No. 769,710. PATENTED SEPT. 13, 1904.

W. I. OHMER, J. N. KELLY & J. LEITSCHUH.

TICKET PRINTING, CHECKING, AND RECORDING MACHINE.

APPLICATION FILED NOV. 4, 1901.

NO MODEL. 6 SHEETS—SHEET 1.

Fig. 1.

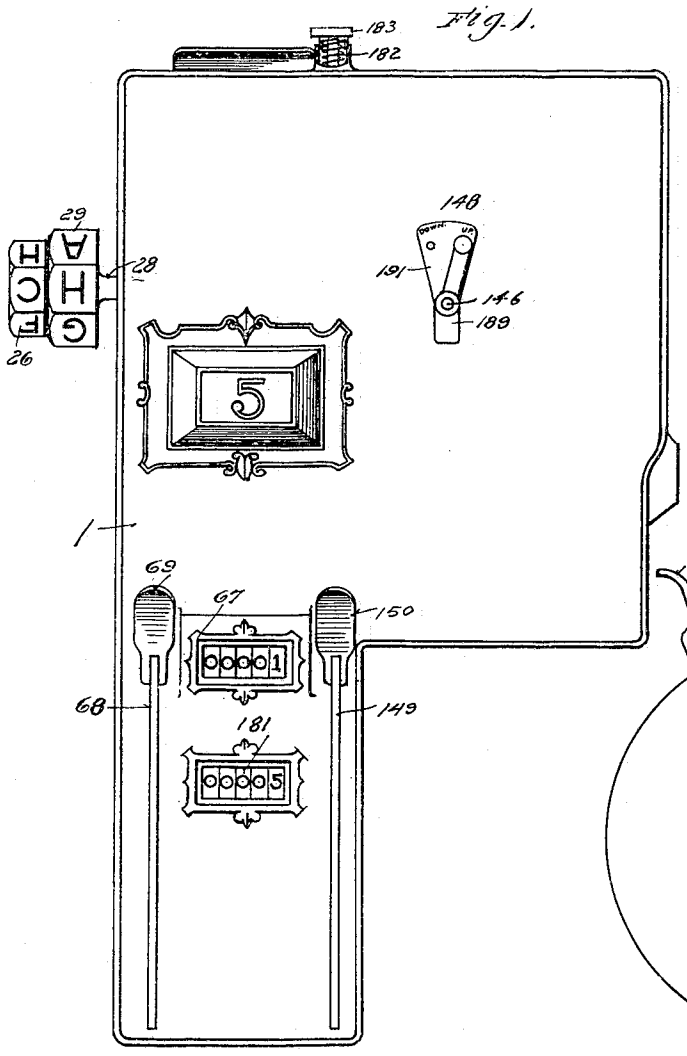

Fig. 2.

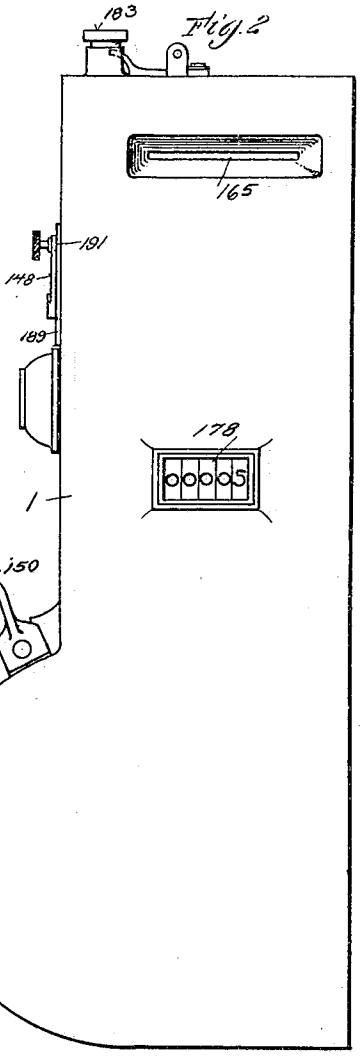

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Fig. 4.

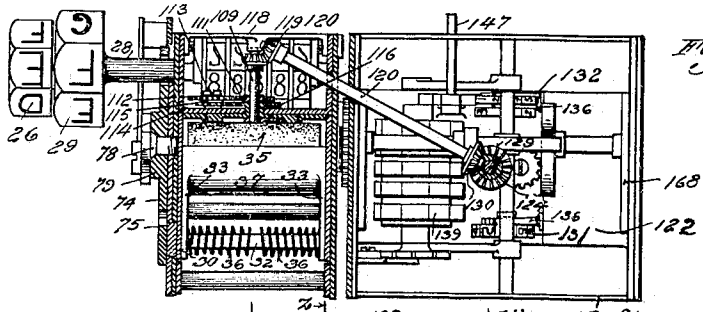

Fig. 3.

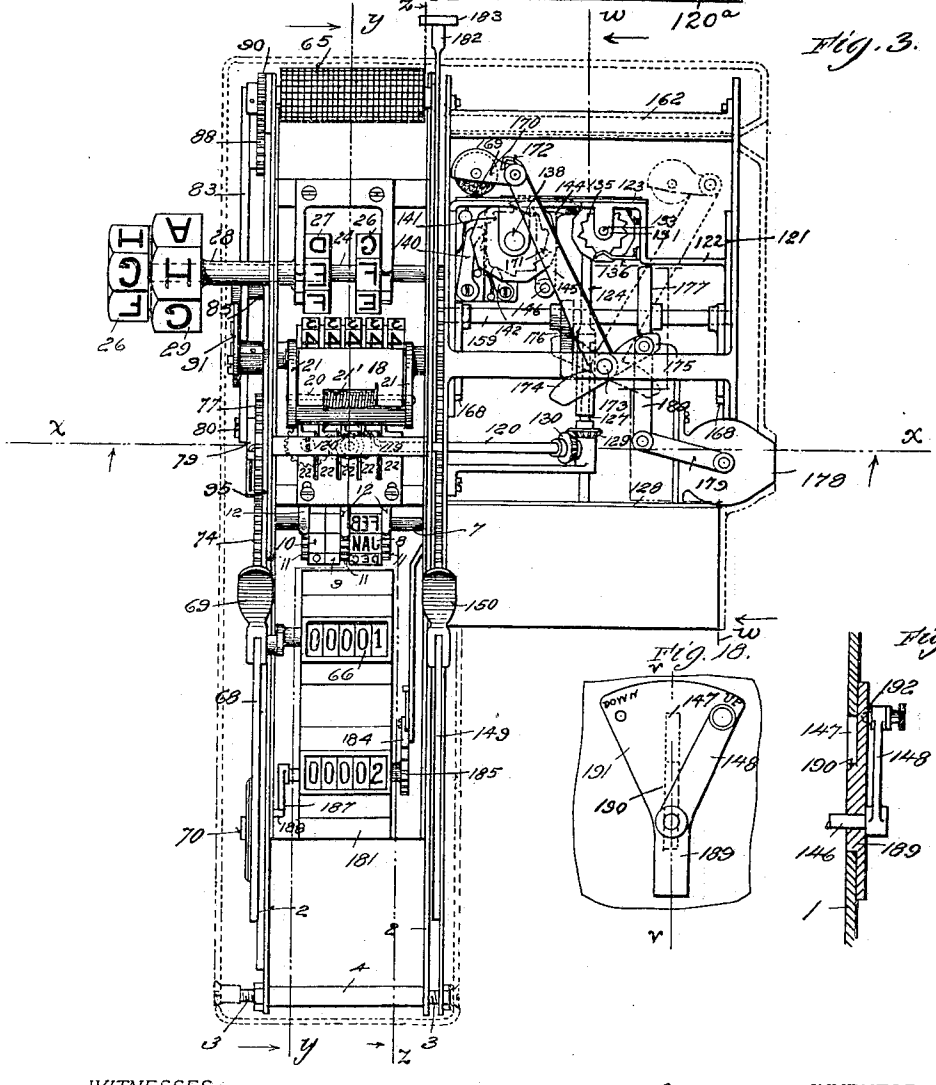

Fig. 18.

Fig. 19.

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Fig. 5.

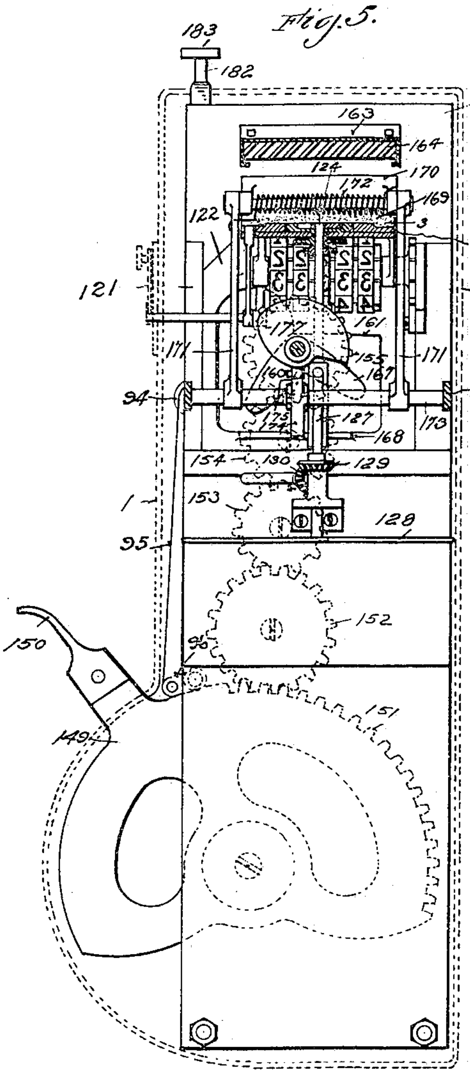

Fig. 6.

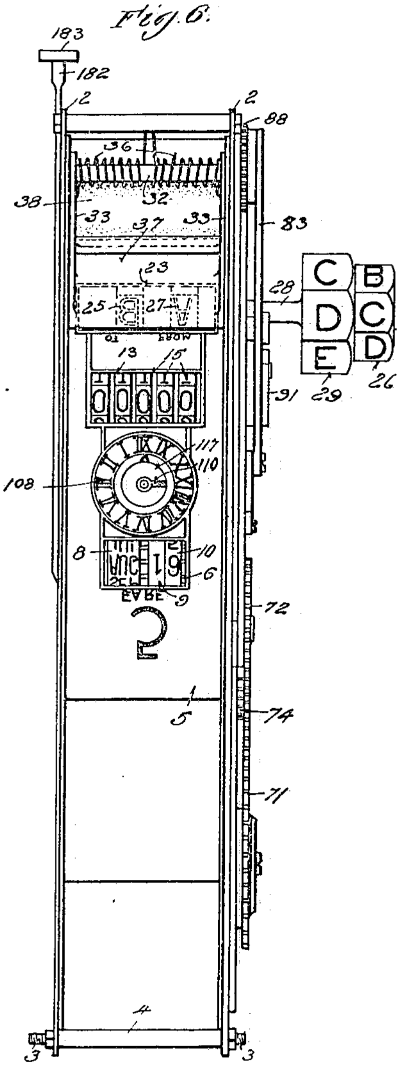

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Fig. 7.

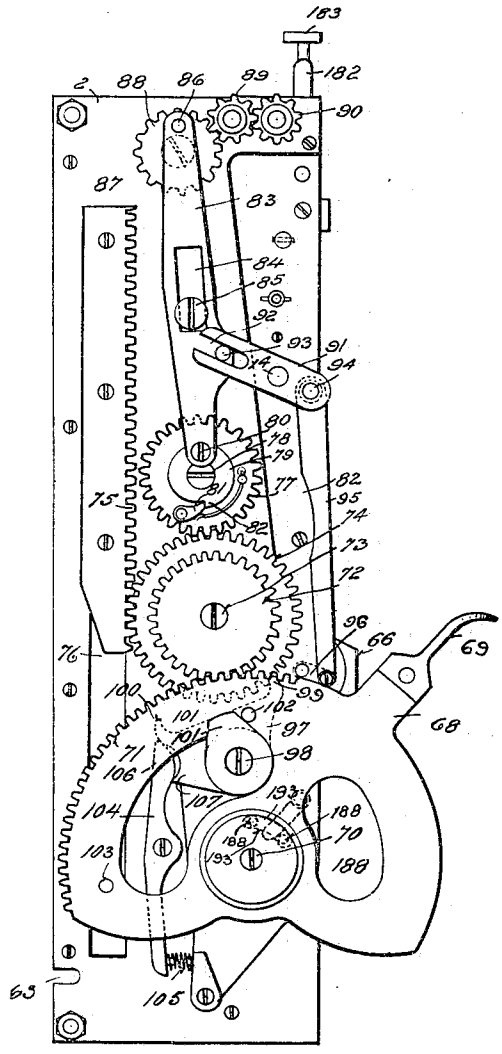
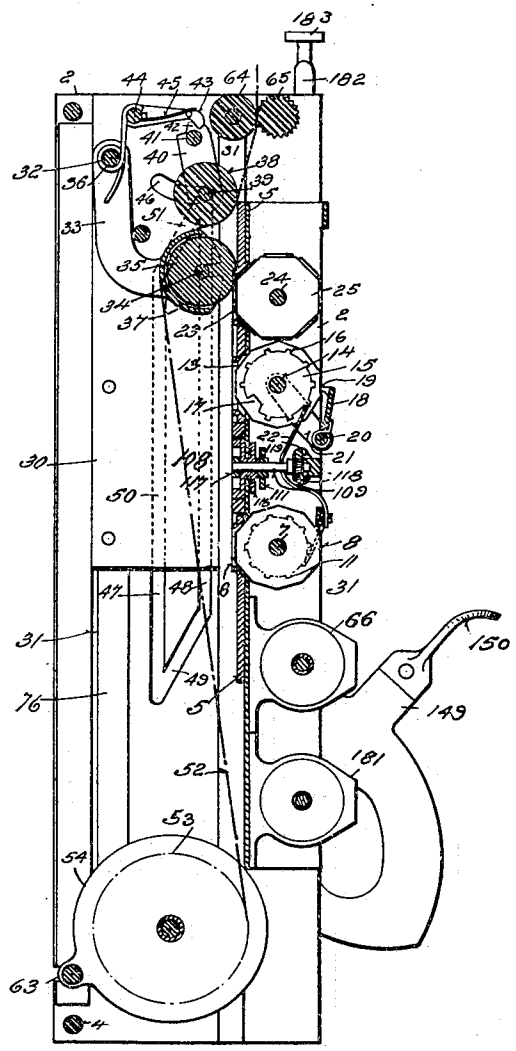


Fig. 8.



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NO MODEL. 6 SHEETS—SHEET 5.

Fig. 11.

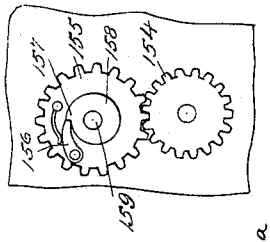


Fig. 10.

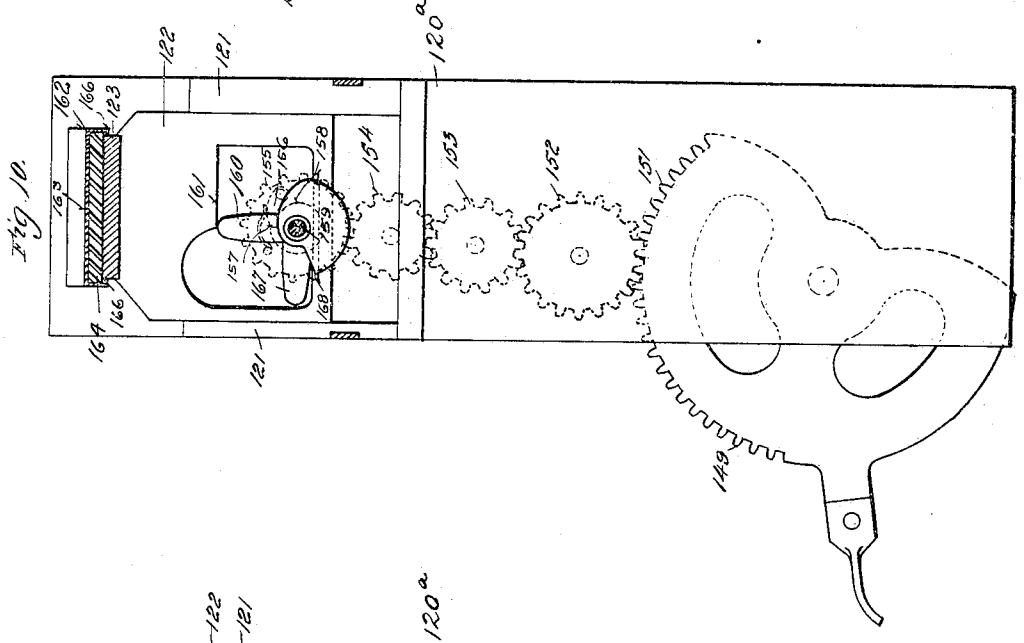
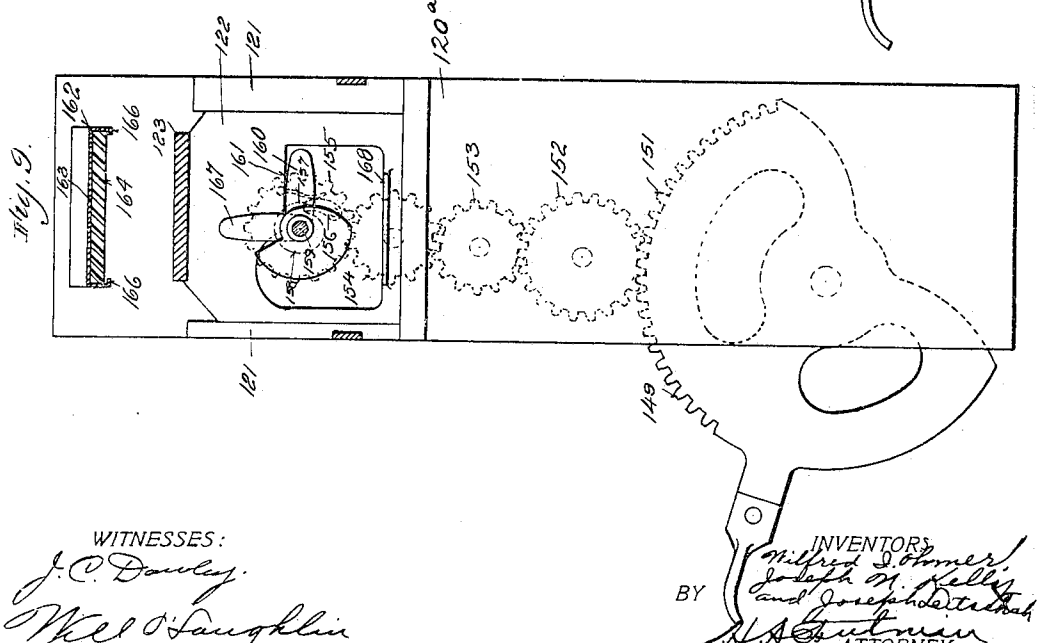


Fig. 9.



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TICKET PRINTING, CHECKING, AND RECORDING MACHINE.

APPLICATION FILED NOV. 4, 1901.

NO MODEL. 6 SHEETS—SHEET 6.

Fig. 12

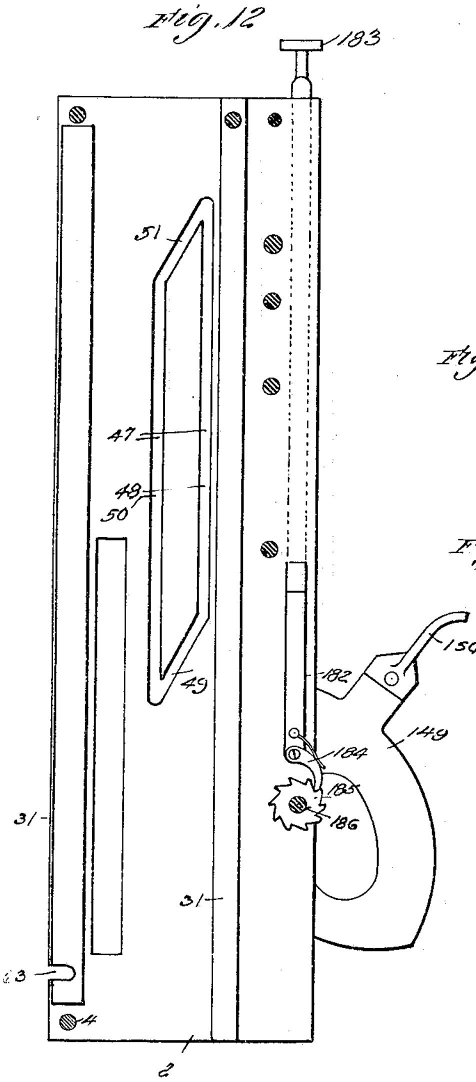


Fig. 15

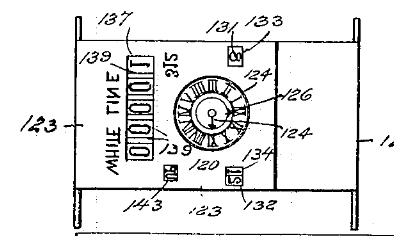


Fig. 17.

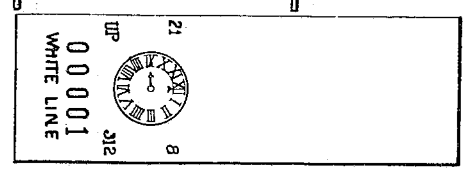


Fig. 16

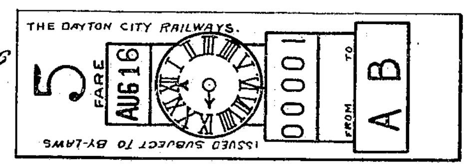


Fig. 13.

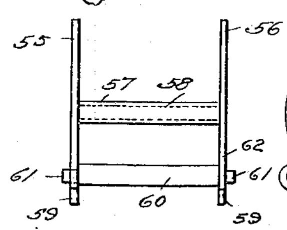


Fig. 14.

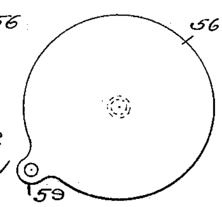
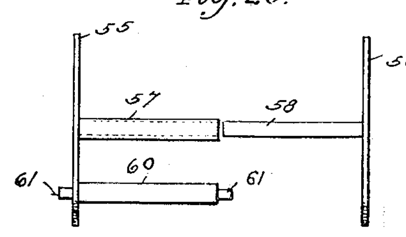


Fig. 20.



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UNITED STATES PATENT OFFICE.

WILFRED I. OHMER, JOSEPH N. KELLY, AND JOSEPH LEITSCHUH, OF DAYTON, OHIO, ASSIGNORS, BY DIRECT AND MESNE ASSIGNMENTS, TO THE RECORDING AND COMPUTING MACHINES COMPANY, OF DAYTON, OHIO.

TICKET PRINTING, CHECKING, AND RECORDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 769,710, dated September 13, 1904.

Application filed November 4, 1901. Serial No. 80,970. (No model.)

To all whom it may concern:

Be it known that we, WILFRED I. OHMER, JOSEPH N. KELLY, and JOSEPH LEITSCHUH, citizens 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, Checking, and Recording Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to machines for printing, issuing, registering, checking, and stamping tickets or transfers and registering fares, and has for its object to provide a portable mechanism to be carried by the conductor and by means of which tickets or transfers may be printed, registered, and issued, such tickets having printed thereon in addition to the usual appropriate legend the amount of fare, the month and day of the month, the hour and minute of the day, the consecutive number of the ticket, and the names of the stations between which the ticket is to be used or means for indicating such stations, the machine being also adapted to register cash fares and to imprint upon the back or face of transfer-tickets received for fare the date and time of reception of the transfer, as well as other suitable matter—such as the consecutive number of the transfers received, the line, trip-number or conductor's number or register-number, and the direction of the transit, as "Up" or "Down" or "In" or "Out"—together with such other matters as may be desired.

To these ends our invention consists in certain novel features, which we will now proceed to describe and will then particularly point out in the claims.

In the accompanying drawings, Figure 1 is a front elevation of a machine embodying our invention. Fig. 2 is a side elevation of the same. Fig. 3 is a front elevation with the casing indicated in dotted lines. Fig 4 is an inverted plan section taken on the line $x\,x$ of Fig. 3 and looking in the direction of the arrows. Fig. 5 is a side elevation of what is shown in Fig. 3 in section upon the line $w\,w$ of Fig. 3 and looking in the direction of the arrows. Fig. 6 is a rear elevation, the casing and the transfer-checking mechanism being omitted. Fig. 7 is a side elevation of what is shown in Fig. 6, the station-indicating wheels being removed. Fig. 8 is a vertical sectional view taken on the line $y\,y$ of Fig. 3 and looking in the direction of the arrows. Fig. 9 is a vertical sectional view taken through the transfer-checking mechanism and illustrating the means for reciprocating the platen of said mechanism. Fig. 10 is a view similar to Fig. 9, but showing the parts in a different position. Fig. 11 is a detail view of a portion of the gearing by means of which the transfer-checking printing-platen is driven. Fig. 12 is a detail sectional view taken on the line $z\,z$ of Fig. 3 and looking in the direction of the arrows. Fig. 13 is a front elevation of the roll-holder. Fig. 14 is a side elevation of the same. Fig. 15 is a view of the face of the printing-plate of the transfer-checking apparatus. Fig. 16 is a view of the face of one form of ticket. Fig. 17 is a view of the back of said ticket after it has been used as a transfer and checked by the machine. Fig. 18 is a detail elevation of a portion of the casing and of the mechanism for indicating the direction of travel on the transfer-checking mechanism; and Fig. 19 is a vertical sectional view of the same, taken on the line $v\,v$ of Fig. 18.

In describing our invention we will first refer to that portion of the mechanism whereby tickets are printed and issued, it being understood that such tickets may be used either as fare-receipts or as transfers, in which latter case this portion of the mechanism may be used only when it is desired to issue a transfer, while in the former case a ticket will be issued for every fare received. It will also be understood that the machine is inclosed in a suitable casing 1, which is locked in any approved manner, so as to prevent access to the mechanism and provide against any tampering therewith.

Within the casing 1 is supported a suitable frame, on which the various portions of the mechanism are mounted, this frame comprising two parallel vertical plates 2, connected

by screws 3 and separated by spacing-sleeves 4 in the usual manner. Between these plates 2 is mounted a fixed printing-plate 5, having thereon printing characters by means of which any suitable legend may be imprinted on the face of the ticket. In the present instance we have shown this platen as having thereon the name of the issuing company, the amount of the fare, a clock-dial, by means of which the time of issue is indicated in the manner hereinafter set forth, the words "From" and "To" above the spaces where the stations are indicated, and a statement to the effect that the ticket is issued subject to the by-laws of the company. There is formed through the plate an opening 6, and across this plate extends a shaft 7, mounted in the plates 2 and carrying thereon printing-wheels for indicating the month and the day of the month. The wheel 8 indicates the month, having printing characters thereon for that purpose, while the wheels 9 and 10 indicate the day of the month, having numerals thereon to that end and the said wheels projecting through the opening 6, so that the faces of the printing characters thereon are when in proper printing position on a level with the printing characters of the plate 5. Each of the wheels 8, 9, and 10 is provided with a ratchet-wheel 11, and a corresponding series of locking-detents 12 engage with the respective ratchet-wheels and serve to hold the wheels in any position to which they may be turned. Above the opening 6 the plate is provided with a second opening 13, and a shaft 14 extends across said opening between the plates 2 and has mounted thereon a series of number-printing disks 15, each of which has on its periphery printing characters consisting of the numbers from "0" to "9." These printing characters are arranged in the same manner as those of the wheels 8, 9, and 10, so that when they are in proper printing position they extend through the opening 13 and are flush with the permanent printing characters of the plate 5. Each numbering-disk is provided with a ratchet having teeth 16 and a notched or cut-away portion 17, and said numbering-disks are operated by means of a pawl-plate 18, having pawls or teeth 19 of successively-decreasing length. The pawl-plate 18 is pivoted on a shaft 20, hung by means of arms or links 21, secured to the shaft 14, and a spring 21′ is provided, which serves to force the pawl-plate toward the toothed ratchets of the numbering-wheels. When the arms 21 and shaft 20 are vibrated around the shaft 14 in the manner hereinafter described, the numbering-disks will be so operated as to indicate and print a number one unit higher for each complete vibration back and forward of the pawl-plate, in a manner well known in registers and other devices of this character. A series of detent-pawls 22 engage the toothed ratchets of the numbering-disks and serve to prevent their being rotated backward.

Above the opening 13 there is formed in the plate an opening 23, across which extends a shaft 24, having thereon a station-printing wheel 25, which in the present instance is the wheel by means of which the station or station designation which is the end of the journey for which the ticket is good is printed. This station-printing wheel is associated with the word "To," which is a portion of the permanent printing characters on the plate 5. The shaft 24 extends out through the casing 1 and is provided externally of said casing with an indicating-wheel 26, by means of which the shaft may be readily turned, said wheel also indicating at the same time the particular station which is in printing position.

27 indicates a second station-printing wheel carried by a sleeve 28, mounted on the shaft 24 and extending through the casing 1, said sleeve being provided with an indicating-wheel 29, similar in character and functions to the indicating-wheel 26. The station-printing wheel 27 is associated with the word "From" on the plate, and said wheel is employed to indicate the station which is the beginning of the trip for which the ticket is good. It will be understood, of course, that both of these printing-wheels extend through the opening 23 in such a manner that when the characters thereon are in proper printing position they are flush with the printing characters of the plate 5. In the present instance we have shown the station-printing wheels as carrying letters of the alphabet, these letters being used to indicate the different stations; but it will of course be obvious that the names of the stations themselves or suitable abbreviations thereof may be placed upon the wheels, or any other characters may be employed to indicate the stations.

In connection with the printing characters and plate just described we employ an inking and printing mechanism, which is as follows: 30 indicates a carriage sliding in vertical ways 31 on the inner faces of the plates 2 and provided with a cross-bar 32, on which are pivoted arms 33, in which the shaft 34 of the inking-roller 35 has its bearings. Springs 36, coiled around the shaft and cross-bar 32 and engaging with the arms 33, tend to press the inking-roller against the platen. The back of the inking-roller is covered by a guard 37 to prevent the paper from coming in contact with the said roller. The carriage 30 also carries an impression-roller 38, mounted on a shaft 39, which has its bearings in arms 40, pivoted to the carriage at 41. The upper end of each arm 40 is provided with a projection 42, with which engages a dog 43, pivoted to the carrier at 44 and controlled by a spring 45. These dogs will engage with the projec-

tions 42, on either side thereof, and will tend to hold the arms 40 in position at the limit of their motion in either direction. The impression-roller shaft 39 extends through curved slots 46 in the side walls of the carriage 30, and the extremities of such shaft engage cam-grooves 47, formed in the inner faces of the side plates 2. Each cam-groove has a straight working portion 48 parallel with the platen and so located relatively to the same that when the shaft 39 is engaged with this working portion the impression-roller is held in working relation with the platen. The working portion 48 of the cam-groove merges into an off-bearing incline 49, which serves to carry the impression-roller away from the platen. This off-bearing incline is joined to a straight return portion 50, which holds the impression-roller away from the plate during its return, and this return portion merges into a second inclined portion 51, which carries the impression-roller toward the plate again and leaves it in position to engage with the working portion 48 of the cam-groove.

The paper upon which the tickets are printed is in the form of a roll, from which paper is drawn off in a continuous strip, (indicated at 52,) and the roll, which is indicated at 53, is mounted in a roll-holder, (indicated as a whole by the reference-numeral 54.) This roll-holder, which is shown in detail in Figs. 13 and 14 of the drawings, consists of two side plates 55 and 56, one of which is provided with a central hollow sleeve 57, which forms the axis around which the roll is wound, while the other plate is provided with a stud or pin 58, which fits within the hollow sleeve 57. The plate 55, which carries the sleeve 57, is provided with a marginal lug or projection 59, to which is secured a shaft or axis 60, having projecting ends 61. The side plate 56 is provided with a lug 62, which is adapted to slip over the projecting end 61 of the shaft 60, thus securing the side plate 56 in position relatively to the side plate 55 and at the same time permitting the plates to be readily separated for the insertion or removal of a roll of paper. The roll-holder 54 fits loosely between the side plates 2, at the lower portion thereof, and said plates are provided at their rear edges with notches 63, into which the projecting ends of the shaft or axis 60 may be slipped, so as to support the roll-holder in position between the plates, where it hangs freely on the projections 61 as pivots. The strip 52 passes over the guard or shield 37 and under the impression-roller 38 between it and the platen, being carried thence to the feeding and issuing rolls 64 and 65, mounted at the top of the machine. Preferably one of these rolls—for instance, the roll 64—is of some yielding material, such as rubber, while the other roll, 65, is of hard material, such as steel, and provided with teeth or serrations, so that as the ticket is issued it is "spurred" or roughened in such a way as to serve as a safeguard against counterfeiting. In connection with the above mechanism we employ a register 66, the indicating-numbers of which are visible through a sight-opening 67 in the face of the casing 1.

Motion is imparted to the devices above described by means of a segment-lever 68, projecting through a slot in the front of the casing and having a finger-piece or grip 69, by means of which it may be operated. This segment-lever is pivoted at 70 on the outer face of one of the plates 2 and is provided with a gear-segment 71, which meshes with a pinion 72, mounted on an axis 73. Secured to the pinion 72 and underlying the same is a second pinion 74, which meshes with a rack 75, secured to the carriage 30 and extending through a slot 76 in the side plate 2. By this means a reciprocating motion is imparted to the carriage 30, the arrangement being such that when the segment-lever is moved downward the carriage also moves downward and prints the ticket, the return movement of the carriage occurring during the upward movement of the lever. The pinion 74 also meshes with a pinion 77, mounted on a bearing stud or screw 78, which also carries a crank-wheel 79, provided with a crank-pin 80. The pinion 77 is provided with a spring-pawl 81, and the crank-wheel 79 is provided with a marginal tooth 82, with which said spring-pawl engages when the gear 77 is rotated in one direction. When said gear is rotated in the opposite direction, the pawl does not engage with the crank-wheel and the latter remains stationary. Connected to the crank-pin 80 is a pitman 83, slotted longitudinally at its central portion, as indicated at 84, to receive a swivel-block 85. The upper end of the pitman 83 is provided with a pin 86, which works in a transverse groove in the face of a pinion 88, suitably mounted on the outer face of the side plate 2, near the upper end thereof. This pinion meshes with a pinion 89 on the shaft of the issuing-roll 64, and the issuing-roll 65 is provided with a pinion 90, which meshes with the pinion 89. It will be seen that during the downstroke of the segment-lever the crank-wheel 78 is not operated, and the issuing-rolls are therefore stationary; but during the return or up stroke of the segment-lever, the ticket having been printed during the downstroke thereof, the feed-rolls are operated so as to issue the ticket which has just been printed, leaving the same projecting in such a way that it may be readily torn off and delivered to the passenger.

In order to operate the number-printing disks 15 and register 66 each time a ticket is issued, we employ a lever 91, secured on the outer face of the shaft 14 and having one of its ends bifurcated, as indicated at 92, to embrace a pin 93 on the pitman 83. The other end of the lever 91 is pivoted, as indicated at

94, to a link 95, the lower end of which is connected to the operating-arm 96 of the register 66. In order to insure the stoppage of the segment-lever at the proper points constituting the limits of its motion in each direction, we employ a locking-dog 97, pivoted at 98 on the outer face of the plate 2 and having teeth 99 and 100 at its opposite extremities. On the axis of this dog is a cam projection 101, which is engaged alternately by pins 102 and 103 on the segment-lever 68. When the pin 102 comes into contact with the cam projection 101, the tooth 99 is shrown into engagement with the pinion 74, as shown in Fig. 7, and locks the parts against further motion in that direction. At the limit of motion in the opposite direction the pin 103 comes into contact with the projection 101 and throws the tooth 11 into engagement with the pinion 74. In order to hold the locking-dog in either position into which it is thus moved, we employ a detent 104, consisting of a lever provided with a spring 105, by means of which its extremity 106 is forced against one side or the other of a projection 107 on the locking-dog, thus serving, as stated, to hold the dog against accidental displacement from either of the two positions into which it may be moved.

The plate 5 is provided on its working face with a clock-dial 108, which serves as a means for printing a representation of a clock-dial upon the ticket. In connection with this dial is employed a shaft 109, carrying on its inner end a minute-hand-printing character 110. The shaft 109 has secured thereon a small pinion 111, which meshes with a large pinion 112, mounted on a stud 113 on a cross-bar 114. The pinion 112 carries with it a small pinion 115, which meshes with a larger pinion 116, sleeved on the shaft 109 so as to turn freely thereon and carrying at its outer or exposed end an hour-hand-printing character 117. The arrangement of gearing is such that the minute-printing hand makes twelve revolutions while the hour-hand-printing character makes one. The shaft 109 is provided with a bevel-gear 118, which meshes with a similar gear 119 on a shaft 120, connected with a clock-movement in the manner hereinafter described, so that the characters for indicating the hour and minute are caused to correctly indicate the time and impress the same upon the ticket when this latter is printed.

It will be understood that the printing-wheels for indicating the month and days of the month are to be properly set by hand at the beginning of each day, and it will then be seen that by turning the station-printing wheels, so as to indicate the stations between which the person receiving the ticket is entitled to ride, a single operation of the segment-lever will cause the machine to print and issue a ticket having thereon the amount of fare paid, the points between which the ticket is good, the month and day of the month and hour and minute of the day, together with the consecutive number of the ticket and such other matter as may be placed upon the printing-platen, while at the same time the register will be operated and will show the number of tickets issued. As has already been stated, this ticket may be used as a transfer, if desired, or as a cash-receipt to be given to the passenger. When used as a transfer, the ticket is particularly advantageous for the reason that it indicates not only the stations between which the ticket is valid, but also the precise time of issue. We have also provided means for imprinting upon the tickets or transfer-slips turned in in payment of fares the necessary data to indicate the circumstances under which said tickets are received. To this end we provide within the casing 1 an auxiliary framework 120[a], having ways 121, between which slides vertically a carriage 122, carrying a printing-platen 123. This plate may have any suitable printing characters upon it—as, for instance, the name of the line and the number of the conductor or register or run, as indicated in Fig. 15. There is also on the face of the plate a clock-dial 124, formed in printing characters. In connection with this clock-dial we employ a minute-shaft 124, having thereon a minute-hand-printing character 125, and an hour-hand-printing character 126 is also loosely mounted on the shaft 124 and connected therewith by gearing similar to that already described in connection with the time-printing mechanism of the issuing portion of the machine. The shaft 124 has a telescope driving connection with a shaft 127, which is the minute-shaft or a continuation of the minute-shaft of a clock-movement 128, which imparts the requisite motion to both of the time-printing mechanisms. Said shaft 127 is provided with a bevel-gear 129, which meshes with a bevel gear 130 on the shaft 120, thereby connecting the clock-movement with the time-printing mechanism of the issuing portion of the machine.

In order to indicate the month and day of the month, the plate 123 is provided with bearings 131 and 132, across which extends a shaft 133, on which are mounted printing-wheels 133′ and 134. The wheel 131 has on its periphery printing characters to indicate the various months, and in the present instance we have shown numerals as employed for this purpose, although the letters composing the names of the months or abbreviations thereof may be used. There are two printing-wheels 132, each containing numerals from "0" to "9" and serving to indicate the day of the month in an obvious manner. Each of these wheels is provided with a ratchet 135, with which engages a detent-spring 136, by means of which the wheels are maintained in any position to which they may

be adjusted. It will be understood, of course, that said wheels project through the openings in the plate, so that their printing characters when in proper position are flush with the printing characters on the face of the plate. The plate is also provided with an opening 137, across which extends a shaft 138, having on it a series of number-printing disks 139, connected together in any well known way, so that the tenth advancing movement of any one disk will cause an advancing movement of one step to the disk having the next highest position. These number-printing disks reciprocate vertically with the plate and are actuated by means of a spring-pawl 140, fastened to the auxiliary frame 120ª and engaging with a ratchet-wheel 141, connected with the units-disk. A detent 142 prevents backward rotation thereof. Thus each time the carriage 122 is depressed the number-printing disks will be operated to print a number higher by one unit. We may also provide means for indicating the direction of the journey, and to this end the plate is provided with a pinion 143, beneath which lies a segmental plate 144, having on its face characters to indicate the direction of the journey, as "Up" or "Down," "In" or "Out," or the like. This plate is carried by an arm 145, attached to a rock-shaft 146, which extends through a slot 147 in the casing and is provided with an operating and indicating arm 148, by means of which the plate may be set to print either one of the two legends which it carries, according to the circumstances. The shaft 146 has a bearing in a sliding plate 189, mounted on the outer face of the casing 1 and having a tongue or projection 190, which fits within the slot 147, but is of less length than said slot, while the body of the plate is of sufficient length to cover the slot at all times. The plate 147 bears on its outer face characters corresponding to those on the plate 144, such as "Up" and "Down," and is preferably notched or indented, as shown at 191, to receive a projection 192 on the lever 148, said lever having sufficient spring or elasticity to cause the projection to engage the notch at either end of its travel, and thus lock the lever in position to prevent accidental displacement.

In order to impart movement to the carriage 122, we employ a segment-lever 149, mounted on the outer face of the second side plate 2 and extending through a slot in the casing, being provided with a finger piece or grip 150, by means of which it may be readily operated. This segment-lever is provided with a gear-segment 151, by means of which rotary motion is imparted to a train of gearing 152, 153, 154, and 155, also mounted on the frame of the machine. The last pinion of this train 155 is provided with a spring-pawl 156, which engages with a tooth 157 of a disk 158 on a shaft 159. This tooth is radial on one side, but inclined on the other, so that when the pinion 155 rotates in one direction the shaft 159 rotates along with it, while when the pinion 155 rotates in the opposite direction the shaft 159 is stationary. The shaft 159 is provided near each end with a cam-arm 160, and the carriage 122 is cut away at each side, forming a space in which the corresponding cam-arm sets. The upper wall or edge 161 of this space thus lies in the line of travel of the corresponding cam-arm 160, as indicated in Fig. 9, so that during a portion of the downward movement of the segment-lever 149 the rotation of the shaft 159 causes the cam-arm 160 to engage with the surfaces 161 and move the carriage from the position shown in Fig. 9 to that shown in Fig. 10.

At the upward limit of motion of the carriage there is located a tympan or impression-pad 162, preferably consisting of a sheet-metal base 163 and a cushion or pad 164, of rubber or the like. The outer casing 1 is provided with a slot or opening 165, preferably flaring, as shown, and in line with the under surface of the impression-pad, so that when a ticket or transfer is inserted through the opening 165 it will lie against the under surface of the impression-pad. This latter has its metallic portions extended down, as indicated at 166, to serve as guides for the better centering or registering of the ticket or transfer. The upward movement of the carriage just described carries the printing-plate into contact with the ticket, which is preferably so inserted that its back or blank side is presented to the printing characters, and these latter are impressed thereon, thereby recording on the back of the ticket the various data indicated, including the month, day of the month, and hour and minute of the receipt of the transfer, and at the same time impressing upon it a consecutive number. The return movement of the carriage is effected by means of cam-arms 167, secured on the shaft 159 immediately adjacent to the cam-arms 160 and bearing against flanges 168, extending inward from the side walls of the carriage.

In order to provide for inking the printing characters of the plate 123, we prefer to employ an inking-roller 169, mounted in a housing 170, pivotally connected to arms 171 and held against the platen by a spring 172. The arms 171 are secured on a shaft 173, mounted in the lower portion of the frame 120ª, and the shaft 173 is provided with oppositely-extending cam-arms 174 and 175, upon which bear similar but reversely-arranged cams 176 and 177, secured on the shaft 159. During the initial downward movement of the segment-lever 149 the inking-roller is caused to traverse the platen from the position shown in full lines to that shown in dotted lines by the action of the cam 177, and during the last

portion of the downward movement of the segment-lever after the printing has been effected and the platen has moved away from the impression-pad the inking-roller is again carried over the platen from its dotted to its full line position by means of the cam 176. The cams constantly bear against the corresponding cam-arms, so as to firmly maintain the inking-roller in whatever position it may have been moved to.

In order to provide for the registering of the transfers received and checked, we employ a register 178, which is connected with the transfer-checking mechanism in such a way that each time that said checking mechanism is operated the register is correspondingly operated. In the present instance we have shown this register as provided with an operating-arm 179, which is connected by a link 180 with one of the cam-arms of the inking mechanism—as, for instance, the arm 175. It will be seen that every time that the transfer-checking mechanism is operated the register 178 is advanced one number, so that said register will indicate the total number of transfers received and checked. We also provide means for registering cash-fares where no transfer is given or received, and for this purpose we employ a register 181, which is adapted to be operated by a push-bar 182, which extends up through the casing and is provided at the exterior thereof with a push-button 183, by means of which it may be operated. This bar is provided with a spring-pawl 184, which engages with a ratchet-wheel 185 on the operating-shaft 186 of the register 181. While this register 181 may be employed as a cash-fare register only, we prefer to use it as a total-fare register by connecting it with the segment-lever 68, which operates the ticket printing and issuing mechanism, so that the register 181 will not only indicate those cash-fares received against which no transfer has been issued, but will also indicate the cash-fares received against which a transfer-ticket has been printed and issued. To this end we provide upon the end of the shaft 186 of the register 181 an arm 187, and we provide upon the segment-lever 68 pins 188, which extend through a slot 193 (shown in dotted lines in Fig. 7) in such a way as to engage with the arm 187 and operate the register 181. The distance between these pins is such, however, that the register 181 may be operated by the bar 182 without causing the arm 187 to strike the pins 188, so that the segment-lever 68 will remain stationary when the bar 182 is operated. In this way the register 181 will show the total amount of cash received, whether or not a transfer has been issued in return therefor, while the register 66 will show the number of transfers issued and will also show a number corresponding to the consecutive number which the mechanism imprints upon the transfer as issued.

It will thus be seen that we have provided in a single, compact, and readily-portable apparatus a machine which not only registers the cash-fares received, but which also prints and issues transfer-tickets consecutively numbered and bearing thereon the date and exact time of issue, at the same time registering the number of transfers thus issued. The same machine also serves as a checking-machine by imprinting upon each transfer received the time and circumstances of the receipt thereof, numbering the transfers consecutively, and registering the number thus received. The machine thus keeps a record of the cash-fares and of the transfers issued and received in addition to printing the transfers issued and checking the transfers received in such a way as to furnish permanent evidence as to whether or not the transfers have been properly used. In addition to this the tickets issued have also imprinted upon them the stations between which they are valid, and in this way an additional check on their proper use as transfers is obtained.

As hereinbefore stated, the ticket printing and issuing mechanism may be employed either for the purpose of issuing tickets to be used as transfers or for the purpose of issuing tickets which constitute fare-receipts for cash-fares, and in this latter case the cash-fare-registering mechanism may be dispensed with, since the ticket-issuing mechanism will, by means of its register, insure a record of all cash-fares received, while the transfer-checking mechanism will, by means of its register, give a record of all passengers carried on transfers, the two registers giving together the total of all passengers carried.

We do not wish to be understood as limiting ourselves to the precise details of construction hereinbefore described and shown in the accompanying drawings, as these details may obviously be varied without departing from the principle of our invention, nor do we make any claim herein to the features of novelty of the ticket printing and issuing mechanism *per se*, except in so far as the same is considered in connection with the time-printing portions thereof and in combination with the transfer-checking mechanism.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a machine of the character described, the combination, with a suitable supporting-frame, of an impression-pad fixed therein, a carriage mounted to slide in suitable ways in the frame toward and from the pad and provided with a printing-platen, and means for operating said carriage, comprising a shaft having bearings in the frame, cams mounted on said shaft and engaging the carriage in one direction to move it toward the impression-pad, and other cams mounted on said shaft and engaging the carriage in the oppo-

site direction to withdraw it from the impression-pad, substantially as described.

2. In a machine of the character described, the combination, with a suitable frame, and an impression-pad mounted therein, of a carriage movable in ways in the frame toward and from said pad and provided with a printing-platen, means for actuating said carriage, comprising an operating-shaft mounted in bearings in the frame and provided with cams which engage and actuate the carriage, and means for inking the platen, said means being mounted on and moving with the carriage and being actuated from the operating-shaft, said inking means comprising a spring-pressed inking-roll, a shaft mounted in the carriage and provided with arms to which said roll is connected, cam-arms extending in opposite directions from said last-mentioned shaft, and cams mounted on the operating-shaft, and bearing on said cam-arms, substantially as described.

3. In a machine of the character described, the combination, with a suitable frame, and an impression-pad mounted therein, of a carriage provided with a printing-platen and inking mechanism and movable in suitable ways in the frame toward and from the impression-pad, an operating-shaft mounted in bearings in the frame and provided with means for actuating the carriage and inking mechanism, and means for actuating said operating-shaft, comprising a toothed disk on the operating-shaft, a segment-lever and an intermediate train of gearing, the last pinion of said train being provided with a spring-pawl to engage with the toothed disk in one direction only, substantially as described.

4. In a machine of the character described, the combination, with transfer-checking mechanism, of means for printing and delivering a ticket or transfer, a segment-lever for actuating the same, a register connected with and operated by the ticket printing and issuing mechanism, an inclosing casing, a push-bar operatively connected with said register and extending through the casing, said register being provided with an operating-shaft having a ratchet-wheel thereon at one end and an arm at the other end, the push-bar being provided with a spring-pawl to engage the ratchet-wheel, and the segment-lever being provided with pins or projections to engage the arm, whereby said register may be independently operated either by the push-bar or by the segment-lever, substantially as described.

5. In a machine of the character described, the combination, with ticket or transfer printing and delivering mechanism, comprising time-printing mechanism whereby the hour and minute of issue are imprinted upon the ticket or transfer, of transfer-checking mechanism comprising time-printing mechanism for printing the hour and minute of receipt upon the transfers, and a single clock-movement operatively connected with and actuating both of said time-printing mechanisms, substantially as described.

In testimony whereof we affix our signatures in presence of two witnessess.

WILFRED I. OHMER.
JOSEPH N. KELLY.
JOSEPH LEITSCHUH.

Witnesses:
EDWARD G. OHMER,
CHARLES B. NEVIN.