Nov. 21, 1939. L. SCHER 2,180,483

TICKET ISSUING MECHANISM

Filed June 29, 1937 3 Sheets-Sheet 1

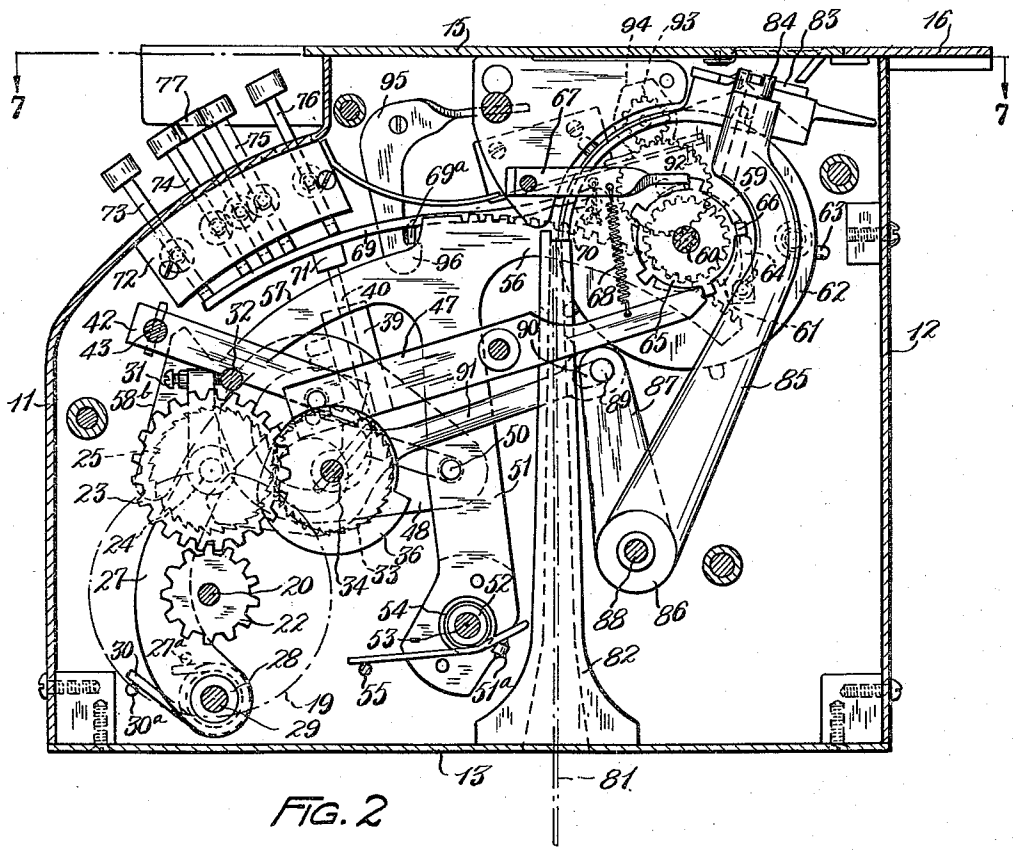


FIG. 2

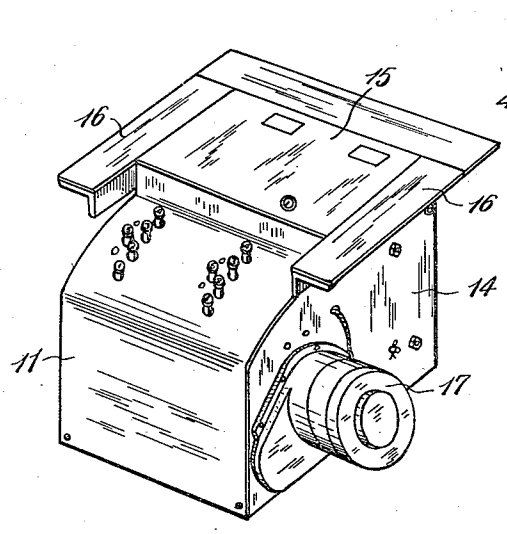


FIG. 1

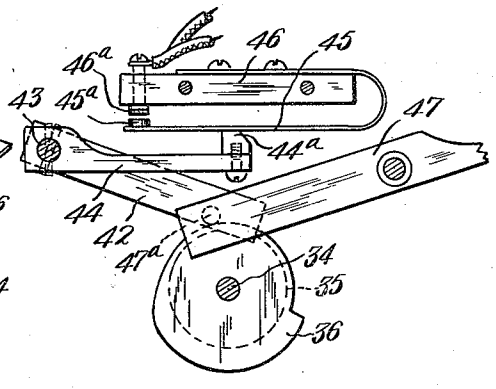


FIG. 3

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TICKET ISSUING MECHANISM

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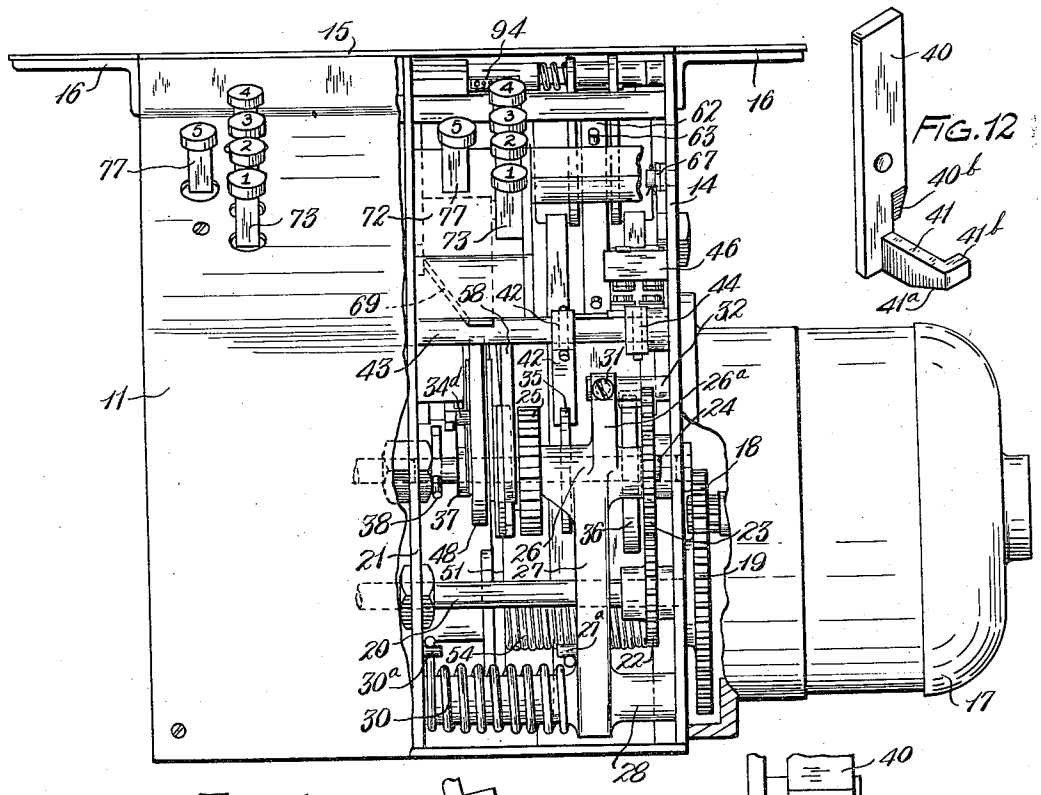


FIG. 4

FIG. 12

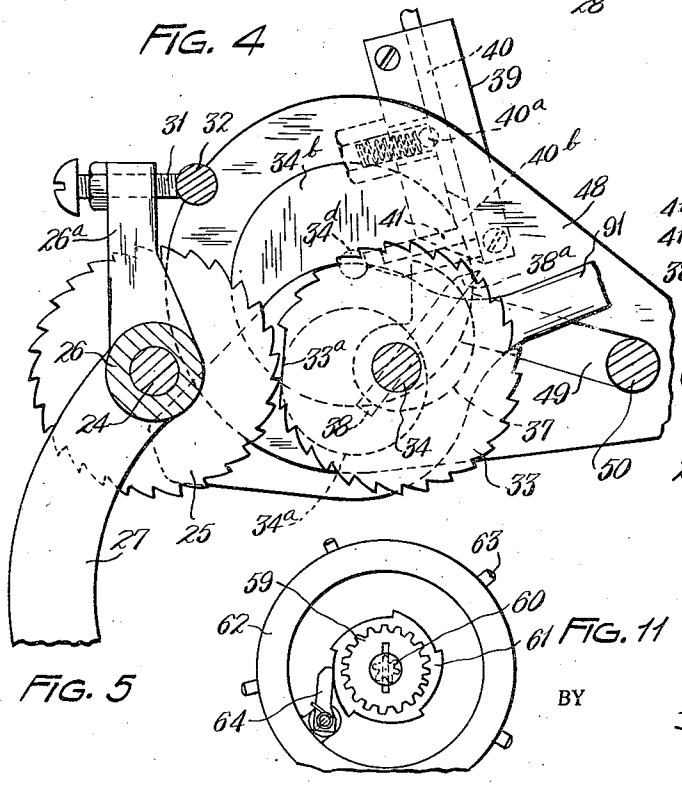


FIG. 5

FIG. 11

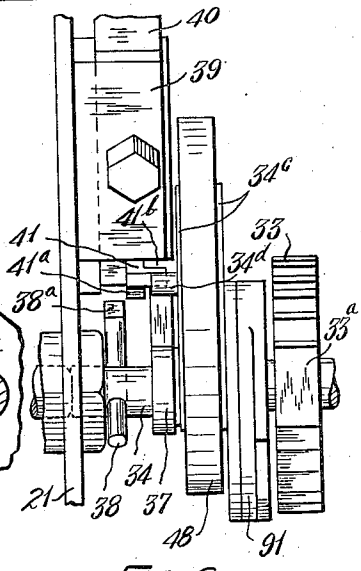


FIG. 6

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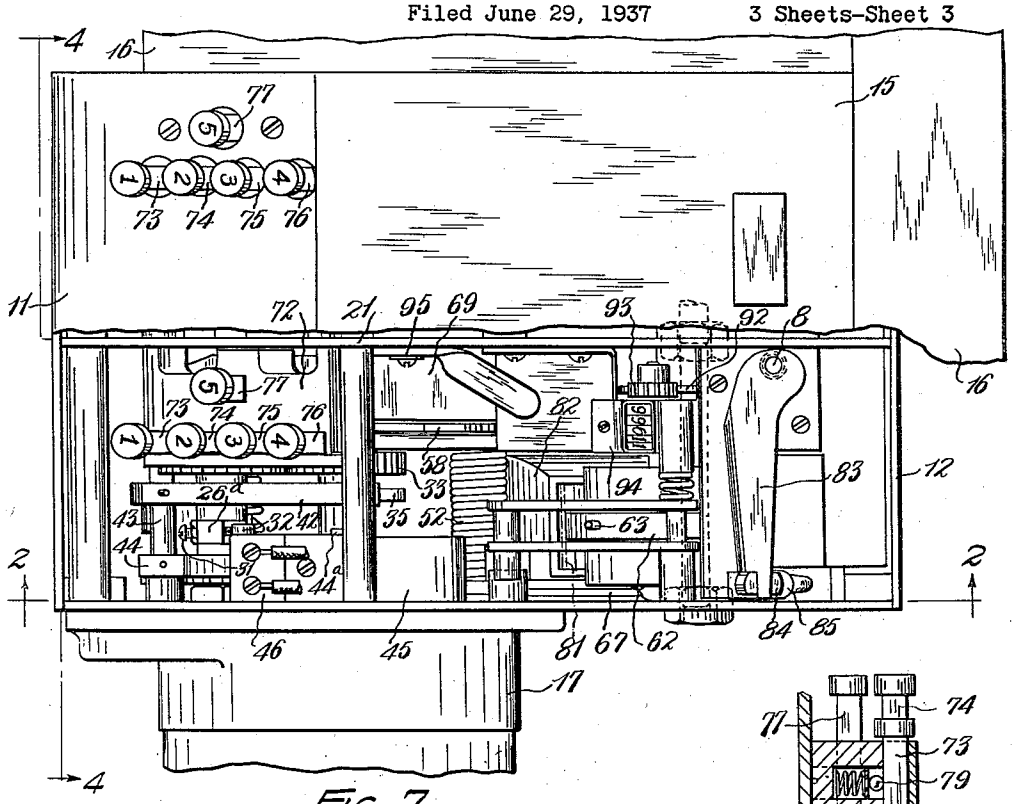


FIG. 7

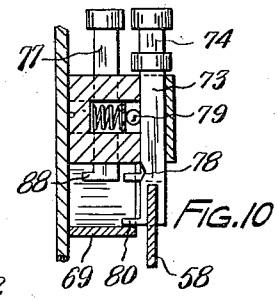


FIG. 10

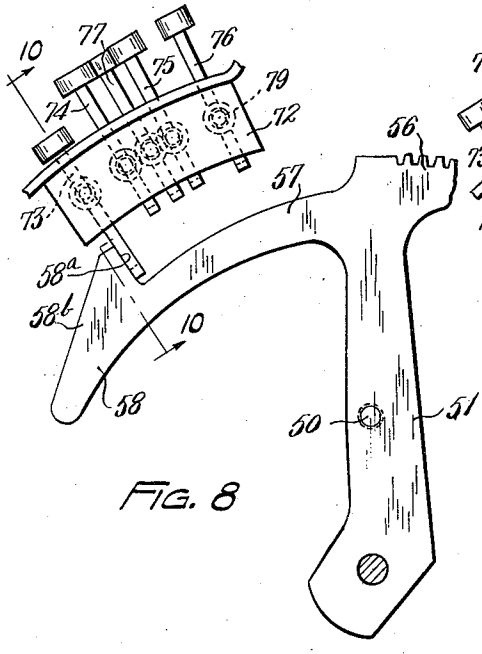


FIG. 8

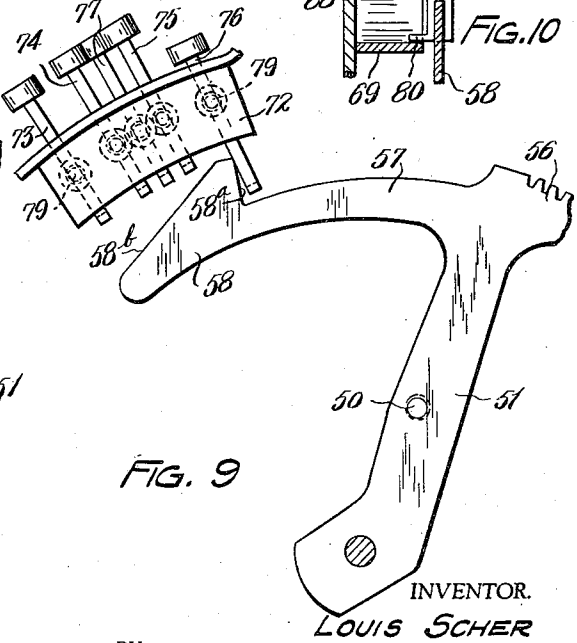


FIG. 9

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Patented Nov. 21, 1939

2,180,483

UNITED STATES PATENT OFFICE

2,180,483

TICKET ISSUING MECHANISM

Louis Scher, Shaker Heights, Ohio, assignor to The Ticket Issuing Machine Company, Cleveland, Ohio, a corporation of Ohio

Application June 29, 1937, Serial No. 150,892

2 Claims. (Cl. 164—42)

This invention relates to machines for delivering or issuing one or more tickets of one or more classes either simultaneously or selectively, and when the proper number of tickets has been issued of automatically severing the issued tickets from a ticket strip.

The machine of the present invention is an improvement over the ticket delivering and issuing machine disclosed in my Patent No. 1,856,171, issued May 3, 1932, wherein the tickets are issued by and during the operation of the mechanism to restore its parts to an "initial" position after those parts have been actuated to move the same to an "operating" position as the result of a selective movement of any ticket key by an operator.

A machine embodying the present invention and similarly to the machine shown in my said Patent No. 1,856,171 functions to release the ticket delivering mechanism from a locked "initial" position upon the manual depression of a selected ticket key, after which the mechanism is driven by a rotating drive shaft, preferably motor operated, to move the parts to an "operating" position and then to restore the parts to the "initial" position at which "initial" position the rotating drive shaft is operatively disconnected from its driving connection with the other parts of the mechanism and the remaining parts of the mechanism come to rest until operation is again commenced by a subsequent selective depression of a ticket key.

An object of the invention is to provide a ticket delivering or issuing machine which is accurate and positive in its function, and is composed of relatively few parts of simple and sturdy construction which are so assembled and arranged in the machine as to require a minimum amount of servicing of the machine.

Another object is to provide a ticket issuing machine which is capable of speedy operation, thereby enabling the ticket seller to efficiently take care of customers' demands for tickets even though such demands are grouped and often occur during rush or peak periods.

The machine of the present invention employs a plurality of selective manually depressible ticket keys corresponding to the number of tickets it is desired to have the machine issue, and an object of the invention is to provide means whereby if a plurality of associated ticket keys are accidentally moved simultaneously the mechanism will deliver a number of tickets corresponding to the key of the smallest denomination moved, so that the accidental simultaneous movement of a plurality of ticket keys can never cause a mistaken issuance of a larger number of tickets than desired.

In machines of this type it sometimes occurs that after a ticket key has been depressed to set the machine in operation for the issuance of a desired number of tickets another ticket key of a smaller denomination might accidentally be depressed with the result that the depression of the key of smaller denomination would interfere with the effective operation of the machine and the issuance of the desired number of tickets.

An object of the present invention is to provide a ticket issuing machine wherein the depression of a ticket key of smaller denomination after the depression of a ticket key of larger denomination has set the machine into operation will not affect in any way the effective operation of the machine in the desired manner.

Tickets which are to be issued from a ticket issuing machine are usually supplied in long continuous strips and it is most desirable to sever such strips at the proper place between successive tickets.

The present invention contemplates and it is an object thereof to provide a machine wherein the operation of the ticket delivering mechanism is positively controlled so that it will always stop at the correct position to enable the ticket strip to be sheared at the proper place between adjacent tickets.

It is a further object of the present invention to provide the ticket delivering mechanism with improved stop means for positively stopping rotation of the ticket feed roll at a predetermined place so that the feed roll will not be overthrown by inertia of its own movement or the movement of other parts, wherefore the tickets fed by the feed roll will be severed from the continuous strip of tickets at only the proper place.

It is also important in machines of this character that the feed roll be positively locked against movement at all times when the machine is not operating, and an object of the present invention is to provide improved means for this purpose.

Another object of the invention is to provide improved means for positively operating the shearing device in both directions and for having said device complete its operative movement by the time the parts have returned to the position they occupied prior to the depression of the ticket key and the commencement of the operation of the machine, that is, have returned to their "initial" position.

A further object of the invention is to provide a ticket issuing machine, the operation of which can be readily understood by the operator in the ticket

window and which is fool-proof in operation so that the operator will not hinder the operation of the machine by accidentally depressing a plurality of ticket keys.

Further and additional objects not hereinbefore specified will become apparent hereinafter during the detailed description of an embodiment of the invention which is illustrated in the accompanying drawings, wherein

Fig. 1 is a perspective view on a greatly reduced scale of the improved ticket delivering or issuing machine.

Fig. 2 is a longitudinal vertical sectional view on a much larger scale than Fig. 1 of the improved mechanism and is taken substantially on line 2—2 of Fig. 7 looking in the direction of the arrows.

Fig. 3 is a detached sectional view of certain parts of the mechanism and shows the cam for closing the motor switch and the cam for operating one of the feed roll locking arms in side elevation.

Fig. 4 is a front elevational view of the improved ticket issuing and delivering mechanism and is taken along line 4—4 of Fig. 7 looking in the direction of the arrows, a portion of the casing of the mechanism being broken away and omitted so as to show in elevation the parts lying therebehind.

Fig. 5 is a detached fragmentary view of certain of the parts of the mechanism and shows the mutilated gear which cooperates with the gear in the drive train when the machine is placed in operation for effecting the driving movement of the parts.

Fig. 6 is an end elevational view of the parts shown in Fig. 5 with the rocker arm or pivoted lever that carries the gear in the drive train omitted.

Fig. 7 is a top plan view taken along line 7—7 of Fig. 2 looking in the direction of the arrows with a part of the top plate of the machine broken away to show the operative parts beneath.

Fig. 8 is a detached fragmentary view in side elevation of the ticket keys and the rockable gear segment that is operatively associated therewith and illustrates how the depression of a ticket key acts to stop the movement of the rockable gear segment in one direction.

Fig. 9 is a view similar to Fig. 8 but shows the relationship between the parts when a different ticket key has been depressed.

Fig. 10 is a detached sectional view taken substantially on line 10—10 of Fig. 8 looking in the direction of the arrows.

Fig. 11 is a fragmentary detached end elevational view of the ticket feed roll or wheel, the pawl and ratchet for rotating the same in a ticket feeding direction, and the gear carried by the sleeve which carries the ratchet, and

Fig. 12 is a detached perspective view of the master key.

It is usual in ticket delivering mechanism of this character to provide each machine with a plurality of ticket delivering sections identical in construction and intended to issue or deliver tickets of different classes. All of the sections in each machine are preferably operated by a common motor so that the sections are ready to instantaneously deliver tickets from previously printed and prepared ticket strips.

Each section is equipped to keep total count of the number of tickets issued therefrom and the number of tickets delivered is regulated by the particular ticket key depressed which actuates a master key provided for each particular section.

A machine of this character is commonly required to deliver up to and including five tickets from each section, and the improved mechanism described herein is shown as having a ticket issuing capacity for each ticket issuing operation of from one to five tickets from each of the two sections herein illustrated, it being understood that the machine could embody a greater number of sections if desired merely by duplicating the mechanisms constituting each section and providing for a common motor drive for all of the sections.

As illustrative of the manner in which the machine will be employed, it may be pointed out that one of the sections of the machine is used for issuing adult tickets, while the other section could be used for issuing children's tickets.

The ticket issuing and delivering machine comprises a casing formed of the removable wall 11 that constitutes a portion of the front and top of the casing, rear wall 12, bottom wall 13, end or side walls 14 and a delivery plate or top wall 15 which is locked in position by means of a key lock or other suitable means to prevent unauthorized access to the interior of the machine. The casing is preferably provided at its top with outstanding flanges 16 extending along both sides and the rear and by means of which the machine can be supported in an opening formed in the counter or shelf of a ticket booth or any other desirable place.

The ticket delivery mechanisms for all of the sections are preferably driven after the depression of a ticket key of one or more of the sections by means of an electric motor 17 which is secured in position on the outer side of one of the end or side walls 14 of the casing as clearly shown in Figs. 1 and 4. The motor shaft has fixed to its end a pinion 18 which meshes with a large gear 19 located exteriorly of the casing and fixed to the outer end of the main drive shaft 20 which extends transversely of the casing and is rotatably supported in the end walls 14 and in the partition wall 21 which separates the two sections of the machine, see Figs. 4 and 7.

In Fig. 2 of the drawings the pitch line of the gear 19 is indicated by dot and dash lines so as to show the relationship of this gear with respect to the other parts of the machine. A small gear 22 is fixed to the shaft 20 inwardly of the side or end wall 14 and this gear customarily meshes with a large gear 23 that is fixed to one end of a rotatable shaft 24 that has fixed to its opposite end a ratchet tooth gear 25. The shaft 24 is rotatably supported in the tubular cross arm 26 that is integral with the upper end of a lever 27, said cross arm 26 being located intermediate the gears 23 and 25, as clearly shown in Fig. 4. The lower end of the lever 27 is provided with a transversely extending tubular portion 28 of a length substantially equal to the width of the distance between the end wall 14 and the partition wall 21, such tubular portion 28 being rockably mounted on a rod 29 that extends completely transversely of the machine and through the wall 21. A coil spring 30 surrounds the longer end of the portion 28 and has one of its ends engaging against a lug 30a projecting from the partition wall 21, while its other end engages against an integral pin 27a formed on the lever 27. The spring 30 tends to rock the lever 27 in a clockwise direction, and the distance which said lever can thus be rocked is limited by an

adjustable stop screw 31 mounted in an upwardly extending arm 26a formed integral with the portion 26 of the lever, which stop screw engages with a pin 32 carried by the wall 14 and projecting inwardly of the section as clearly shown in Figs. 2, 4 and 5.

The rack tooth gear 25 cooperates with a rack tooth gear 33 that is keyed to the main cam shaft 34 which is rotatably supported in suitable bearings in the wall 14 and the wall 21. The gear 33 is provided with a mutilated portion 33a, see Figs. 5 and 6, whereby in a certain relative position of the gears 25 and 33 the gear 25 will be disconnected from the gear 33 and rotation of the drive shaft 20 by the motor 17 at such times will not effect an operation of the machine. The manner in which the gears 25 and 33 come into meshing relationship will be explained in greater detail hereinafter.

The main cam shaft 34 intermediate the wall 14 and the mutilated rack tooth gear 33 is provided with a pair of spaced cams which are designated in the drawings respectively from left to right as 35 and 36, see Figs. 3 and 4, the cam 35 constituting the switch operating cam, while the cam 36 actuates a detent arm, later to be referred to, that functions to lock the ticket feed roll or wheel against rotation in a ticket feeding direction.

The main cam shaft 34 to the left of the mutilated gear 33, as viewed in the drawings, is provided with a small eccentric portion 34a and with a large eccentric portion 34b, said eccentric portions being so disposed and so proportioned with respect to each other as to have a definite predetermined actuating effect upon the eccentric arms or links carried thereby and later to be referred to.

The eccentric portion 34b has secured to its opposite ends disks 34c which maintain the eccentric arm or link carried thereby in position, it being noted that the left hand disk 34c as viewed in Fig. 6 is provided with a laterally extending pin 34d. The shaft 34 to the left of the disk 34c which carries the pin 34d has fixed thereto a cam member 37 which functions upon the rotation of the shaft 34 to raise the master key, as will later be explained. To the left of the cam 37, as viewed in Fig. 6, and adjacent to the partition wall 21 the shaft 34 carries a pin 38 that is fixed in the shaft and is provided at one end with a beveled or camming portion 38a, see Figs. 5 and 6.

A block 39 is secured to the partition wall 21 and slidably mounts the master key 40 which extends through the block 39 and is held in its raised or uppermost position therein by means of a suitable spring point such as the spring pressed ball detent 40a which engages in a recess formed in the master key. The master key is in the form of a flat bar as clearly shown in Figs. 5, 6 and 12 and is provided at its lower end and intermediate its longitudinal edges with an integral forwardly extending arm 41 that has at its outer end and on its under side a beveled surface 41a that terminates at its upper end in a laterally projecting lug 41b. The master key 40 adjacent to its right hand lower edge as viewed in Fig. 6 is provided with a cut-away portion 40b that provides clearance for the cam 37 during the rotation of the shaft 34.

When the parts of the machine are in their "initial" or starting position they are in the relative location indicated in Figs. 2, 4, 5 and 6 of the drawings. Depression of the master key 40 brings the lower end of the master key to the left of the forwardly projecting arm 41 thereof, as viewed in the drawings, and after the portion 41b has cleared the pin 34d, into engagement with the beveled end 38a of the pin 38 and causes a downward or clockwise turning movement of the pin 38 and the shaft 34. This turning movement of the shaft 34 in turn rotates the mutilated gear 33 a sufficient distance to move the mutilated portion 33a of the gear out of proximity to the gear 25 and to bring the toothed portion of the gear 33 to the point where the gear 25 will mesh therewith, it being remembered that the lever 27 which carries the gear 25 is being constantly urged in a clockwise rocking direction by the spring 30. The movement of the shaft 34 just referred to also rocks the cam 35 a sufficient distance to raise in an anti-clockwise direction the end of the rockable lever 42, it being noted by reference to Fig. 3 that the end of said lever 42 rides on the periphery of the cam 35. The opposite end of the lever 42 is fixed to a shaft 43 that extends transversely of the machine and is rockably supported in the end walls 14 and the partition wall 21. The rocking movement of the lever arm 42 occasioned by the rotation of the cam 35 in turn rocks the shaft 43 and a switch lever arm 44 which is fixed thereto, as clearly shown in Figs. 3 and 7. The switch lever arm 44 carries at its free end a suitable insulated block such as a block of "Bakelite" indicated at 44a which is in engagement with the spring arm 45 of an electric switch 46. It will be noted that the downward movement of the master key to effect the initial turning movement of the pin 38 and the shaft 34 results in a rocking of the shaft 43 so as to cause an anti-clockwise movement of the switch lever arm 44 to press the spring arm 45 upwardly to cause an engagement of the contacts 45a and 46a of the switch 46, whereupon the circuit is closed to the motor 17 and the latter is energized to start the driving of the machine. It will be noted that the switch 46 is mounted within the machine and is secured to the inner side of the right hand end wall as viewed in Fig. 4.

It will thus be seen that the depression of the master key 40 first effects an intermeshing of the gears 25 and 33 and a starting of the motor 17 to commence the operation of the machine through a ticket delivering and severing cycle. This operation in each instance continues for one complete revolution of the main cam shaft 34, near the end of which the cam 37 on the periphery of which rides the portion 41b of the master key 40, raises to its initial position the said master key, after which the stop pin 34d carried by the plate 34c on the eccentric portion 34b engages with a stopping contact the laterally extending portion 41b of the forwardly projecting arm 41 of the master key. When this engagement takes place between the stop 34d and the portion 41b of the master key the lever arm 42 has come into contact with the low portion of the periphery of the cam 35, whereupon said lever arm 42 and the shaft 43 are rocked downwardly in a clockwise direction by the action of the spring arm 45a of the switch on the switch lever arm 44 to open the switch 46 and stop the energization of the motor 17. During the complete revolution of the shaft 34 the cam 36 raises the left hand end, as viewed in Fig. 3 of a rockable detent arm or lever 47, to lower the opposite end of said lever or arm out of engagement with stop lugs operatively forming a part of the ticket feed roll or

wheel and later to be referred to, it being noted that this disengagement of the detent lever from the stop lugs is maintained sufficiently long to allow the feed roll or wheel to rotate through the desired arc to feed the required number of tickets, as will be later more fully explained.

It will also be observed that should the gear 25 be given a rotation in a clockwise direction it will merely idle over the teeth of the gear 33, due to the rack tooth formation of the teeth of the gear 25, and to its mounting on the pivoted lever 27.

A relatively short eccentric arm 48 is mounted on the larger eccentric portion 34*b* of the shaft 34 and such arm or link is provided with an elongated slot 49 in which extends a pin 50 that projects laterally from the side of a lever arm 51 that has at its lower end a tubular portion 52 that extends transversly thereof and is rockably supported on a rod 53 mounted in and extending transversely between the walls 14 and 21 of the casing. The tubular portion 52 is of such length as to extend the entire distance between the wall 21 and the wall 14 and carries to the right of the lever 51, as viewed in Fig. 4, a coil spring 54 which has one of its ends engaging an integral lug 51*a* carried by the lever 51 adjacent the tubular portion 52, while the other end of the spring 54 engages a pin 55 extending inwardly of the casing of the wall 14. The spring 54 acts to normally urge the lever 51 to rock in a clockwise direction as viewed in Fig. 2.

The upper end of the lever 51 has an elongated arcuate integral extension, a portion of which is in the form of a gear segment 56 while another portion thereof is recessed on its upper edge as indicated at 57 and has at its left hand end, as viewed in the drawings, a triangularly shaped head 58, the inner or right hand edge of which forms a stop shoulder 58*a*, as clearly indicated in Figs. 8 and 9. The upper edge of the head 58 is tapered or beveled, as indicated at 58*b*, for a purpose later to be explained.

The gear segment 56 meshes with a gear 59 that is fixed on one end of a sleeve that is freely rotatable upon a shaft 60 which, in turn, is rotatably supported in the end wall 14 and the partition wall 21. The opposite end of the sleeve to that which carries the gear 59 has fixed thereto a five tooth ratchet 61. Fixed to the shaft 60 is a ticket feed roll or wheel 62 that is provided on its circumference with circumferentially spaced radially projecting pins 63, said pins being spaced apart a distance of one ticket, it being noted that there are five of these pins shown upon the roll or wheel 62. The side of the wheel adjacent to the ratchet 61 is provided with a laterally extending pin on which is mounted a spring-pressed pawl 64 that cooperates with the teeth of the ratchet 61.

It will be seen that when the gear 59 is being rotated in a clockwise direction by a forward movement of the gear segment 56 the pawl 64 will engage with one of the teeth of the ratchet 61 and cause the ratchet and the feed roll or wheel 62 to rotate in unison while when the gear 59 is rotating in an anti-clockwise direction due to the rearward or clockwise movement of the gear segment 56 the pawl 64 will merely idle over the teeth of the ratchet and there will be no movement imparted to the feed roll or wheel 62.

The wheel 62 on the side thereof opposite to the side upon which the pawl 64 is arranged is provided with a hub-like portion that has fixed thereto a disk 65 provided on its circumference with five circumferentially and equally spaced radially projecting lugs 66, which lugs cooperate with a stop pawl 67 to prevent rotation of the wheel 62 in an anti-clockwise or non-feeding direction. The lugs 66 also cooperate with the end of the rockable detent arm or lever 47 to prevent rotation of the feed roll or wheel in a clockwise or feeding direction during the time when the machine is not in operation and also to prevent an overrunning of the feed roll or wheel upon the completion of an operating cycle, it being recalled that the rockable detent arm 47 is raised and lowered into operative relation with respect to the lugs 66 by means of the cam 36 carried by the main cam shaft 34, it being noted that the arm 47 is provided with a pin 47*a* that rides on the periphery of the said cam. A spring 68 has its opposite ends connected to the stop pawl 67 and the detent arm 47, respectively, and serves to move said pawl and arm toward the periphery of the disk 65, wherefore they will be in a position to engage with the lugs 66.

The master ticket key 40 is depressed by means of a rigid arm 69 that is hingedly mounted on a pin 70 projecting inwardly of the section from the partition wall 21. The arm 69 is provided on its underside with a button 71 that is held in engagement by gravity with the upper end of the master key 40. It will be seen when the arm 69 is depressed that the master key 40 will be depressed in turn, with the result that its lower end will engage the pin 38 carried by the main cam shaft 34 and rock said shaft to first engage or intermesh the gears 25 and 33 and to close the motor switch to start the operation of the motor. The motor will then continue to rotate the main cam shaft to disengage the detent arm 47 from its contact with a tooth 66 and thus allow a rotation of the feed roll or wheel 62 in a clockwise direction to feed the strip of tickets outwardly of the machine as will later be more fully explained. When the main or master key 40 is depressed to initially effect a small rotation of the shaft 34, the stop pin 34*d* first is disengaged from its contact with the portion 41*b* of the master key and the eccentric arm 48 given a slight movement toward the right, whereupon the lever 51 is rocked by its spring 52 in a clockwise direction with the gear segment 56 rotating the gear 59 in an anti-clockwise direction, wherefore the pawl 64 simply idles over the teeth of the ratchet 61 and no movement is imparted to the feed roll or wheel 62. This rocking movement of the lever 51 in a clockwise direction, as just referred to, places the gear 59 in mesh with the extreme left hand end of the gear segment 56 as viewed in the drawings.

The motor which has now been placed in operation by the closing of the switch 46, as previously explained, rotates the main cam shaft 34 until a complete revolution thereof has been effected and this rotation of the cam shaft 34 causes a movement of the eccentric arm 48 such that the lever 51 and its gear segment 56 are rocked in an anti-clockwise direction, that is, toward the left as viewed in Fig. 2, with the result that the gear 59 and ratchet 61 are rotated in a clockwise direction, whereupon the pawl 64 contacts with a tooth of the ratchet 61 and effects a clockwise or feeding rotation of the feed roll or wheel 62. The forward or left hand rocking movement of the gear segment continues until the gear 59 is brought into mesh with the teeth at the extreme right hand end of the seg-

ment, as viewed in the drawings, at which time the feed roll 62 has made a complete revolution and will have fed five tickets from the machine. At this time, however, the main cam shaft 34 has not quite completed one full revolution. However, as soon as this relationship has been effected between the gear segment 56 and the gear 59 the cam 36 has rotated through an arc sufficient to allow the spring 68 to rock the detent arm 47 in a direction to bring its right hand end into engagement with the periphery of the disk 65, where it will engage with a lug 66 to prevent further clockwise or feeding rotation of the wheel 62. The remaining rotation of the main cam shaft 34 to complete one full revolution moves the eccentric arm 48 again in a direction to cause a rocking movement of the lever 51 and gear segment 56 in a clockwise direction through an arc which in this instance is approximately one-fifth of the total arc of the gear segment, or in other words, that arc of the segment which represents a feeding movement of the wheel 62 for feeding one ticket. When this clockwise rocking movement has been imparted to the lever 51 and gear segment 56 the pin 34*d* contacts with the portion 41*b* of the master key, it being remembered that the cam 37 during the rotation of the shaft 34 has raised the master key to its initial position. At this time the low point of the cam 35 has been reached so that the spring arm 45 of the switch can rock the switch arm 44, shaft 43 and the lever arm 42 in a direction to permit the switch to open and stop the operation of the motor.

It will be noted that when the parts are in their "initial" position the gear segment is always located to effect a delivery of one ticket since it has moved back in a clockwise direction through one-fifth of its total arc. This arrangement expedites and speeds up the operation of the machine since it must in every event deliver at least one ticket.

It will have been seen from the foregoing description that depression of the plate 69 to depress the master key 40 acts to allow the parts to operate so as to effect a complete revolution of the ticket feed roll of wheel 62 to feed five tickets from the strip of tickets. There will now be pointed out the manner in which a lesser number of tickets can be selectively issued from the machine by limiting the clockwise movement of the lever 51 that takes place when the master key is depressed.

A key block 72 is secured to the partition wall 21 above the forward portions of the plate 69 and the arcuate cutaway portion 57 of the lever 51. This key block slidably supports five identical keys, to-wit, keys 73, 74, 75, 76 and 77 which can be selectively depressed to cause the machine to issue one, two, three, four or five tickets, respectively. Each of these keys is provided with a flat shank that slides vertically in a slot in the key block, it being noted by reference to Figs. 2 and 7 that the shank of each key upwardly of its lower end is provided with a notch 78 with which a spring-pressed ball 79 of a spring point cooperates to hold each of the keys in its raised or elevated position. The lower end of each key is provided with a laterally extending portion 80 that acts to increase the width of the lower end of each key. The upper end of each key is provided with a suitable operating button that bears indicium corresponding to the number of tickets which will be issued by the machine upon the depression of the respective key.

It will be noted that keys 73, 74, 75 and 76 for causing the machine to selectively issue one to four tickets, respectively, are located in alignment one behind the other and above the cut-out portion 57 of the lever 51. When any one of these keys is depressed its lower end will lie in the cut-out portion 57 of the lever 51 while the laterally projecting portion 80 of the lower end of each key will come into engagement with the plate 69 to depress the latter and, in turn, the master key 40. Key 77 is located midway between keys 74 and 75 and to one side thereof, with the result that when said key 77 is depressed its lower end will not lie in the cut-out portion 57 of the lever 51 but will merely contact with the plate 69 to depress the same and the master key.

When key 77 is depressed the resultant depression of the master key will act as has been previously described to press the gears 25 and 33 in mesh, start the operation of the motor, and release the detent arm 47 from a lug 66, so that the ticket feed roll or wheel can rotate in a ticket feeding direction and allow the lever arm 51 and its associated gear segment 56 to rock in a clockwise direction to bring the extreme left hand end of the segment into mesh with the gear, wherefore when the continued operation of the machine rocks the lever 51 and gear segment 56 in the reverse direction the gear 59 will roll the full length of the gear segment and cause a complete revolution of the feed roll or wheel 62 to issue five tickets from the machine.

However, when any one of the keys 73, 74, 75 or 76 is depressed the lower ends of such keys will lie in the cutout portion 57 of the lever 51 and act as stops contacting with the shoulder 58*a* at the right hand end of the head 58 of the lever 51 to limit the initial clockwise rocking movement of the lever 51 and the gear segment 56, wherefore upon the completion of such clockwise rocking movement of the lever the gear 59 will be at fixed predetermined distances from the left hand end of the gear segment 56, with the result that the reverse rocking movement of the lever will cause the gear 59 to roll over only a portion of the gear segment 56 and to thus effect a rotation of the feed roll or wheel 62 which is in such proportion to a complete rotation thereof as to deliver one to four tickets, depending upon which of the keys has been depressed.

In other words, a depression of the key 77 causes a complete rotation of the feed roll or wheel 62, while depression of the keys 73, 74, 75 and 76 will cause the feed roll to rotate through one-fifth, two-fifths, three-fifths or four-fifths of a complete revolution, respectively, to issue, one, two, three or four tickets.

Since the gear segment 56 in returning to its "initial" position has moved to the right a distance equal to one-fifth of its total arc, it is already set for effecting the issuance of one ticket. Therefore, when the key 73 is depressed the gear segment only moves to the right a very slight distance, which represents the clearance distance required to bring the key 73 behind the shoulder 58*a*.

It will be remembered that the pins 63 on the circumference of the feed roll 62 are five in number and are equally spaced around the circumference of the roll, the distance between the pins corresponding to the length of one ticket. As is usual in machines of this character, the ticket strip 81, indicated by dash and dot lines, is fed

from a magazine beneath the machine and passes upwardly to the feed roll through a ticket strip guide 82. As will be well understood, the ticket strip is provided intermediate each ticket of the strip with an opening through which the pins 63 of the feed roll extend, wherefore when the feed roll is rotated in a clockwise direction the pins 63 will successively engage in or intermesh with these openings and cause a feeding movement of the ticket strip.

It will be noted that if a key for causing the delivery of a lesser number of tickets than desired is accidentally depressed along with the key that was intended to be depressed, the machine will issue the lesser number of tickets and the operator can then merely operate the machine a second time to make up the difference between the tickets issued and the number of tickets desired. In other words, the depressing of two keys will not hinder the operation of the machine.

Sometimes it occurs that after the machine is in operation one of the other keys is accidentally depressed by the operator and means must be provided which will prevent such an occurrence from interfering with the efficient operation of the machine. As illustrative of the point under discussion reference should be had to Fig. 9, wherein the key 76 has been depressed and the machine placed in operation. Supposing the operator due to a rush demand for tickets or for some other reason should depress one of the keys 73, 77 or 75, it will be seen that the lower ends of such keys would simply contact with the tapered or beveled edge 58b of the head 58 of the lever 51, with the result that the return or anti-clockwise movement of the lever 51 would merely cause said keys to be cammed upwardly by the inclined edge 58b of the head 58. This arrangement renders the operation of the machine foolproof and guarantees that the issuance of tickets therefrom will not be slowed up or hindered due to inefficient operation.

It will also be understood that after any one of the keys has been depressed and the machine placed in operation said key will be returned to its elevated position at the completion of the operating cycle by the cam 37 which raises the master key 40 and, in turn, the plate 69 with which the lower ends of the selective ticket keys are in contact.

In machines of this character it is essential that adequate means be provided for severing the issued tickets from the strip at the right place and that such severing means be always in condition for efficient operation. Heretofore in machines of this type severing means have been employed which are positively moved to an open position against the spring tension and moved to a closed or cutting position by the spring tension. It sometimes occurs with severing means of this character that cuttings from the ticket strip clog the efficient cutting stroke of the cuting blade.

In the machine embodying the present invention this difficulty is overcome by providing a positive actuation of the cutting blade in both directions. In the present machine the severing means comprises a cutting blade 83 which is pivotally mounted at 84 in a position to cut the tickets which have been delivered or issued from the machine by the feed roll 62. The free end of the cutting blade 83 is reduced and extends between the tines of a forked swivelled fitting 84a carried by the upper end of a lever arm 85 that forms part of an integral double lever which includes, in addition to the lever arm 85, a tubular portion 86 at the lower end of the arm 85 and from the opposite end of which portion extends a second and shorter lever arm 87 angularly disposed with respect to the lever arm 85. The tubular portion 86 of this double armed lever is rockably supported on a rod 88 which extends transversely of the machine and is fixed in the side walls and partition wall thereof. The upper end of the arm 87 is provided with a laterally extending pin 89 which engages in a slot 90 formed in the free end of the eccentric arm or link 91, the end of which opposite to the slot 90 is mounted on the small eccentric portion 34a of the main cam shaft 34. The disposition of the cam portions 34a and 34b on the cam shaft and the proportions of the eccentric arm 48 and the eccentric arm 91 are such that when the machine is in operation and just prior to or at the commencement of the return or anti-clockwise movement of the gear segment to effect a feeding movement of the feed roll 62, the double lever including the arm 85 is rocked by the eccentric arm 91 in a direction such as to move the knife blade 83 to open position. Then just prior to the completion of the feeding movement of the gear segment 56 the movement of the eccentric arm 91 is such that the knife blade 83 will start toward closing or severing position and will move completely to this position after the movement of the feed roll has stopped and the gear segment moves toward the right or in a clockwise direction to its "initial" or starting position, at which time the gear segment 56 is in a position wherein one ticket can be issued without imparting an additional clockwise movement thereto.

Reference to Fig. 2 will show that the shaft 60 upon which the feed roll 62 is mounted is provided with a splined portion with which meshes a gear 92 in turn meshing with a pinion 93 carried by the actuating shaft of a ticket metering or registering device 94 which functions to show the total number of tickets issued by the machine.

In order to prevent unauthorized operation of the machine the top plate 15 can be unlocked and removed and a small bell crank lever 95 that is pivotally supported on the wall 21 may be rocked in an anti-clockwise direction to bring its lower hooked end 96 beneath a downturned lug 69a on the plate 69 to prevent downward movement of the plate and, in turn, a depressing movement of the master key or of any one of the selective keys. When this has taken place then the top plate 15 can again be positioned upon the casing and locked thereon, wherefore unauthorized operation of the machine is prevented.

From the foregoing description it will be seen that a machine embodying the present invention is accurate in its function, can be readily operated even by an inexperienced operator and is composed of relatively few and sturdy parts, whereby the servicing or maintenance of the machine is reduced to a minimum. It will also have been seen that adequate provision is made for preventing the rotation of the feed roll in either direction when the machine is not in operation and also for preventing the overrunning of the feed roll in a feeding direction at the end of a feeding movement thereof. Likewise, the manner in which the gear 25 is mounted upon the pivoted lever 27 provides for the rotation of the main cam shaft 34 in one direction only, since should the gear 25 rotate in a clockwise direc-

tion it would merely idle with respect to the gear 33 even though the teeth of the two gears had been previously meshed by a rotation of the mutilated gear 33 to move the mutilated portion 33*a* thereof out of contact with the gear 25.

Inasmuch as the gear segment 56 in its "initial" position is always set for the issuance of one ticket without further movement thereof, the operation of the machine is speeded up and facilitated.

Although a preferred embodiment of the invention has been illustrated and described herein, it will be understood that the invention is susceptible of various modifications and adaptations within the scope of the appended claims.

Having thus described my invention, I claim:

1. In a ticket delivering machine adapted to selectively issue one or a greater number of tickets, ticket issuing and severing mechanism, actuating means for said mechanism, a master key for starting and stopping said actuating means, and a plurality of manually operable keys for controlling said master key, certain of said manually operable keys acting to limit movement of said actuating means while another of said keys merely operates the master key without limiting movement of the actuating means, wherefore when this latter key is operated said actuating means will have its maximum movement for actuating said mechanism to deliver the maximum number of tickets within the capacity of the machine.

2. In a ticket delivering machine adapted to selectively issue one or a greater number of tickets, ticket issuing and severing mechanism, actuating means for said mechanism, selective manually operable keys for limiting movement of said actuating means, a master key controlled by said selective keys and adapted to start and stop said actuating means, and means for driving said actuating means, said actuating means including a pivoted lever having a gear segment formed thereon and an arcuate recessed portion associated therewith provided with a stop shoulder, said selective keys being adapted when depressed to extend into said recess to engage said shoulder to limit movement of said lever and gear segment, said arcuate recessed portion of said lever being provided with a tapered head whereby if a key for a lesser number of tickets is accidentally depressed after a key for a larger number of tickets has been depressed and the machine set in operation the movement of said lever in a ticket feeding direction will act to elevate the key which has been accidentally depressed without interfering with the operation of the machine.

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