May 26, 1936. R. H. HELSEL 2,041,831

TICKET ISSUING MACHINE

Filed June 30, 1932 4 Sheets-Sheet 1

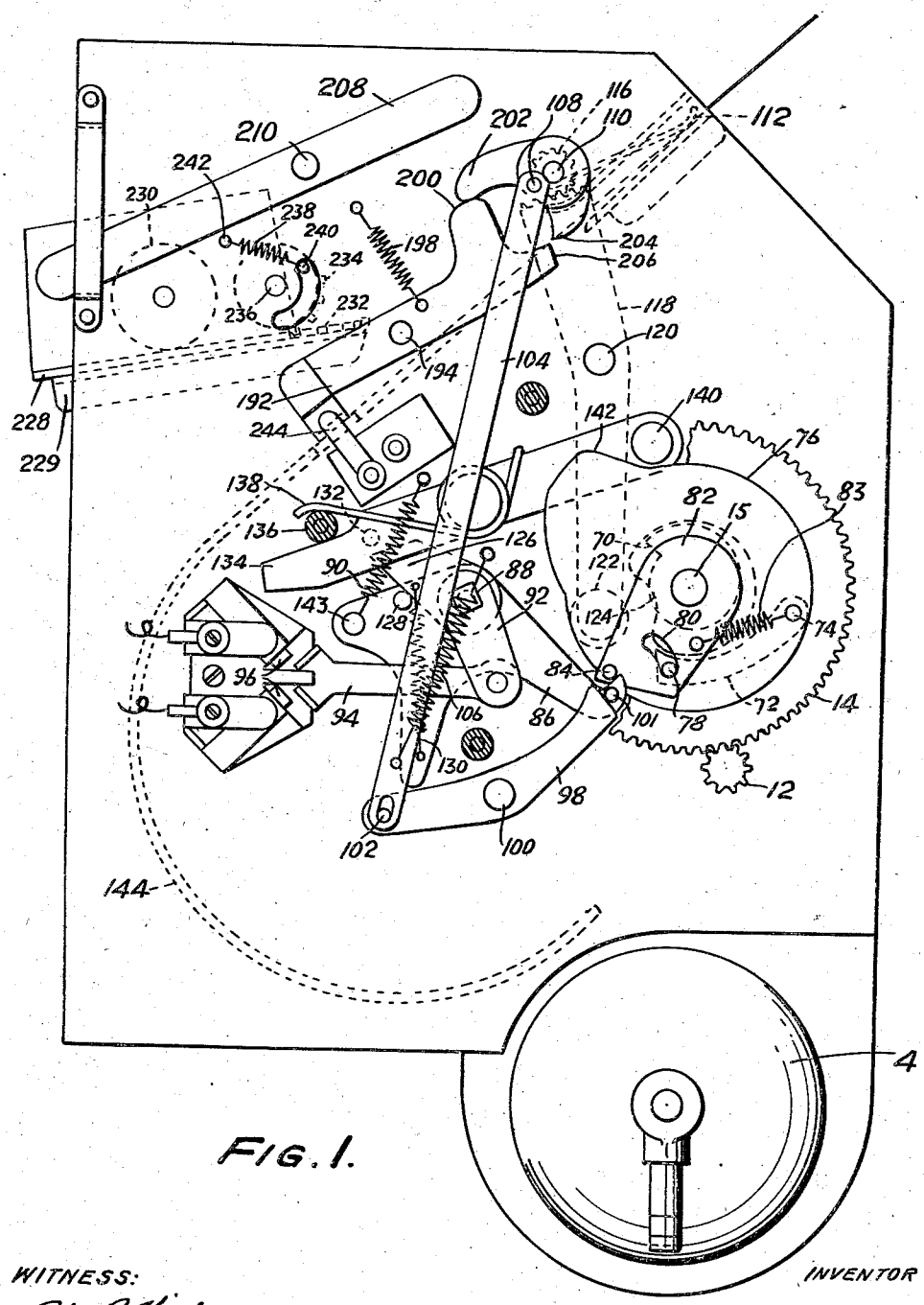


FIG. 1.

WITNESS:

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TICKET ISSUING MACHINE

Filed June 30, 1932 4 Sheets-Sheet 2

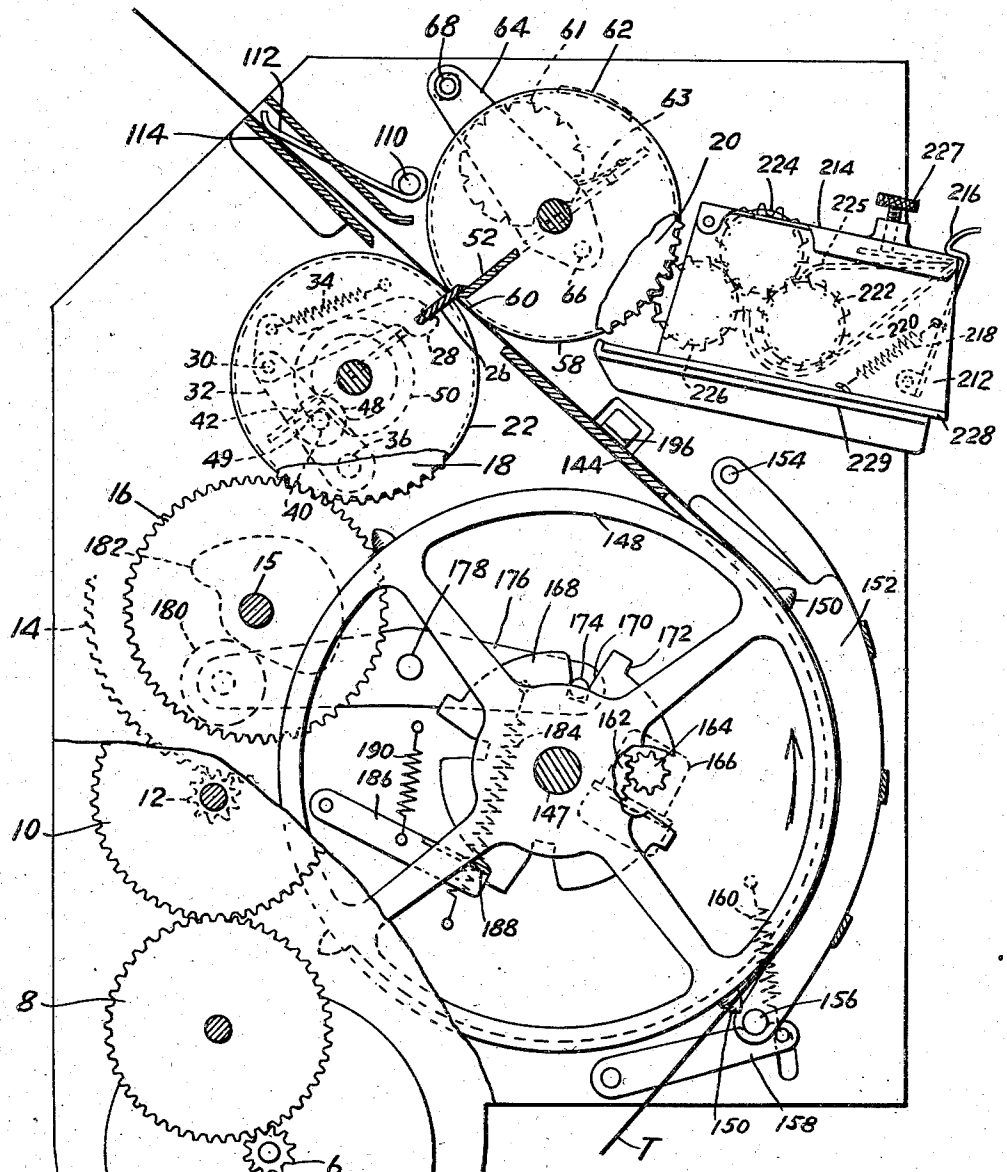


FIG. 2.

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TICKET ISSUING MACHINE

Filed June 30, 1932 4 Sheets-Sheet 3

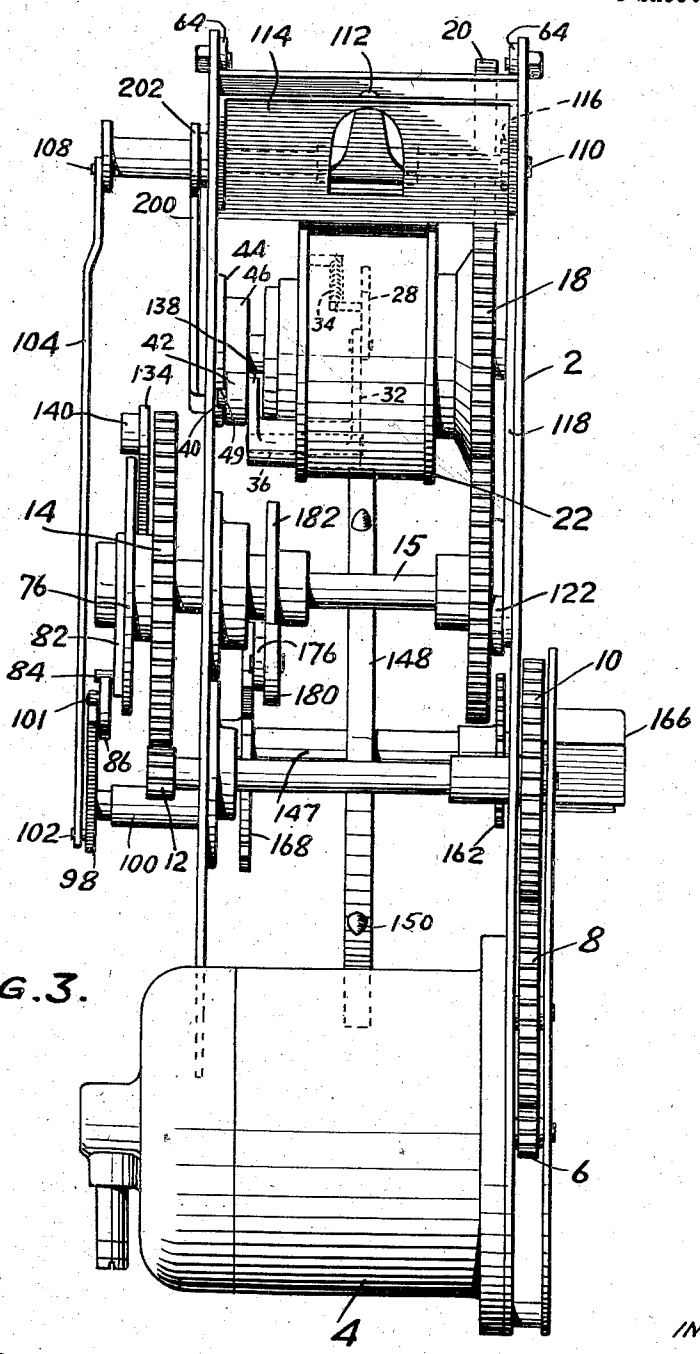


FIG. 3.

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May 26, 1936. R. H. HELSEL 2,041,831

TICKET ISSUING MACHINE

Filed June 30, 1932 4 Sheets-Sheet 4

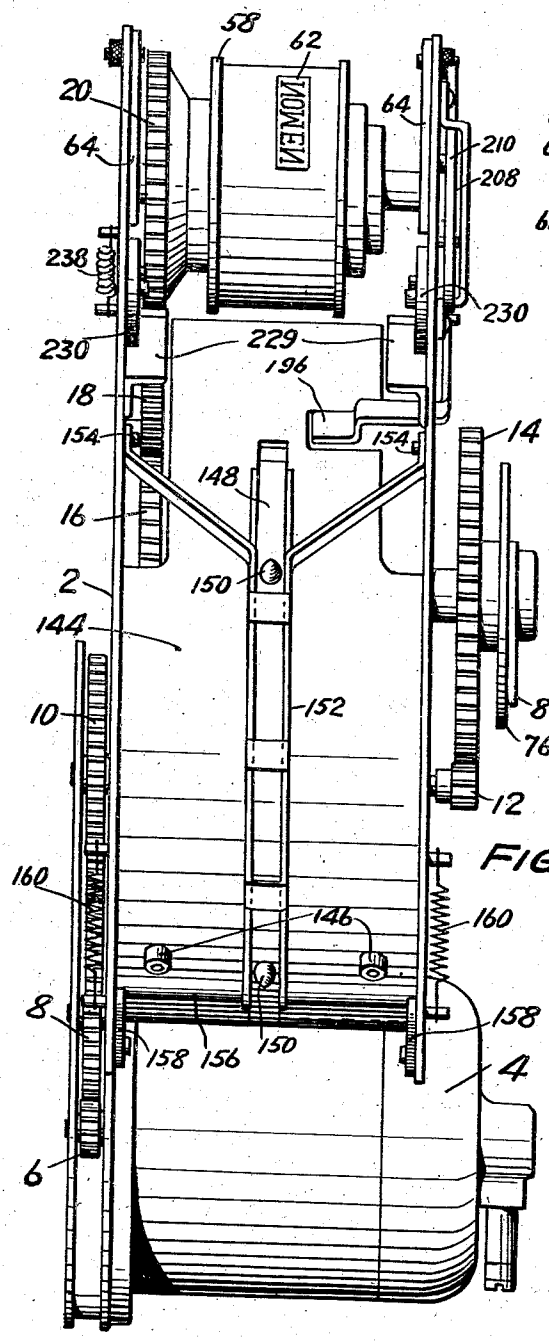


FIG. 4.

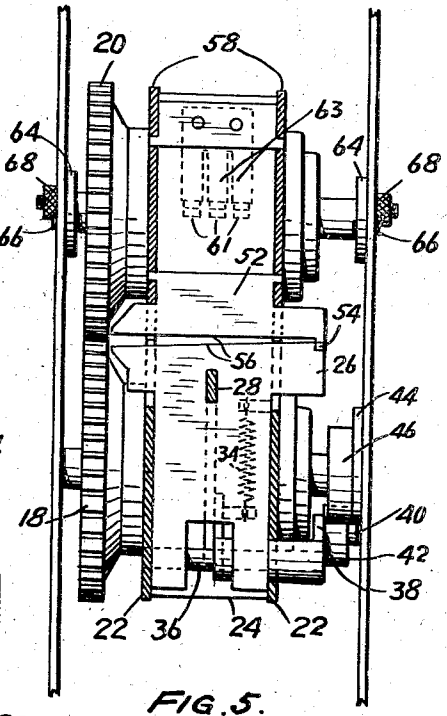


FIG. 5.

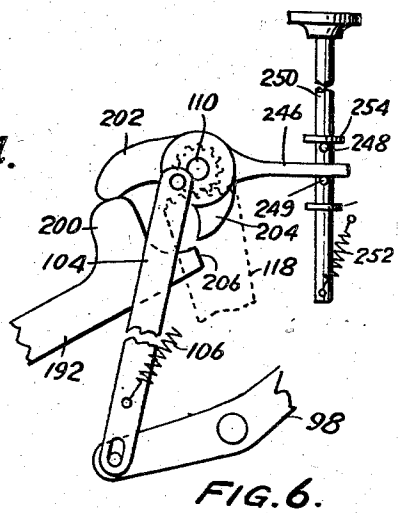


FIG. 6.

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Patented May 26, 1936 2,041,831

UNITED STATES PATENT OFFICE

2,041,831

TICKET ISSUING MACHINE

Reuben H. Helsel, Long Island City, N. Y., assignor to General Register Corporation, Brooklyn, N. Y., a corporation of Pennsylvania

Application June 30, 1932, Serial No. 620,091

18 Claims. (Cl. 101—288)

This invention relates to a ticket issuing machine and more particularly a machine which will print certain matter upon tickets prior to their issuance, the machine being especially adapted to issue transfers, restaurant checks, or the like.

It is generally desirable that transfers or other vehicle tickets, or restaurant checks, or the like, be dated; this in the former case being necessary to insure that the tickets are used on the proper date and in the latter case being primarily for check-up purposes. In the case of transfers or tickets used in vehicles it is also desirable to indicate destinations or the transfer points, or the like, or to print other matter thereon.

It is a broad object of the present invention to provide a machine of the general character indicated above which will print certain matter such as dates, or the like, on tickets which, in general, have been partially preprinted. In such a machine it is necessary that the printing mechanism act on the tickets at points bearing a definite relationship to the matter already printed thereon; or in cases where the tickets do not contain preprinted matter, if they are issued from a perforated strip, it is necessary that the printing occur in some definite relationship to the perforations. The machine of the present invention provides means for properly aligning a ticket strip with the printing mechanism to secure a proper relationship between the type and the strip.

It is a further object of the invention to provide an improved controlling mechanism in a ticket issuing machine which is of a simple character and for the major part standard so that it is adapted to machines either of a type issuing a ticket upon the depression of a key, or of a type which will issue a new ticket or check when one is withdrawn manually from the machine. By the adoption of a mechanism which may be readily adapted to either form of machine with minor changes, it is obviously possible to secure a relatively inexpensive product by reason of the increased volume of production of identical parts.

Another notable object of the present invention is the provision of a new severing mechanism of very effective character to accurately and properly sever individual tickets or checks from a strip.

Another object of the invention relates to the provision of an inking device which will be semi-automatically properly located relative to a printing roller irrespective of carelessness on the part of an employee who may insert the inking device after replacement of the supply of ink, adjustment, or the like. It frequently happens in devices of this sort that employees are careless in replacing parts of the machine which may require periodic removals such as an ink supplying device. In the present design proper location of the device is substantially insured although its removal is very readily effected.

Other objects of the invention relating primarily to details of construction will become apparent from the following description read in conjunction with the accompanying drawings in which:

Fig. 1 is a side elevation with certain parts in section of the lefthand side of one form of the improved machine;

Fig. 2 is a section taken in general inside the righthand side plate of the machine, certain of the parts being broken away for clearness;

Fig. 3 is a front elevation of the machine partly in section and with certain parts omitted or broken away to better reveal details;

Fig. 4 is a rear elevation of the machine;

Fig. 5 is a sectional view illustrating primarily the knife arrangement and actuating mechanism; and

Fig. 6 is a diagrammatic elevation of a modified key operated mechanism.

Referring first to the modification of Figs. 1 to 5, the machine comprises a suitable supporting frame consisting primarily of side plates and connecting members to furnish mountings for the various elements. A motor 4 mounted in the lower portion of the frame drives through pinions 6, 8 and 10, a transverse shaft extending across the machine, which in turn, carries a pinion 12 meshing with a gear 14. The gear 14 is journalled so as to be freely movable on the shaft 15 with which it is clutched by mechanism which will be hereafter described. It may, in passing, be stated that this gear carries a ratchet element 70 engageable with a pawl 72 to drive the shaft 15. Shaft 15 carries a gear 16 meshing with a gear 18 which, in turn, meshes with a gear 20. The last two gears are together with suitable feeding, printing and cutting elements mounted upon shafts, the shaft of gear 18 being fixed in the frame while that of gear 20 is adjustable relatively to the frame in a manner hereafter pointed out.

The shaft of the gear 18 carries a feed wheel or roller including feeding flanges 22 between which is a cylindrical platen surface designed to form a backing for the material to be printed, this platen surface being substantially continuous

except where interrupted for the passage of the movable knife 26. This knife which is guided for substantially radial movement has some lateral play, the opening in the feed wheel being larger than the thickness of the blade. It is engaged by the forked end of a link 28 which is pivoted at 30 to an arm 32 and is yieldingly urged by a tension spring 34 to tend to force the knife 26 outwardly and against the cooperating fixed blade 52 as illustrated in Fig. 2.

The arm 32 is carried by a shaft 36 extending outwardly through one of the flanges 22 and carrying an arm 38, the free end of which carries a pin 40 on which is journalled a roller 42. Cams 44 and 46 fixed to the frame of the machine respectively cooperate with the outer end of the pin 40 and the roller 42. The cam 46 is provided with a depression 48 into which the roller 42 may drop. Corresponding with this depression there is a sharp notch 49 in the cam 44. Through the greater part of the revolution of the lower feed roller the roller 48 engages a concentric portion of the cam 46, the parts being so proportioned that during such engagement the pin 40 is held out of contact with the concentric surface 50 the cam 44. Friction is thereby reduced and a free movement secured. As the roller 42 begins to drop into the depression 48, however, the pin 40 engages the cam 44 and slides on the surface thereof for a small part of the revolution until it is finally released by coming to the position of the notch 49. The spring 34 then causes the pin 40 and roller 42 to drop sharply inwardly causing the severance of the ticket strip by the knife. The arrangement just described is adopted since using the roller alone the necessary sharp cutting movement could not be attained. By the use of both a roller and pin so related in the manner indicated friction is reduced and at the same time a quick cutting movement of the knife is secured. Upon the next movement of the feed roller the pin rises relatively rapidly to a position where it is held clear of the concentric surface 50 by reason of engagement of the concentric portion of cam 46 by the roller 42.

A fixed knife 52 carried by the upper feed roller is provided with a short side extension 54 which engages the moving knife as the two knives come into position prior to the cutting movement of the knife 26. As indicated above, the movable knife has some lateral play. The knives are so related that by reason of this lateral play the fixed knife tends to hold the movable knife slightly in a counterclockwise position from that which it would assume if freely moved under the action of spring 34. It will thus be seen that spring 34 not only serves to cause the knife 26 to move outwardly but also serves to bring the knives into engagement to insure that the cutting edges properly coact. From Fig. 5 it will be noticed that the cutting edges 56 converge to one side so that cutting takes place progressively across the strip.

The upper roller is provided with feed flanges 58 in alignment with the flanges 22 and so located that the ticket strip will be grasped between them and thereby progressed outwardly of the machine. The flanges 58 are concentric for the greater portion of the circumference but are cut away at 60 adjacent the fixed knife. The flanges 22 may also be cut away at this same position although this is unnecessary since the cutaway portion of either set of flanges will serve to release the ticket strip so that it is stationary when cutting takes place.

While the printing members carried by the upper roller may take any desired form, there is shown in the present instance a dating head 61 journalled between the flanges 58 and consisting of a plurality of parts adapted to be manually turned to present different combinations of printing surfaces to denote various dates. Springs 63 act as detents to hold the movable elements in desired positions. Besides this dating head the roller carries a printing plate 62 on a concentric surface which plate may contain, for example, an indication of a destination, if the machine is being used for issuing transfers or the like. Under certain conditions this plate might contain an advertisement which might be changed from day to day in case the machine were being used to issue restaurant checks. Instead of a dating head a numbering head may be used, provision being made so that the numbering head is advanced upon each revolution of the machine, for example, by contact of an arm thereon with a fixed part of the machine.

The studs which carry the upper roller and gear 20 are journalled in levers 64 which are pivoted on pins 66 carried by the side plates of the machine frame. The levers at their free ends are provided with outwardly extending threaded studs projecting through arcuate slots in the side plates and adapted to receive knurled nuts 68 which may be tightened to clamp the levers against the side plates. By adjusting the positions of the levers the necessary relative positioning of the two feed rollers may be secured to obtain both proper feeding and proper printing.

As already stated the gear 14 which is journalled upon the shaft 15 carries a ratchet 70 which may be provided with one or more teeth. This ratchet is designed to engage a pawl 72 pivoted at 74 to a cam 76 secured to the shaft 15 which cam forms a supporting plate for the pawl. A pin 78 carried by the pawl at its free end extends outwardly through a cam slot 80 formed in a member 82 which is journalled upon the shaft 15 and urged in a counterclockwise direction relatively to the cam 76 by a spring reacting between it and the cam. An outwardly extending pin 84 carried by the member 82 is engageable by the hooked end of a lever 86 journalled on a shaft 88 pivoted in the side plates. The lever 86 is urged in a clockwise direction, as viewed in Fig. 1 by a spring 90.

Opposing this action of the spring is a lever 98 pivoted at 100 to the side plate and having one end engageable with a pin 101 carried by the lever 86 and carrying at its other end a link 104 which is urged into a raised position by a spring 106 reacting between it and the frame.

Secured to the shaft 88 is an arm 92 to which is pivoted the switch member 94 adapted to bridge the contacts 96 and thereby close the circuit through the motor 4.

The upper end of the link 104 is pivoted at 108 to a crank disc carried at the outer end of a shaft 110. The shaft 110 is provided with a finger 112 arranged to rest upon a ticket which in the present machine is arranged to be taken manually therefrom, the finger 112 tending to maintain the ticket in engagement with the lower plate 114 of a ticket guide, the plate 114 being cut away beneath the finger 112 so that if the ticket which is presented is removed, the finger will drop below the plane of the plate 114 permitting the shaft 110 to be rocked under the action of spring 106.

A pinion 116 carried by the shaft 110 meshes with teeth formed on the upper end of the lever 118 which is pivoted at 120 to the frame and at its lower end carries a cam following roller 122 engageable with a cam 124 secured to the shaft 15.

A lever 126 is secured to shaft 88 which, as stated above, also carries arm 92. A spring 130 reacting between lever 126 and the lever 86 holds lever 126 in contact with a stop pin 128 carried by 86. This lever 126 is adapted to coact, as will be hereafter pointed out, with a pin 132 carried by a lever 134 pivoted at its central portion to the frame and urged in a clockwise direction, as viewed in Fig. 1, to a limiting position in contact with the post 136 by means of a spiral spring 138. A cam following roller 140 carried by the forward end of the lever 134 is engageable by a projection 142 on the periphery of the cam 76 which, as has been already mentioned, is secured to shaft 15. The lever 134 is adapted to engage a pin 143 carried by lever 86, this pin being the terminal post for spring 90.

The check or ticket strip T is fed upwardly to the machine from a suitable reel or folded supply and passes over a guiding plate 144 being held in proper lateral position by rollers 146 carried by the plate 144 which are closely adjacent its edges. Carried by a shaft 147 pivoted in the side plates is a pinwheel 148 provided with a plurality of pins 150 on its periphery. These pins are spaced circumferentially the length of a ticket, the arc of contact of the ticket strip with the pinwheel and guide plate 144 being such that two of the pins at all times engage holes in the ticket strip. A member 152 having two arcuate flanges is pivoted at 154 to the side plates and is arranged to rest upon the ticket strip to maintain the same in engagement with the pinwheel and guide plate. The member 152 at its lower end carries a transverse pin 156 which engages within shallow notches in levers 158 pivoted to the side plate and urged upwardly by springs 160. By reason of this arrangement the member 152 is yieldingly held in its effective position. A slight pull suffices to free it from the latch levers 158 so that the surfaces of the pinwheel and guide plate are cleared to permit the placing of a ticket strip in position.

A gear 162 meshes with a pinion 164 carried by the shaft of a counter 166. If the counter is of the usual variety in which a single revolution of the counter shaft produces a unit change, then the ratio between the gear and pinion is 4:1. Accordingly the issuance of a ticket is registered upon each quarter revolution of the pinwheel.

A retaining and aligning disc 168 is secured to the shaft 147 to insure proper alignment of the pinwheel in a manner which will be hereafter more fully pointed out. The disc 168 is provided with four tapered notches as indicated at 170 and is also provided with four shoulders 172. A pin 174 carried by a lever 176 pivoted at 178 is arranged to engage within the notches, the movements of this lever being controlled by the provision of a cam following roller 180 thereon which engages a cam 182 secured to shaft 15, the roller 180 being held in engagement with the periphery of the cam by a spring 184.

A lever 186 normally urged in a counterclockwise direction, as viewed in Fig. 2, by a spring 190, is provided with a laterally turned flange 188 adapted to engage behind the shoulders 172 and thereby prevent reverse movement of the pinwheel from its proper static position.

A lever 192 pivoted at 194 to the frame is provided with a laterally extending finger 196 located opposite an opening in plate 144 into which it is adapted to drop under the action of spring 198 when no ticket strip is passing beneath it. The spring 198 is a relatively light one so that while the finger 196 rests upon the ticket strip it will not substantially distort the same even though the ticket stock is of quite light weight. The lever 192 is provided with a projecting portion 200 engageable by a finger 202 carried by the shaft 110 to which the tripping finger 112 is secured. The shaft 110 also carries, as the other arm of lever 202, an arm 204 which is engageable under certain conditions with the end 206 of the lever 192.

A lever 208, pivoted at 210 to the frame and normally occupying the position shown by reason of the preponderance of weight of its rearwardly extending arm over its forwardly extending arm, is arranged to engage the arm 202. This lever extends rearwardly beyond the frame of the machine so as to provide a portion which may be engaged and lifted by an operator.

The inking device for the machine comprises a housing 212 having a cover 214 normally held closed by a hook latch 216 urged to latching position by a tension spring 218. A well 220 containing ink is carried by the housing. A roller 222 journalled in the housing is partially submerged in the ink in the well. This roller makes surface contact with an intermediate roller 224 which, in turn, makes surface contact with the ink applying roller 226, the latter being engageable by the type on the type drum to ink the same upon each revolution thereof. A train of gearing driven by gear 20 serves to rotate the various rolls in the inker. To prevent a transfer of excess ink to the intermediate roll from the roll 222, a scraper 225 in the form of a blade pivoted to the frame is urged to engage with the roller by a set screw 227 threaded into the cover 214.

The inker housing is provided with laterally extending flanges 228 which are designed to move between rails 229 and rollers 230 pivoted to the side plates as indicated most clearly in Figs. 1 and 4. The inner end of one of the flanges 228 is provided with openings forming, in effect, a rack engageable by the teeth 234 of a gear segment pivoted at 236 to one of the side plates and provided with a pin 240 between which and a fixed pin 242 there reacts a tension spring 238. As shown in Fig. 1, in which the inker is illustrated as in its operative position the spring 238 lies on the upper side of the shaft 236 so that it is urging the pinion segment 234 in a counterclockwise direction tending to move the inker further inwardly to engage the inking roll 226 with the type. It will be obvious that a limited movement of the inker outwardly will be yieldingly resisted by the spring 238, and until the spring 238 is brought across the axis of the shaft 236 the segment 234 will be effective to return the inker to its active position. As illustrated it will be seen that a substantial movement of the inker outwardly will be required before this restoring effect is destroyed. On the other hand, if the inker is to be removed, it may be pulled outwardly along the rails 229 whereupon the spring 238 will pass to the other side of the axis of 236 with the result that the segment will be waiting to receive the inker when it is next

inserted in the machine and will then properly mesh with the rack formed at 232. If, therefore, a careless operator puts the inker in the machine, so long as he moves it to practically its proper position the remainder of the movement will be automatically effected by the action of the spring 238. This is particularly desirable since, in general, if the inker is removed the gear secured to the roller 226 may not mesh with the gear 220; that is, the ends of the teeth may engage. In such case the inker would not move fully to its proper position. As soon as, however, the gear starts rotating relative slippage will occur and the gears will be brought into proper position to mesh. Thereupon the spring 238 will automatically complete the mesh and bring the inking roller into its proper operative position.

The structure of the modification of the machine shown in Figs. 1 to 5 having now been briefly described the operation thereof will be rather obvious. The various views, except Fig. 5, illustrate the parts in their static positions. The ticket strip passes upwardly about the pinwheel with its forward end at the line of cutting, the knife blades being closed. At this time the feeding flanges do not engage the ticket strip by reason of the fact that the cutaway portion 60 of one of them is adjacent the other. An already severed ticket or check projects outwardly from between the guide plates and has resting thereon the finger 112 holding the same in upward position. The finger 196 also rests on the strip in advance of the feed rollers.

The pin 174 of lever 176 is located within one of the tapering notches 170 so as to hold the pinwheel in fixed position. By reason of the fact that the finger 112 engages a ticket which projects from the machine the link 104 is in lowered position so that the end of the lever 98 engaging the pin 101 holds the hook of lever 86 in position engaging the pin 84 carried by the clutch element 82, which, being restrained, thereby maintains the pawl 72 out of the path of the ratchet tooth 70. The position of lever 86 also insures that the switch 96 is open since the engagement of lever 126 with pin 128 under the action of spring 130 draws the shaft 88 in a counterclockwise direction as viewed in Fig. 1.

Upon removal of the ticket or check which is presented by the machine, the finger 112 moves downwardly thus permitting the shaft 110 to rock in a clockwise direction, as viewed in Fig. 1, under the action of spring 106. As soon as this takes place lever 98 disengages pin 101 and lever 86 rocks in a clockwise direction under the action of spring 90, which, it may be noted, is not opposed by spring 136, releasing pin 84 and at the same time causing closure of the switch to start the motor by moving the shaft 88 by the engagement of pin 128 with arm 126 which may pass the pin 132 inasmuch as the lever 134 occupies its extreme clockwise position. Disengagement of the pin 84 by the hook of lever 86 permits the spring 83 to move the plate 82 so as to force the pawl 72 inwardly into the path of the tooth 70. As the tooth 70 comes around due to the fact that it is driven from the motor through reduction gearing, it engages the pawl 72 and thereby imparts rotation to the shaft 15. It may be noted that at this time the depression of the cam 124 is opposite the roller 122 so that the roller may move inwardly as the finger 112 drops.

As the shaft 15 revolves it imparts rotation to the upper and lower feed rollers. In the initial part of their movement they do not cause a feeding of the ticket strip inasmuch as the cutaway portion of one of them is adjacent the ticket strip as has already been pointed out. As soon, however, as the circular portions of the flanges 58 come into feeding position the ticket strip will be advanced. Since initially the movable knife is in its projected position as the rollers start to move it still remains in this position. The movable blade is yieldingly urged against the other blade by the action of the spring 34. The projection 54, as rotation takes place, tends to push the movable blade against the tension of spring 34 inasmuch as the projection extends beyond the periphery of the feeding flanges 58. By reason of this action as soon as motion takes place the movable blade is disengaged from the cutting edge of the fixed blade. The projection 54 thus not only serves the useful purpose of properly guiding the movable blade relatively to the fixed blade but also prevents wear on the cutting edge of the fixed blade which would ordinarily occur if the fixed blade were required to push the movable blade as rotation started. This is an important function of the projection 54 and plays a considerable part in insuring a long life and proper action of the blades in cutting the ticket strip. As the rotation proceeds the roller 42 rises on the periphery of the cam 46 withdrawing the movable blade. When withdrawal is effected the pin 40 is disengaged from the cam 44 during the major portion of the feeding revolution so that there is no substantial drag hindering the rotation, the rolling contact of the roller 42 on the cam 46 producing very little friction.

Prior to clamping engagement of the ticket strip by the feeding flanges the pinwheel is released for movement. This is effected by the action of cam 182 upon the roller 180 to withdraw the pin 174 from a notch 170 to a position beyond the outermost portion of the plate 168. Accidental reversal of the pinwheel which might cause the ticket strip to withdraw sufficiently so that it would not be engaged by the feeding flange is prevented by the action of the pawl 188 engaging the shoulder 172 which, though permitting a forward movement of the pinwheel, prevents its reversal. The pinwheel, it may be noted, is not positively driven except for the control which will be hereafter noted, but is moved by the ticket strip T as the strip is positively fed by the flanges 22 and 58. A controlling tension upon the ticket strip is produced by the member 152 which yieldingly engages the strip where it extends in an arc over the surface 144.

When a portion of the ticket strip extends below the finger 196 this finger is prevented from moving downwardly. Accordingly when the finger 112 drops the projection 204 moves over the end 206 of the lever 192.

A single revolution of the shaft 15 produces a single revolution of each of the feed rollers to advance the ticket strip approximately one ticket length. The adjustment is preferably such that the feed of the ticket strip is quite accurately one ticket length, and, in fact, with a properly constructed machine the deviation of the feed from this is very slight. However, the engagement of the flanges 22 and 58 with the ticket strip is frictional and if no adjusting means were provided any slight error in the length of feed would be cumulative until eventually the cutting of the tickets from the strip would occur not on the proper line but even midway of a single ticket, it being remembered, as pointed out above, that the

ticket strip in this machine is supposed to be preprinted. Preferably, a single rotation of the feedwheels will impart an advance to the ticket strip very slightly less rather than greater than a ticket length. When the ticket is released by the feed wheels by reason of the fact that the flattened portions of the flanges 58 are brought into opposition with the ticket, roller 180 drops off the peripheral portion of the cam 182 of greater radius into a depression in this cam. The pin 174 will thereupon enter a tapered notch 170 moving into its inner constricted portion and thereby causing a slight angular movement of the pin wheel which will impart a corrective adjusting movement to the ticket strip. Of course, the feed by the feedwheels will be sufficiently accurate to insure that the pin 174 will come opposite one of the tapered notches so as to fall thereinto. A proper accurate alignment of the ticket strip prior to cutting is thus assured. As the rotation of the feed wheels nears its end, the roller 42 first enters the depression in cam 46 whereupon the pin 40 will engage the cam 44. As the proper position for cutting is reached the pin 40 drops sharply into the depression of the cam 44 thus causing a sharp outward movement of the knife 26 to sever the ticket strip, the movement taking place by reason of the action of the spring 34 which also serves to hold the knife in proper close cutting engagement.

In order to permit the ticket strip to advance freely without drag due to the fingers 112 and 196, prior to the advance of the strip and immediately after the shaft 15 starts to rotate, lever 118 is rocked by the engagement of roller 122 by the high part of the cam 124 which causes a rocking of the shaft 110 to raise the finger 112 and also raise the finger 196 by reason of the engagement of 202 with projection 200 of lever 192. When the fingers are maintained in such raised positions the pin 101 overlies the lever 98 so that the pin 102 will rest in the upper end of the slot in the link 104, the slot being provided to permit this condition.

As the end of the cycle of revolution of shaft 15 approaches, the high part of the cam 142 engages roller 140 causing a rocking of lever 134 in a counterclockwise direction as viewed in Fig. 1. Inasmuch as the lever 86 now occupies an extreme clockwise position determined by the engagement of the switch contacts 96 by the switch member 94, the pin 132 may move downwardly to the left of lever 126. As a counterclockwise movement of the lever 134 proceeds it engages the pin 143 and rocks the lever 86 in a counterclockwise direction to bring the hook thereof into the path of the pin 84. In view of the fact that the pin 132 lies to the left of lever 126 the shaft 88 is prevented from rocking counterclockwise so that the switch remains closed and the motor energized. As soon as the pin 101 moves beyond the extremity of the lever 98 the lever rocks by reason of the preponderance of weight of its lefthand end swinging upwardly behind pin 101 and preventing any movement of lever 86 clockwise when the lever 134 is withdrawn from contact with pin 143. As the rotation proceeds the pin 84 is arrested with the result that the continued movement of shaft 15 disengages the pawl 72 from the driving tooth 70. The shaft 15 therefore eventually comes into a position of rest even though the gear 14 and the tooth 70 continue to overrun. As the end of the revolution is approached the roller 140 drops off the high part of the cam 142 whereupon the lever 134 rocks in a clockwise direction under the action of spring 138. When the pin 132 clears the lever 126 spring 130 causes a counterclockwise movement of shaft 88 and the circuit through the motor is opened. The motor will then in due course come to rest. Its overrun, however, does not affect the position of any of the parts as will be obvious.

As the end of the cycle is reached the cam following roller 122 will tend to drop into the hollow in the cam 124. The fingers 196 and 112 will thereupon drop upon the ticket strip and severed ticket respectively. The cycle of operation is thus completed all of the parts being brought into their initial positions. A ticket printed by the printing roller is presented for subsequent removal.

In case the supply of ticket strip is exhausted the finger 196 will not be held up by the ticket strip after a ticket is withdrawn from beneath the finger 112. As the finger 112 drops the arm 202 will move in clockwise direction permitting the lever 192 to move in a counterclockwise direction. Before 204 moves to a position to pass over the end 206 of the lever 192 the end 206 will have moved into its path arresting movement of shaft 110 and thereby preventing release of 82 or closure of the switch so that the machine will not operate. To thread into the machine a new ticket strip it is then only necessary to lift 152 and to rock the lever 208 so that it will engage 202 and thereby raise both of the fingers 112 and 192, the raising of the latter permitting the movement of the ticket strip to a position engaging the closed knives. As soon thereafter as the lever 208 is released the finger 112 will drop beneath the guiding plate with the result that the machine will operate through one cycle to present another ticket.

It is desirable to have some indication other than the failure of operation of the machine when the supply of ticket strip is exhausted. To this end a contact finger 244 is provided engageable by the arm 192 when it drops due to the absence of supply. A suitable bell or the like may be connected in circuit with a source of power including the contact 244 and the frame of the machine to which, of course, the lever 192 is grounded by its pivotal connection.

The machine which has just been described is adapted to operate when a ticket is withdrawn. The mechanism in general, however, is readily applicable to machines in which single tickets are issued upon depression of keys. To illustrate the modification of the mechanism to adapt it for such machines there is illustrated diagrammatically in Fig. 6 certain changes involving new connections to the parts already described in the other modification, the parts corresponding to those already described being similarly numbered.

In a machine of the key operated type the finger 112 is of course omitted. In this machine, in addition to the other elements carried by the shaft 110 there is secured to the shaft an arm 246 projecting between pins 248 and 249 carried by a key plunger 250, mounted for sliding vertical movement in the frame of the machine, this plunger being mounted by the usual type of key. A spring 252 holds this plunger in its uppermost position. The spring 252 is effectively stronger than the spring 106 so that the shaft 110 will occupy a position determined by the engagement of the pin 249 with the arm 246 when the plunger is in its uppermost position

which may be determined, for example, by the engagement of the pin 248 with a suitable stop 254.

It will be obvious that the operation of the mechanism of Fig. 6 which, except for the modifications disclosed therein, corresponds to the mechanism previously described and will be substantially identical with that of the other mechanism except so far as depression of the key effects the initiation of a cycle of operation rather than the dropping of the finger 112.

From the comparison of the two types of machines it will be seen that there is very little difference between them and accordingly production of either machine is much cheapened by the fact that most of the parts may be produced in large quantities corresponding to the total number of machines of both types demanded.

The clutch disclosed in the present application is of the type described and claimed in my application, Serial No. 495,026, filed November 12, 1930. The switch is of the type disclosed in my prior application, Serial No 459,625, filed June 7, 1930. It will be obvious that the clutch may be replaced by other types of one revolution clutch mechanisms and further that the switch may be replaced by any other suitable type of switch.

It will also be clear that numerous other changes may be made in the machine without departing from the spirit of the invention as defined in the following claims.

What I claim and desire to protect by Letters Patent is:

1. A ticket issuing machine including means for feeding a ticket strip, said means including a plurality of rotary feeding members arranged to engage opposite sides of the strip, and knives rotatable with the members and adapted to cooperate with each other to sever the strip, one of the knives being radially movable, said rotary feeding members being inactive to feed the strip during the severing action whereby the strip is severed while stationary.

2. A ticket issuing machine including means for feeding a ticket strip, said means including a plurality of rotary feeding members arranged to engage opposite sides of the strip, and knives rotatable with the members and adapted to cooperate with each other to sever the strip, one of the knives being radially movable and the other being radially fixed, said rotary feeding members being inactive to feed the strip during the severing action whereby the strip is severed while stationary.

3. A ticket issuing machine including means for feeding a ticket strip, said means including a plurality of rotary feeding members arranged to engage opposite sides of the strip, knives rotatable with the members and adapted to cooperate with each other to sever the strip, one of the knives being radially movable and the other being radially fixed, and yielding means holding the knives in cutting engagement, said rotary feeding members being inactive to feed the strip during the severing action whereby the strip is severed while stationary.

4. A ticket issuing machine including means for feeding a ticket strip, said means including a plurality of rotary feeding members arranged to engage opposite sides of the strip, knives rotatable with the members and adapted to cooperate with each other to sever the strip, one of the knives being radially movable and the other being radially fixed, and yielding means holding the knives in cutting engagement, one of said knives having a portion projecting beyond the pitch line to engage the other whereby rolling of the knives about their cutting edges is prevented, said rotary feeding members being inactive to feed the strip during the severing action whereby the strip is severed while stationary.

5. A ticket issuing machine including means for feeding a ticket strip, said means including a rotary feeding member, and a knife rotatable with the member and adapted to sever the strip, said rotary feeding member being inactive to feed the strip during the severing action whereby the strip is severed while stationary.

6. A ticket issuing machine including means for feeding a ticket strip, said means including a plurality of rotary feeding members arranged to engage opposite sides of the strip, and knives rotatable with the members and adapted to cooperate with each other to sever the strip, said rotary feeding members being inactive to feed the strip during the severing action whereby the strip is severed while stationary.

7. A ticket issuing machine including means for feeding a ticket strip, said means including a plurality of rotary feeding members arranged to engage opposite sides of the strip, and knives rotatable with the members and adapted to cooperate with each other to sever the strip, said rotary feeding members being inactive to feed the strip during the severing action whereby the strip is severed while stationary, such inaction being due to an interruption of the feeding surface of at least one of the feeding members.

8. A ticket issuing machine including means for feeding a ticket strip, said means releasing the ticket strip at the end of a feeding operation, and means for adjusting the position of the strip including a pin wheel engaging openings in the strip, a member carried by the pin wheel and having tapering notches, and means adapted to enter the notches to cam the pin wheel to a predetermined position.

9. A ticket issuing machine including means for feeding a ticket strip, said means releasing the ticket strip at the end of a feeding operation, and means for adjusting the position of the strip including a pin wheel engaging openings in the strip, a member carried by the pin wheel and having tapering notches, and means adapted to enter the notches to cam the pin wheel to a predetermined position, said last means being operated to release the pin wheel prior to a feeding movement of the strip.

10. A ticket issuing machine including means for feeding a ticket strip, said means releasing the ticket strip at the end of a feeding operation, means for severing the ticket strip while released by the feeding means, and means for adjusting the position of the released strip prior to severance including a pin wheel engaging openings in the strip.

11. A ticket issuing machine including means for feeding a ticket strip, said means releasing the ticket strip at the end of a feeding operation, means for severing the ticket strip while released by the feeding means, and means for adjusting the position of the released strip prior to severance including a pin wheel engaging openings in the strip, and means for locating the pin wheel in a predetermined position.

12. A ticket issuing machine including means for feeding a ticket strip, said means including a rotary feeding member arranged to release the

ticket strip at the end of a feeding operation, a knife rotatable with the member and adapted to sever the strip while released, and means for adjusting the position of the released strip prior to severance.

13. A ticket issuing machine including means for feeding a ticket strip, said means including a rotary feeding member arranged to release the ticket strip at the end of a feeding operation, a knife rotatable with the member and adapted to sever the strip while released, and means for adjusting the position of the released strip prior to severance, including a pin wheel engaging openings in the strip, and means for locating the pin wheel in a predetermined position.

14. A ticket issuing machine comprising means for guiding a ticket strip; means for severing a ticket from the strip; means for presenting a severed check in delivering position; means for effecting a cycle of operation of the machine including a member effective upon removal of a check from delivering position to initiate a cycle of operation; and means for preventing initiation of such cycle of operation if there is no strip available to form a subsequent check, said last means including a finger arranged to engage the ticket strip; and means for disengaging said finger from the strip during feed thereof.

15. A ticket issuing machine comprising means for guiding a ticket strip; means for severing a ticket from the strip; means for presenting a severed check in delivering position; means for effecting a cycle of operation of the machine including a member engaging the strip effective upon removal of a check from delivering position to initiate a cycle of operation; and means for preventing initiation of such cycle of operation if there is no strip available to form a subsequent check, said last means including a finger arranged to engage the ticket strip; and means for disengaging said finger from the strip during feed thereof.

16. A ticket issuing machine comprising means for guiding a ticket strip; means for severing a ticket from the strip; means for presenting a severed check in delivering position; means for effecting a cycle of operation of the machine including a member engaging the strip effective upon removal of a check from delivering position to initiate a cycle of operation; and means for preventing initiation of such cycle of operation if there is no strip available to form a subsequent check, said last means including a finger arranged to engage the ticket strip; and means for disengaging both said member and said finger from the strip during feed thereof.

17. A ticket issuing machine comprising means for guiding a ticket strip; means for severing a ticket from the strip; means for presenting a severed check in delivering position; means for effecting a cycle of operation of the machine including a member engaging the strip effective upon removal of a check from delivering position to initiate a cycle of operation; and means for preventing initiation of such cycle of operation if there is no strip available to form a subsequent check, said last means including a finger arranged to engage the ticket strip; and manually operable means for disengaging both said member and said finger from the strip.

18. A ticket issuing machine including means for feeding a ticket strip, said means releasing the ticket strip at the end of a feeding operation, means for severing the ticket strip while released by the feeding means, and means for adjusting the position of the released strip prior to severance including a member engaging openings in the strip and arranged to be moved by the strip during a feeding operation and to move and thereby adjust the released strip prior to severance.

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