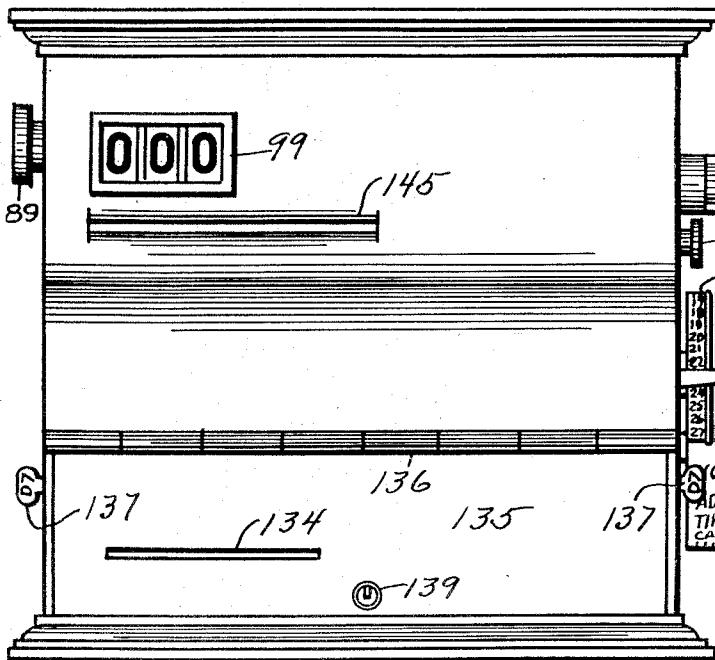


Fig. 13.

Witnesses

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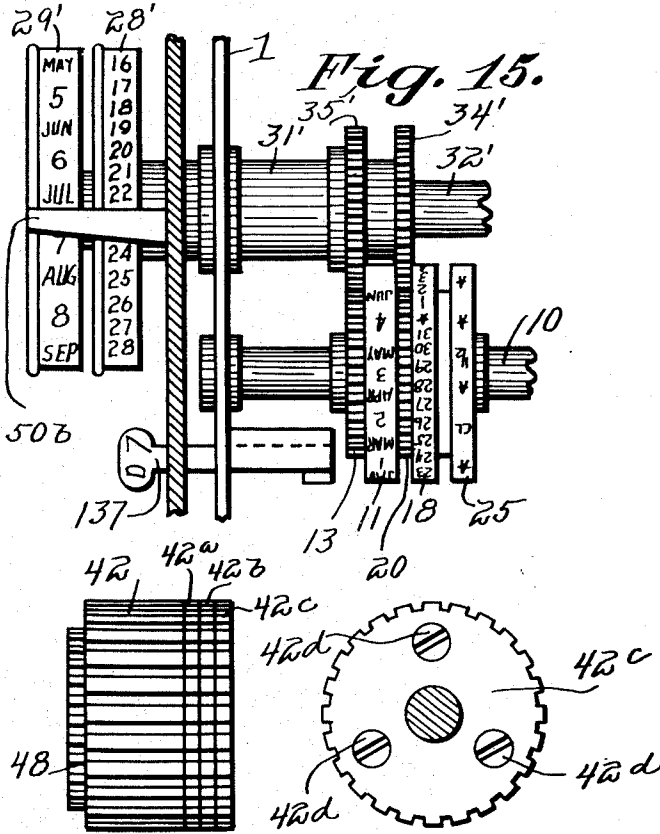
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9 SHEETS—SHEET 9.



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UNITED STATES PATENT OFFICE.

JOHN F. OHMER, OF DAYTON, OHIO.

TICKET PRINTING AND AUDITING MACHINE.

974,511.

Specification of Letters Patent.

Patented Nov. 1, 1910.

Application filed July 24, 1908. Serial No. 445,165.

To all whom it may concern:

Be it known that I, JOHN F. OHMER, citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Ticket Printing and Auditing Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in machines for printing and auditing railway tickets, and is designed to take the place of the usual cumbersome and spacious ticket racks common to ticket offices throughout the country.

The objects of the invention are numerous, and principally among which is the provision of a machine having a capacity for issuing a ticket after printing the same, and printing a record which is a duplicate of the matter printed by the machine upon the ticket. The tickets may be dated and numbered consecutively within the machine, or they may be previously consecutively numbered. And further, means are provided for printing on the tickets the class, for example, a full ticket, a half ticket, a clergyman ticket, etc. And further, means for printing the destination of each ticket as well as the price of money value thereof. And further, means are provided for identifying upon each ticket the person who issues such ticket. And further, means are provided for printing on the record the total number of tickets issued and the total cash value of such tickets. In a word, the invention constitutes in effect, a ticket printer and a complete mechanical auditor which summarizes the totals of each and every separate transaction recorded in the machine. This obviates the necessity of having the passenger department of a railway system provide each ticket selling office with a supply of tickets for each respective point or destination to every other point of destination on the line. It also obviates the necessity of a traveling auditor making periodical visits to each and every ticket selling office for the purpose of taking an account

of the tickets on hand in order to determine how many of each kind have been sold.

The invention also relates to new constructions for producing these results.

Preceding a detailed description of the invention, reference is made to the accompanying drawings, of which—

Figure 1, represents a front elevation of the left side of the machine with the casing and some of the parts removed. Fig. 1^a, is a view of the right side of the machine, the same being a continuation of Fig. 1. Fig. 2, is a section on the line *d d* of Fig. 1. Fig. 3, is a section on the line *e e* of Fig. 1^a. Fig. 4, is a side elevation of the cash counter mechanism, some parts being broken away. Fig. 5, is a top plan view of the cash counter. Fig. 6, is a side elevation of the visible counter showing means for actuating the same and the means for actuating the printing counters. Fig. 7, is a view of the cash counter setting cam. Fig. 8, is a view of the ticket as issued by a machine provided with a consecutive printing counter. Fig. 9, is a view of the printed record for the ticket shown in Fig. 8. Fig. 10, is a view of tickets issued from a machine not having a consecutive printing counter but in which the tickets are numbered before placed in the machine. Fig. 11, is a view of the printed record of the tickets shown in Fig. 10. Fig. 12, is a side elevation of the outside of the machine. Fig. 13, is a front elevation of the outside of the machine. Fig. 14, is a diagrammatic view of the cash-counter ratchet and cam devices. Fig. 15, is a modification of the setting means for the month and day printing devices. Figs. 16 and 17, are detail views of the station and price-printing devices.

Throughout the specification, similar reference characters indicate corresponding parts.

Frame-work.—Referring to Figs. 1 and 1^a, 1, 2, 3 and 4 designate plates between which the mechanisms of the machine, exclusive of the printing mechanism are mounted. These frames are attached to a rear plate 5 and bottom plate 6. The printing mechanism is mounted in the plates 7, 8 and 9 at the bottom of the machine, which mechanism will be hereinafter more fully described.

Manually set printing wheels.—Extending through the plates 1, 2, 3 and 4, is a

shaft 10 upon which the various type wheels are mounted. These type wheels are in duplicate, the series for printing the ticket being on the left side of the machine as the operator faces it, and the series for printing the record being on the right side as the operator faces the machine. Near the ends of the shaft 10 are mounted duplicate month wheels 11 and 12, which are provided with gears 13 and 14. These type wheels rotate in unison through the gears 15 and 16 on shaft 17 which mesh with the gears 13 and 14. The shaft 17 is journaled in the plates 1, 2, 3 and 4. Lying on the right side of the month wheels 11 and 12, are duplicate day wheels 18 and 19 which are provided with gears 20 and 21. These wheels rotate in unison through means of the gears 22 and 23 on shaft 24 similar to the month wheels. Lying next to the month and date wheels on both sides of the machine, are type wheels 25 and 26, which rotate in unison as they are both attached to the shaft 10. The wheel 26 on the right side of the machine is provided with a gear 27. These type wheels 25 and 26 print on the face of the ticket and the record, the class of tickets that is being issued, such as a clergy, half fare, first class, second class, etc., and a star as will be seen from sheet 7. The type wheels 11, 12, 18 and 19, and 25 and 26, are set from the outside of the machine by means of drums 28, 29 and 30 which are mounted on telescopic shafts 31, 32 and 33 respectively. These shafts are provided with gears 34 and 35 and 36 which mesh with the gears 21, 14 and 27 of the type wheels. The type wheels are held in printing alinement by springs 31^a engaging the gears 34, 35 and 36.

The above-described mechanism is old and is found in my former patents, particularly Patent No. 874,424 of December 24, 1907.

Consecutive printing counters.—Lying on the outside of the plates 2 and 3 and pivoted on the shaft 10, are left and right consecutive number printing counters A and B. These counters have type wheels 37 and one tooth transfer wheels 38 of well-known type. The transfer wheels 38 are mounted on the shaft 39. The type wheels 37 are held in printing alinement by springs 38^a. These counters A and B are actuated concurrently by means of the shaft 39, the unit actuating gears 41 of both counters being rigidly secured to said shaft. The means for actuating the printing counters A and B will be described in connection with the visible counters.

Destination type wheel setting mechanism.—Mounted between the plates 2 and 3 and pivoted on the shaft 10, are duplicate type wheels 42 and 43, the peripheries of which contain printed characters representing the destination and the price of the

ticket. These type wheels 42 and 43 may be each formed of four separate wheels 42, 42^a, 42^b and 42^c, on the periphery of one of which the stations are engraved, and upon the peripheries of the other three, blank surface spaces are provided, one for each station, and numerals to print the prices are engraved on the surface spaces of the three wheels, the numeral on one wheel to print the units, the numeral on one wheel to print the tens, and the numeral on one wheel to print the hundreds (or dollars). Holes are drilled on the flat side of each wheel including the station wheel. The four wheels are fastened together with a pin or screw 42^d which compels them to revolve together on the shaft 10. It is thus seen that in the event the prices are subsequently changed to a lesser or greater value, for example, "Lima 4.80" to "Lima 4.85," it will only be necessary to replace the first or unit wheel with a new wheel to print "5" in place of "0" and thereby the tens and dollar wheels and the station wheels are preserved. It is thus seen that the price wheels are interchangeable. The price wheels or the engraved prices on the price wheels may be omitted from the combined type wheels 42 which print on the tickets, in which case the prices will be printed only on the record. The wheels 42 and 43 rotate concurrently by means of the drum 44 and are set from the shaft 45 by means of the transfer gears 46, 47 and 48 shown in Fig. 2. Mounted on the outside of the machine on the shaft 45 is a drum 49; this drum indicates on its outer surface the different stations and the fare.

50^a designates a pointer under which the drum 49 rotates and is instrumental in selecting the desired station when a ticket is to be issued. The type wheels 42 and 43 are held in a printing position by means of a roller 51^a on the spring-controlled bell crank lever 52^a. The roller 51^a engages serrations on the cash counter setting cam 70.

Total cash counter.—As before stated, the type station wheels are provided, in addition to the type denoting the station with type denoting the cost of the ticket, and the object of the cash counter is to totalize the value of all the tickets issued. In the drawings, I have shown means to add fares of three digits 001 to 9.99, but it will be understood that the scope of the cash counter may be enlarged by providing more counting wheels and actuating mechanism. Extending through the upper portion of the machine, and having bearings in plates 2 and 3, is a shaft 50 upon which is mounted a units type wheel 51, a tens type wheel 52 and a hundreds type wheel 53. There is also upon this shaft a thousands and a tens of thousands type wheels 54 which are actuated from the hundreds wheel 53 by a one tooth transfer wheel or any other well-known

means. The type wheels 51, 52 and 53 are actuated from the main actuating shaft 57. Each of the type wheels 51, 52 and 53 are provided with a ten tooth pinion 55 which meshes with a thirty tooth gear 56 on the main actuating shaft 57. Attached to the gear 56 is a thirty tooth ratchet 58, the teeth of which are engaged by a pawl 59 on the arm 60. The arm 60 is rigidly secured to the main actuating shaft 57. The pawl 59 has a pin 61 extending therefrom and engaging a setting cam 62 which is also pivoted on the shaft 57. The cam 62 is provided with a segment gear 63 which meshes with a ten tooth rack 64 which slides in guides 65^a on the rear plate 5. The racks 64 are connected to the levers 65 by links 66. The levers 65 are pivoted on the shaft 39 and have projections 67 which engage pins 68 on the cams 69, 70 and 71. There is one of these cams for each of the digits of the cash indications on the type wheel and drum, and as before stated, my invention is not limited to that number.

As will be seen from the drawings, the trains of mechanism above described, are in triplicate, one for each digit, and lie between the type wheels 51, 52 and 53, and the cams 69, 70 and 71.

In Fig. 7, the adding values of the pins 68 are shown by primed numbers. On each of the cams there is a pin for each of the stations and fare indications, and when a certain station and fare is set in printing alinement on the type wheel, their respective pins 68 will engage the projection 67 on the lever 65. The weight of the lever 65, the link 66, and the rack 64 is sufficient to hold the projection 67 in engagement with the pins, but a spring may be provided to assist in this function.

Referring to Figs. 2, 4 and 6, it will be seen that when the projection 67 engages one of the pins 68, the rack 64 will be set to a position equal to the value of that pin. If the projection engages pin 5', the rack will be lowered a distance equal to five teeth from the position shown in Fig. 4. Consequently, the segment gear 63 will be rocked a distance equal to five teeth of the ratchet, as the ratchet and gears have the same pitch. If the cam 62 is rocked a distance of five teeth and the shaft 57 and arm 60 are then rocked, the pawl 59 will advance the ratchet five teeth when the pin 61 will engage the cam surface 62^a and disengage the pawl 59 from the ratchet 58. The same would be the case with any of the pins shown on the cam in Fig. 7. Attached to the ratchet 58 is the gear 56 having the same number of teeth (thirty) as said ratchet 58. This gear 56 meshes with a pinion 55 attached to the type wheels 51, 52 and 53. It will be seen that when the ratchet 58 is moved five teeth or any other number, the same amount of movement will be transmitted to the type wheels.

Consequently, if the projection engages one of the pins 68 and the shaft 57 is then rocked, the value of the pin 68 will be added to its respective type wheel.

Referring to Fig. 14, the angular movement of the lever 60 to rotate the ratchet 58 is indicated by the lines *a a* and *b b*. This lever has an additional movement *b b c c* to actuate the transfer mechanism. When the type wheels 51 and 52 make one complete revolution, the value of this revolution (ten for the units wheel and one hundred for the tens wheel) is recorded on the next wheel; this is done after the value of the pins 68 is registered on the type wheels.

Mounted on the shaft 50 are pivoted arms 72. These arms are held in normal position against the rod 73 by springs 74. Extending through each of these arms is a pin 78, and on one end of said pin is a plate 75, which is provided with two notches 76, in either one of which the spring 77 rests to hold the plate 75 in either its upper or lower position. On the other end of the pin 78 is a pawl 82 which is adapted to engage and actuate the ratchets 79 on the side of the tens and hundreds wheels, when the plate 75 is thrown to its lower position. The plate 75 is provided with a projection 80, which is engaged by one of the three pins 81 on the units and tens ratchet 58. As before stated, there are ten teeth on the pinion 55 and thirty teeth on the gear 56. Consequently, upon one revolution of either the unit or tens type wheel, one of the pins 81 will engage the projection 80 and throw the plate 75 to its lower position, thereby throwing the pawl 82 in operative relation with the ratchet 79 of the tens and hundreds wheels. This pawl 82 is thrown while the ratchet is rotating, the pawl riding over the periphery of the ratchet until it comes to rest.

Referring to Fig. 14, it will be seen that the angular movement of the arm 60 is in two parts represented by the lines *a a b b* and *c c*. The first part of the movement has been referred to, and during the latter part of this movement, the transfer mechanism is actuated. 83 is a projection from the arms 60 which engages a projection 84 on the arms 72 and rocks said arms during the latter part of the movement of the arms 60. If the pawl 82 of either the tens or hundreds ratchet is thrown by one of the pins 81, on the units or tens wheel and the arms 60 and 72 are then rocked, the complete rotation of the units wheel will be registered on the tens wheel or the complete rotation of the tens wheel will be registered on the hundreds wheel as the case may be. At the end of the forward movement of the arms 72, when the plate 75 is in its lower position or set position, the cam end 85 of the plate 75 engages the inclined surface of the bar 86 thereby throwing the pawl 82 out of en-

gagement with the ratchet 79. The cam end 85 engages the inclined surface of the bar 86 before the pawl 82 has moved the ratchet 79 one tenth of a revolution, but the pawl 82 will stay in engagement with said ratchet a sufficient length of time to move the ratchet one tenth of a revolution. The type wheels 51, 52 and 53 are held in printing alinement by the spring-supported rollers 57^a engaging the space between the teeth of the pinions 85. The rollers 57^a are mounted by means of springs on the cross bar 86. The shaft 57 as before stated, is the main operating shaft of the machine and on its right end is provided a crank 87^a. The extent of the rocking movement of this shaft is shown by the lines *a a* and *c c* of Fig. 14.

Visible ticket indicator and total ticket printing counter.—Mounted in the upper portion of the machine between the frames 1 and 2, is a counter C consisting of wheels 87. These wheels are mounted on a shaft 88 which is provided with a knob 89 on the outside of the machine, and by means of which said counting wheels 87 may be set to zero in a well-known manner. These counting wheels 87 are provided with ratchets 90 which are engaged by pawls 91 mounted on the frame 92. The actuating means for the counting wheels 87 are of a well-known type in which the pawls adapted to engage the tens and hundreds ratchet wheels, are held out of engagement with their respective ratchets, by the units pawl, and are allowed to engage their ratchets by the units and tens pawl dropping in notches in their ratchets as shown in Fig. 6. The frame 92 is pivoted on the shaft 88 and is rocked from the main actuating shaft 57. The right side plate of the frame 92 straddles the main actuating shaft 57 as at 93, and is provided with a pin 94 which is engaged alternately by the edges 95 and 96 of the disk 97 to rock said frame 92. The wheels 87 are provided with type characters 98 which are in printing alinement with the type wheels 51, 52 and 53. The outer casing of the machine is provided with a sight opening 99 through which the indications on the wheels 87 are visible—see Fig. 13. The printing counters A and B are actuated from the frame 92—see Fig. 6. As before stated, the unit actuating wheels are rigidly attached to the shaft 39. At the left end of the shaft 39 is a ten tooth ratchet 100 which is engaged by a pawl 101 on an arm 102. The arm 102 is connected to the frame 92 by the link 103. It will be seen that upon each movement of the shaft 57, the frame 92 will be rocked and the counters A B and C will be actuated.

Printing mechanism.—Mounted in the bottom of the machine and sliding in guides 104 is a plate 105 from which extends upwardly plates 7, 8 and 9. This frame-work

supports the printing mechanism. Mounted below the type wheels on the shaft 10 is a platen 106 which is pivoted at 107 to the plates 7 and 9. This platen is actuated by cams 108 on the shaft 109. In the rear of the printing mechanism are mounted two rolls of paper 110 and 111. The roll 110 provides the tickets to be issued, and the roll 111 provides the strip for the printed record. The strips of paper from these rolls pass over the platen 106 and then through feed rollers.

Referring to Figs. 8 and 9, it will be seen that on each issuance of a ticket, the ticket strip is fed a greater length than the record strip. To accomplish this, I use a larger size feed roller for the ticket than for the record. The feed rollers are mounted on shaft 112 which is journaled in the frames 7, 8 and 9. 113 are the larger feed rollers over which the tickets pass, and 114 are the smaller rollers over which the record strip passes. The feed rollers 113 and 114 are provided with serrated edges 115 which make the feeding of the paper more positive. The strips are kept in contact with their feed rollers by rollers 116 on shaft 117. This shaft 117 also has bearings in the frames 7, 8 and 9 and is controlled by springs in pockets 118. To separate the feed rollers from the contact rollers, when placing the paper strips in position, I provide cams 119 pivoted on the shaft 112 and engaging the shaft 117. The feed rollers 113 and 114 and the shaft 112 make a complete revolution upon the issuance of each ticket. The shaft 112 is driven from the shaft 109 which also makes a complete revolution by means of gears 120 on each end of the shaft 112 meshing with the segment gears 121 on the shaft 109. The segment gears 121 are twice the diameter of the gears 120, and as will be seen from the drawings, the feed rollers are rotated during the latter half of the revolution of the cam shaft 109.

During the first half of the revolution of the shaft 109, the type wheels are inked and the ticket and record are printed. The type wheels are inked by a felt-inking roller 122 mounted at the lower ends of spring-controlled arms 123. These arms 123 are pivoted to the frames 1 and 4 at 124. The lower ends of the arms 123 have projections 125 which are in the path of the pins 126 on the segment gears 121. At the beginning of the movement of the shaft 109, the pins 126 engage the projections 125 and carry the inking roller 122 under the type wheels a sufficient distance to ink the same. The pins 126 then release the projections 125 which allow the inking roller to spring back to its normal position and out of the way of the platen which next ascends. The shaft 109 is the main actuating shaft of the printing mechanism and is driven during the latter

half of the return movement of the main operating lever 87^a. On the right end of the shaft 109 is a pinion 127 which meshes with a gear 128 pivoted at 129 to the side frame 4; these gears have a three to one ratio. Attached to the gear 128 is a three tooth ratchet 130, said teeth being engaged by the spring-controlled pawl 131 on arm 132. The arm 132 is connected to the arm 132^a on the main actuating shaft 57 by a link 133. During the forward movement of the shaft 57, the pawl 131 descends and engages the lower tooth of the ratchet 130, and during the return movement of said shaft 57, the pawl 131 rotates the ratchet 130 thereby inking the type wheels, printing the ticket, and record, and feeding said ticket and record. The ticket is issued through a slot 134 in the front casing where it may be torn off. The record is fed into the bottom of the machine and is inaccessible to unauthorized persons. The front of the casing is provided with a door 135 hinged at 136. The printing mechanism is slidingly mounted and may be removed through the door 135 for the purpose of renewing the paper.

In addition to the type wheels mounted on shaft 10 to print the record and ticket, I also provide identification keys 137 which are removably mounted in the side frames 1 and 4. These identification keys are the same as in some of my prior patents to-wit: Nos. 694,322, 874,424, 892,877 and others. I also provide type 138 which are mounted on the frames 2 and 3. These type print the number of the machine and may be used on the record to identify the station with the ticket. The record is only accessible to the inspector who is provided with a key to the lock 139 of the door 135. After removing the printed record from the machine, the inspector takes a record from the cash counter and visible indicator at the top of the machine.

140 is a platen pivoted at 141. This platen lies under the type wheels 50, 51 and 52 and the type characters on the wheels. The platen 140 is pressed against the type by the cams 142 on the shaft 143. The shaft 143 is provided with a knob 144 on the outside of the machine. When the inspector wishes to secure a record of the cash counter and visible indicator, the end of the record strip is inserted in the slot 145 in the casing which brings the record strip under the type. The knob 144 is then rotated which takes an embossed impression.

Referring to Sheet 7, in Figs. 8 and 9, I have shown the ticket and record as issued from a machine provided with a consecutive printing counter as described. In Figs. 10 and 11, the tickets shown are issued from a machine not provided with consecutive printing counters, but in lieu thereof, the tickets themselves are serially numbered.

Each machine has substantially a universal capacity in that it may be utilized in the service of any railway company or transportation line, or at any station of any railway company without altering or changing any of the mechanical features in the machine, common to them all. In adapting the machines for service on any particular railway, it is only necessary to arrange the type on the peripheries of the printing wheels to print the names of the stations and prices of the tickets. The identification devices, the dating devices, the consecutive numbering devices, the register number devices, the devices for printing the value of each ticket, the devices for specializing the tickets, such for example, as half tickets, clergyman tickets, etc., the devices for printing the total number of tickets sold, and the devices for printing the total value of all the tickets sold, are features which are common to all of the machines. The tickets as shown in Fig. 10, are provided with the numbers thereon before the roll is placed in the machine. The tickets shown in Fig. 8, have the serial numbers printed thereon in the machine.

Figs. 1 and 1^a, show identification devices 137, one to print the identification of the ticket seller on the ticket, and the other to print it on the duplicate record. In some cases it may not be desirable to print the ticket seller's identification on the tickets, but to print it only upon the record; in this case, one of the identification printing devices 137 may be omitted from the machine.

The month and day wheels may be used for a double purpose to indicate the day and month, or to indicate the time of the selling of each ticket. As shown in Figs. 1 and 1^a, the left and right date wheels 11, 18, 12 and 19 rotate concurrently through means of the shafts 24 and 17, but when the date wheels are used to indicate the time in addition to the date, the shafts 24 and 17 are eliminated, and the left-hand type wheels 11 and 18 are provided with a series of setting drums 28' and 29' similar to the setting drums 28 and 29. See Fig. 15. When the machine is thus constructed, the left-hand wheels 11 and 18 are set at the beginning of the day according to the date, and they remain so during the day. The right-hand wheels are set according to the date only during the taking of the first impression. See Figs. 10 and 11. During the taking of the other impressions, the numbers 1 to 12 on the month wheel are used to print the hours, and the numbers 1 to 5 on the day wheel are used to print the minutes, figure 1, representing ten minutes, figure 2, representing twenty minutes, etc. The star (*) on the day wheel is used for the even hours. The a. m. and p. m. hours may be ascertained by an inspection of the record; for

instance, the first "1" will indicate the a. m. hours, and the second "1" will indicate the p. m. hours. The indicating drums 28' and 29' are mounted on the shaft 31' and 32' respectively. These shafts carry gears 35' and 34' which mesh with gears 13 and 20 of the month and day wheels 11 and 18.

50^b indicates an indicator under which the drums 28' and 29' revolve, and is similar to the indicator for the drums 28 and 29.

Audible indicating mechanism.—This mechanism is actuated at the end of each operation of issuing a ticket.

150 designates a bell mounted on frame or plate 3 and engaged by a spring-controlled tappet 151 on arm 152 pivoted at 153 to the frame 3. The arm 152 is held against a ratchet 155 on shaft 57 by a spring 154. The ratchet is loose on said shaft and is rotated intermittently by a spring-controlled pawl 156 on an arm 157, said arm being rigidly secured to the shaft 57, see Fig. 3. It will be understood that when the shaft 57 is given the first half of its movement, the pawl 156 will descend and engage one of the teeth of the ratchet 155, and during the second half of the movement of said shaft, said pawl will rotate said ratchet to place the tappet 151 in a position to strike the bell. When one of the teeth of the ratchet is brought opposite the projection 158 on the lever 152, said lever will fly back and the tappet 151 will strike the bell.

The operation of my machine is as follows: When it is desired to issue a ticket, the drums 28, 29 and 30 are rotated to bring the selected month, date and class of ticket under the indicator 50^b. This operation brings the selected type in printing alinement with the platen. The station printing drum is then rotated until the desired destination coincides with the indicator 50^a. By means of the figures denoting the ticket values or prices opposite the stations on said drum, the operator will know in advance the cost of each ticket. This last operation brings the station type in printing alinement with the platen. By this operation, the cams 62 are also set by the racks 64, links 66, levers 65, projections 67, and the pins 68 on cams 69, 70 and 71. The machine is now set and the ticket is next printed and issued. The operator next rocks the main operating shaft 57 through means of the lever 87^a. During the forward movement of the lever, the total cash counter and the counters A, B and C are actuated, and during the reverse movement, the type wheels are inked, the ticket and record are printed and the ticket is issued which completes the operation.

I claim:

1. In a machine of the type specified, the combination with a total cash counter, of a continuously rotating indicator having fare indications thereon, cam, lever and rack

connections between the rotating indicator and the total cash counter, whereby, when one of the fare indications is selected, the total cash counter is set, and means for actuating the total cash counter after being so set to register the value of the fare or ticket.

2. In a machine of the type specified, the combination with a rotating cylinder having means thereon for printing the names of stations or points of destination, and the value of transportation to each station or point of destination, an indicator coöperatively connected with said printing cylinder and through which said cylinder is actuated to bring a selected station and fare value to a printing position, a total cash counter to count the fare value of the transportation as per the ticket, and means for operating said total cash counter to register thereon said fare value, and means for printing a ticket, and a duplicate record of said ticket.

3. In a machine of the type specified, a rotatable printing device to print the stations or points of destination and the fares or values of transportation thereto, a total cash counter to register the total fare values of tickets issued to said stations or points of destination, a total counter to register the total of the tickets, printing mechanism for simultaneously printing tickets upon which are indicated the points of destination and the values of said tickets, and means for actuating both counters concurrently.

4. In a machine of the type specified, the combination of a type wheel for printing the stations or points of destination and the value of the tickets thereto, means for moving said type wheel to each of its operative positions, a cash counter for printing the total value of the tickets issued, a total counter for printing the total number of tickets issued, means for inking said type wheel and said printing counters, means for printing tickets from said type wheel, means for printing a record of said tickets, and means for issuing said tickets and storing the printed record thereof.

5. In a machine of the type specified, the combination with devices for printing tickets and records thereof, said tickets to contain the stations or points of destination, the values thereof, and the date of the issuance of such tickets, means for setting the printing devices to positions for printing the tickets, a total counter to count the total value of the tickets printed and issued, a counter for counting the total number of the tickets issued, and means for concurrently operating the total ticket-value counter and the total ticket number counter.

6. In a machine of the type specified, the combination with printing devices for printing tickets and records thereof, said tickets to contain the points of destination and the value of the tickets, and an identification

mark of the person issuing the ticket and the record thereof, a total counter for registering the total values of the tickets issued, a counter for registering the total number
5 of such tickets, means for actuating said counters simultaneously, and means for printing such tickets and record.

7. In a machine of the type specified, the combination with devices for printing a
10 ticket and a duplicate record thereof, the tickets and record to contain the names of the stations or points of destination, the values of said tickets, and the class or classes of said tickets, means for setting said printing
15 devices to position to print each ticket and the record thereof, a counter for registering the total value of the tickets printed and issued, and a combined indicator and printer coöperatively connected with the total ticket
20 value counter and which is adapted to indicate the total number of tickets issued and to print said total number.

8. In a machine of the type specified, the combination of devices for printing tickets
25 and records thereof, said tickets containing the names of the stations or points of destination, the values thereof, the date of each issuance, and the consecutive number or numbers, means for printing said tickets
30 and records, means for issuing the tickets and storing the records, a counter for counting the total values of the tickets, and means for actuating said counters.

9. In a machine of the type specified, the combination with duplicate printing devices
35 for printing tickets and records thereof, said tickets and records containing the names of the points of destination, the values of the tickets, and the class of each ticket, common
40 means for printing the dates of each ticket and the time of its issuance, means for simultaneously printing the tickets and the records thereof, a counter for registering the total value of the tickets, and an indi-
45 cator to exhibit the number of tickets issued for any given period of time.

10. In a machine of the type specified, the combination with printing devices for print-
50 ing tickets and records thereof, said tickets and records containing the names of the points of destination for which each ticket is issued and the value of each ticket, a counter for registering the total value of the tickets, setting mechanism for simultane-
55 ously setting the printing devices for the tickets and records to a position for printing said tickets and records, and the counter to a position to be actuated to register the total values of the tickets, means for issuing the
60 tickets and storing the records thereof, and means for actuating the counter to register the total values of the tickets.

11. In a machine of the type specified, the combination with duplicate printing devices
65 for printing tickets and records thereof, the

tickets to contain the names of the stations or points of destination, the value of each ticket, the date and time of the issuance of each ticket, and the class of each ticket, the record to contain the name of each station,
70 the value of each ticket, and the class of each ticket, means for setting the ticket and record printing devices from which the names of the stations and the ticket values are printed, to operative positions, separate
75 means for setting the date and time-printing devices and ticket-class printing devices to printing positions, a counter for registering the total value of the tickets printed and issued, connections between said coun-
80 ters and the printing devices from which are printed the names of the stations and the values of the tickets, and through means of which connections, the counters are moved to positions to register each ticket value
85 simultaneously with the setting movements of said ticket printing devices, and means for actuating said counters to register each ticket value thereon.

12. In a machine of the type specified,
90 ticket-printing devices in duplicate and adapted to print tickets and records thereof, the tickets and records to contain the names of the stations or points of destination, the value of each ticket, the class of each ticket,
95 the number of the machine from which the tickets are issued, the identification mark of the person or persons issuing the tickets, the date of the issuance of each ticket, and the record to also contain an impression,
100 the time of the issuance of each ticket, a counter for totalizing the values of the tickets, mechanism for setting the ticket-printing devices, and the totalizing counter in operative positions, connections between
105 the said counter and the ticket-printing devices, devices for indicating the daily total number of tickets and printing the same upon a record, and means for actuating simultaneously the totalizing counter and
110 the daily total ticket counter and printer.

13. In a machine of the type specified, a printing device to print the tickets with the points of destination and the fare value thereon, a cash counter for registering the
115 totals of the fare values, a series of cams operatively connected with the printing device, means for moving said printing device to select each station or point of destination and the fare thereto prior to the printing
120 and issuing of each ticket, means interposed between said cams and the cash counter, whereby, when the station and fare on the printing device are selected for printing each ticket, the cash counter will be simul-
125 taneously set in a position to be operated to register said fare, and means for operating said cash counter to register such fare.

14. In a machine of the type specified, printing devices adapted to print tickets
130

- showing the stations or points of destination, and the fares thereto, and a record of such tickets, a cash counter for registering the totals of the fares or ticket values, a series of cams operatively connected to the printing devices, means for moving said printing devices in selecting each station and fare for printing a ticket and the record thereof, means interposed between said cams and the cash counter, whereby, when the station or point of destination, and the fare on the printing devices are selected or moved to printing positions, the cash counter will be set in a position to be operated to register said fare, means for operating the cash counter to register the fare, and means for printing the tickets and the record thereof, and issuing said tickets.
15. In a machine of the type specified, a printing device adapted to print tickets with the points of destination and the fares, a cash counter for registering the total of the fares thus printed upon the ticket, a series of cams operatively connected with the printing device, a series of levers operatively associated with said cams, means for moving said printing device to select each station or point of destination and fare for printing the tickets, means interposed between said series of levers and the cash counter, whereby, when the station or point of destination and the fare on the printing device are selected for printing the tickets, the cash counter will be set in a position to be operated to register said fare, and means for operating said cash counter to register the fare.
16. In a machine of the type specified, a printing device to print tickets with the stations or points of destination and the amount of the fare indicated thereon, a cash counter for registering the totals of the fares or ticket values, means connected with said printing device to set said counter in a position to register the fare values, means for moving the printing device to a position to print a ticket with the station or point of destination thereon and the fare value, and means for printing and issuing said tickets.
17. In a machine of the type specified, a printing device adapted to print tickets and duplicate records thereof showing the points of destination and the fare values thereto, a cash counter for registering the totals of the fares or ticket values, means connected with said printing devices to set said counter in a position to register the fare values, means for printing the tickets and the records thereof, from continuous strips or ribbons, and means for imparting differential feed movements to the ticket strip and the ribbon strip.
18. In a machine of the type specified, a printing device adapted to print tickets and records thereof, both of which to contain impressions of the stations or points of destination, the ticket values and the dates of the issuance of said ticket, a series of cams operatively connected with said printing device, means for moving said printing device to positions for printing the tickets and the records thereof, a cash counter for registering the totals of the ticket values, means interposed between said cams and the cash counter, whereby, when the ticket and record-printing devices are moved to printing positions, the cash counter will be set in a position to be further operated to register said fare or ticket value, means for operating said cash counter to so register said fares or ticket values, and means for imparting differential feed movements to the ticket and record strips.
19. In a machine of the type specified, means for printing and issuing tickets, separate means for registering and recording the total value of the tickets printed and issued, and means for registering and recording the total number of tickets printed and issued.
20. In a machine of the type specified, duplicate means for printing and issuing tickets and records thereof, duplicate printing counters for printing the total value of the tickets printed and issued, and a separate printing counter for registering and printing on the record the total number of tickets issued.
21. In a machine of the type specified, means for printing and issuing tickets and a record thereof, means for printing upon the record the total value of the tickets printed and issued, separate means for printing upon the record the total number of tickets issued, and an indicator to visually indicate the number of tickets issued.
22. In a machine of the type specified, means for printing and issuing transportation tickets, means for registering and recording the prices or total value of said tickets, separate means for registering and recording the total number of tickets printed and issued, and means for giving an audible signal during the issuance of each ticket.
23. In a machine of the type specified, means for printing and issuing tickets containing the names of the stations, the price of each ticket, and the class of each ticket, means for printing a record of each ticket printed and issued, means for visually indicating the number of tickets printed and issued, means for printing upon the tickets and the record the number of tickets printed and issued, means for printing upon the record the total value of the tickets printed and issued, and means for audibly indicating the issuance of each ticket.
24. In a machine of the type specified, a

plurality of printing devices for printing and issuing transportation tickets and records thereof, means for setting said printing devices to positions to print the desired ticket and the record thereof, a total cash counter to count and print the total values of the tickets, means simultaneously actuated in the setting movements of the printing devices, and whereby the total cash counter is also set to a position from whence it is subsequently actuated to add said ticket values, means for so actuating said cash counter, separate impression mechanism for taking a print from the total cash counter, and means for audibly indicating the issuance of each ticket.

25. In combination with duplicate station printing devices, price printing devices, combined station and price setting indicators, total cash counters, means for simultaneously taking prints or impressions from the station and price printing devices, and separate means for taking prints or impressions from the total cash counters.

26. In combination with duplicate station printing devices, duplicate price printing devices, combined station and price setting indicators, total cash counters, visible indicators to show the total number of tickets issued, printing devices to print the total number of tickets issued, and means for simultaneously taking prints or impressions from the said printing devices.

27. In combination with duplicate station and printing devices, class setting means for each of the station printing and class printing devices, total cash counters and second impression mechanism for the total cash counter.

28. In combination with a rotating cylinder with means thereon for printing the names of the stations or points of destination, and the value of transportation to each station or point of destination, an indicator coöperatively connected with said cylinder and through which the cylinder is actuated to bring a selected station and fare value into a printing position, a total cash counter to count the value of the transportation issued, and means for operating said total cash counter to register thereon each fare value, and means for printing a ticket, and a duplicate record of said ticket, two feed rollers, one for feeding the ticket, the other for feeding the record of the ticket.

29. In combination with devices for printing tickets and records thereof, the said tickets containing the names of the stations or points of destination, the date of each issuance and the consecutive number or numbers, means for printing said tickets and records, and means for printing the value of each ticket on the record, and means for issuing the tickets and storing the records, and

a counter for counting the total values of the tickets, and means for actuating said counters.

30. In combination with printing devices for printing tickets and records thereof, means for printing the points of destination on each ticket, and means for printing the value of each ticket on the record, a counter for registering the total value of the tickets, setting mechanism for simultaneously setting the printing devices for the tickets and records to a position for printing said tickets and records, and the counter to a position to be actuated to register the total values of the tickets, means for issuing the tickets and storing the records thereof, and means for actuating the counter to register the total values of the tickets.

31. In combination with duplicate printing devices for printing tickets and records thereof, said tickets and records containing the names of the points of destination, the values of the tickets and the class of each ticket, common means for printing the dates of each ticket and the time of its issuance, means for simultaneously printing the tickets and the records thereof, a counter for registering the total value of the tickets, and an indicator indicating the number of tickets issued for any given period of time, and means for printing a record of the total value of the tickets.

32. In a ticket printing and auditing machine, the combination with a printing device adapted to print tickets and duplicate records thereof showing the points of destination and the fare values thereof, a cash counter for registering the totals of the fares and ticket values, means for printing the tickets and the records thereof, from continuous strips or ribbons, means for imparting differential feed movements to the ticket strip and the ribbon strip, and means for printing the totals from the cash counter.

33. In a fare register, the combination of station printing devices, interchangeable price printing devices, total cash counters, separate impression means for the station and price printing devices, and separate impression means for the total cash counters.

34. In combination with duplicate station printing devices, interchangeable price printing devices, class printing devices, date printing devices, machine number printing devices, identification printing devices, consecutive number printing devices, total cash printing counters, and separate means for taking prints or impressions from the total cash printing counters.

35. In combination with duplicate station printing devices, interchangeable price printing devices, class printing devices, date printing devices, machine number printing

devices, identification printing devices, consecutive number printing devices, total cash printing counters, and separate means for taking prints or impressions from the total
5 cash printing counters, means for issuing tickets, and devices for numbering the tickets issued.

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

JOHN F. OHMER.

Witnesses:

CAROLYN M. THEOBALD,
MATTHEW SIEBLER.