

Oct. 29, 1940.

R. H. HELSEL

2,219,650

TICKET ISSUING MACHINE

Filed Aug. 16, 1938

3 Sheets-Sheet 1

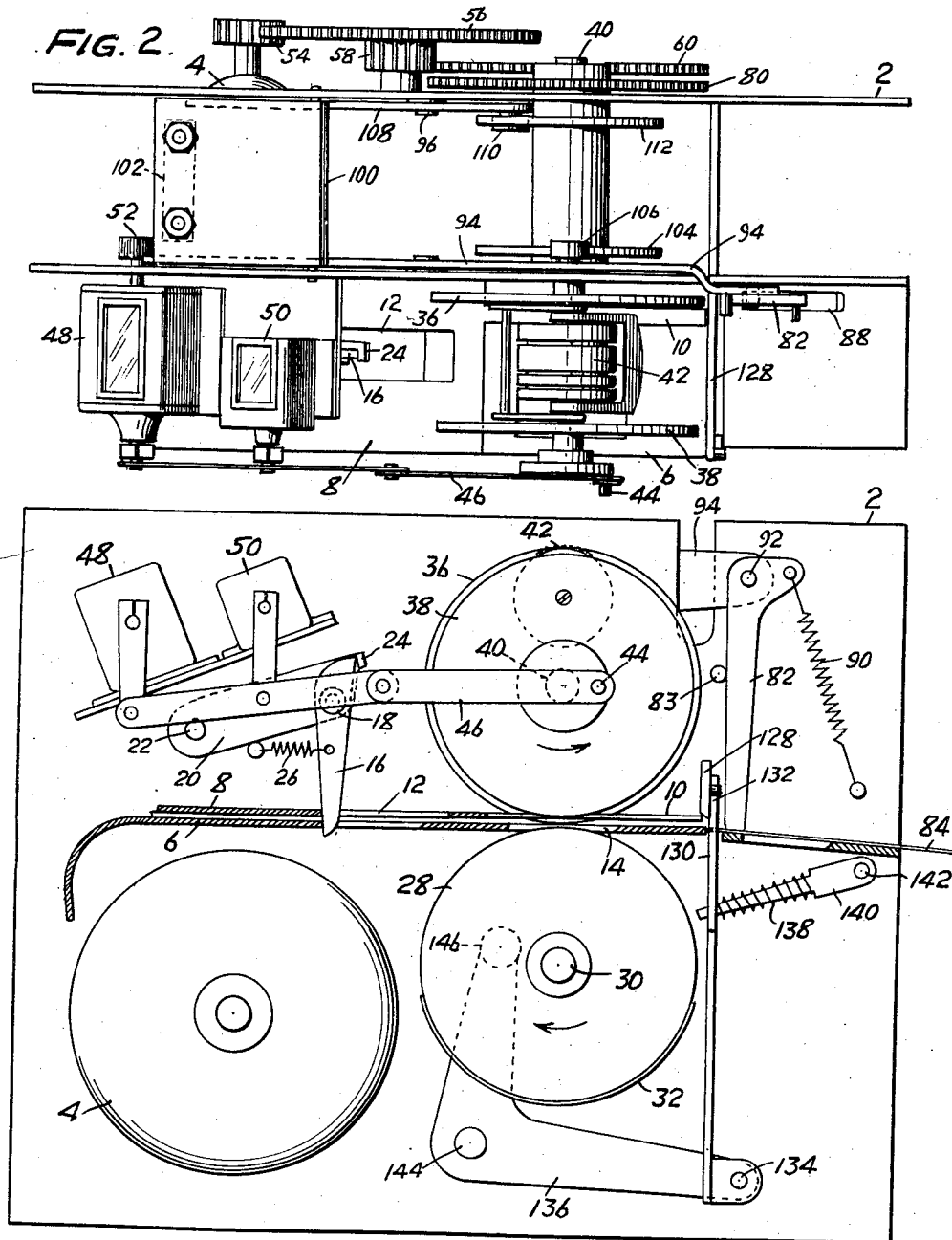


FIG. 1.

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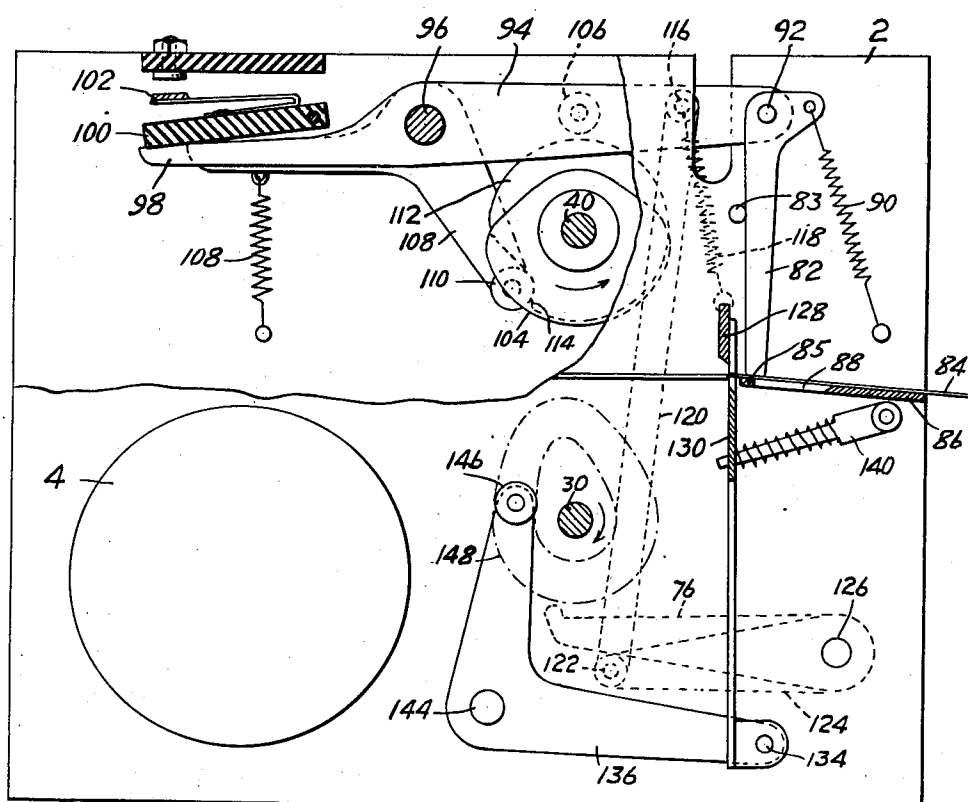
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3 Sheets-Sheet 2

FIG. 3.



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TICKET ISSUING MACHINE

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3 Sheets-Sheet 3

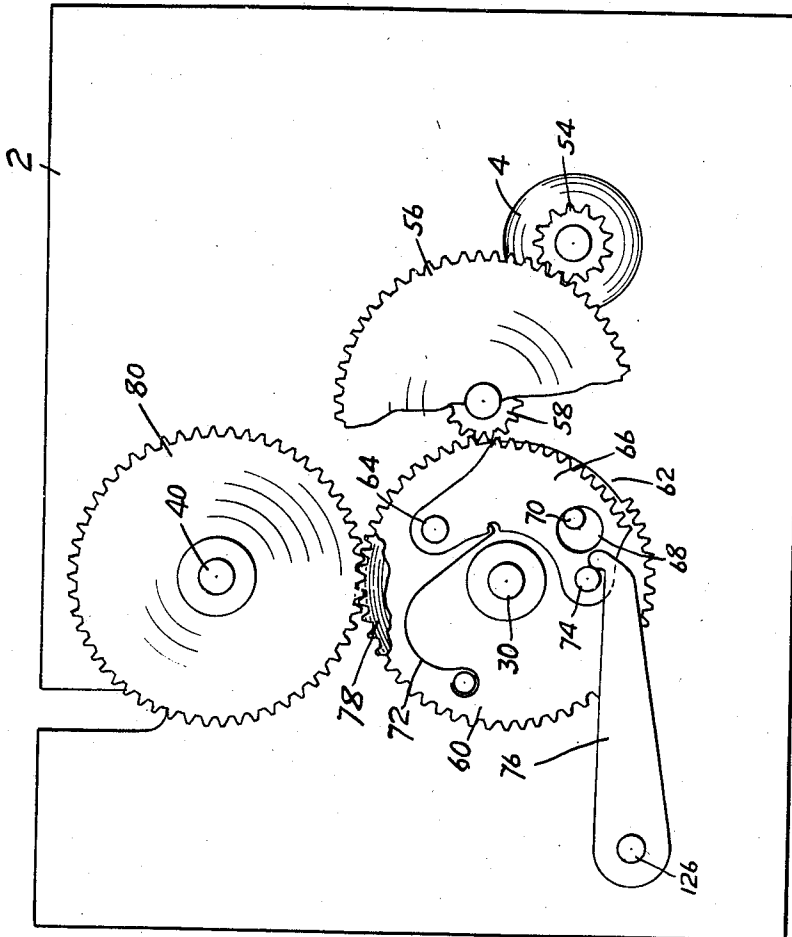


FIG. 4.

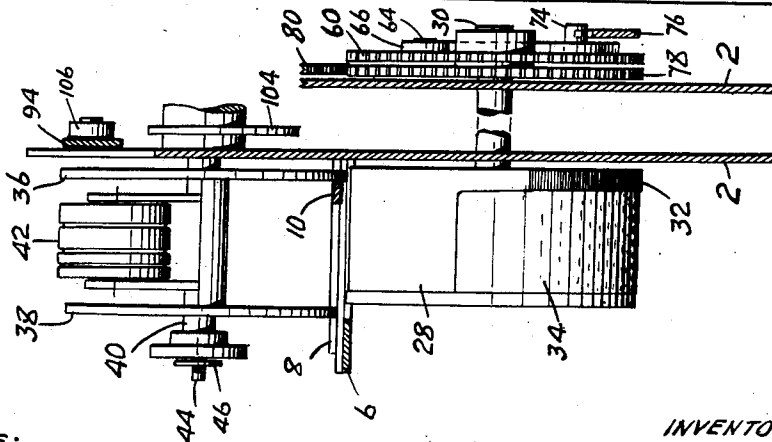


FIG. 5.

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2,219,650

TICKET ISSUING MACHINE

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Application August 16, 1938, Serial No. 225,096

11 Claims. (Cl. 164—42)

This invention relates to a ticket issuing machine, and particularly the so-called restaurant type in which the removal of a ticket or check from the machine initiates a cycle of operation resulting in the presentation of another ticket or check for removal.

It is the general object of the present invention to provide a ticket issuing machine of the type just indicated which is of simple and inexpensive construction and quiet in its operation. More specific objects of the invention relate to the provision of means for printing information such as a date on the issued tickets, and the provision of means for preventing further operation of the machine if the ticket stock is exhausted. It is a further object of the invention to provide means for properly aligning a partially preprinted strip so that there may be located thereon in correct position some further printed matter such as the date or time of issue.

The above and other objects of the invention, particularly relating to details of construction, will be apparent from the following description read in conjunction with the accompanying drawings in which:

Figure 1 is a side elevation partly in section showing a preferred embodiment of the invention;

Figure 2 is a plan view of the same;

Figure 3 is a vertical sectional view showing certain parts normally covered by one of the side plates;

Figure 4 is a side elevation showing the side of the machine opposite that illustrated in Figure 1; and

Figure 5 is a vertical section taken on the plane indicated at 5—5 in Figure 1.

The improved machine comprises a unit illustrated in the drawings which is adapted to be enclosed within a housing in conventional fashion. Since the unit is self-contained in the sense that it carries its own motor and may be located in a housing without operative connections with any portions thereof, the housing need not be described. In general, one unit of this type of machine is included within a housing, but it will be obvious that a plurality of units may be associated, if desired and may be operated from a common motor. This latter will be obvious from the nature of the clutch arrangement between the motor and the operating parts of the unit.

The unit comprises a frame generally designated at 2 and consisting essentially of vertical plates properly held in relation to each other by means of transverse spacers. If each unit has

its individual motor, the motor 4 may be mounted in the frame as indicated in the drawings.

The ticket stock is led from a suitable supply into the machine between a lower guide plate 6 and an upper guide plate 8 spaced to receive the stock and provided in conventional fashion with side guiding elements, not shown. At its forward end the upper guide plate is preferably cut away with the exception of a forwardly extending tongue 10 adapted to engage one side of the strip as it approaches the severing knives. Both of the guides are cut away at 12 and 14 for the passage of an aligning finger 16 and feed devices, respectively.

As is usually the case, the ticket stock for this machine is desirably perforated between the tickets and the tickets when severed are severed through the perforations. The finger 16 is designed to engage the perforations in the strip and align the ticket strip by pulling the same slightly rearwardly upon its release by the feeding elements. For this purpose, the finger 16 is pivoted at 18 on a lever 20 pivoted at 22 to the frame. The finger 16 is urged downwardly and rearwardly by a spring 26, its rearward movement being limited by engagement of its upper end with an ear 24 on the lever 20.

Below the ticket guide there is located a combination platen and feed drum indicated at 28, which is carried by a shaft 30 extending transversely of the unit and mounted in suitable bearings therein. About part of the circumference of the drum 28 there is provided a ridge 32 having a serrated ticket engaging surface as indicated particularly in Figures 1 and 5. The drum may be provided with a soft facing as indicated at 34 for the purpose of providing for the making of a proper impression by the printing means. Above the guides there are located discs 36 and 38 carried by a shaft 40 which extends transversely of the frame in suitable bearings. The disc 38 is primarily for aiding in the support of a dating or similar printing head indicated at 42, which is adapted to be inked in conventional fashion by means not illustrated, but which is preferably located above it. The disc 36, preferably provided with a serrated periphery, is located directly above the path of movement of the serrated ridge 32 and is adapted to cooperate with said ridge in pinching the ticket strip and thereby feeding the same.

The shaft 40 at its outer end carries a crank pin 44 connected by a linkage indicated at 46 to the operating arms of counters 48 and 50. The former, which may be reset to zero by means of a

knob 52, is adapted to record the number of tickets issued during, say, each day or some short period, while the counter 50 is adapted to record the total number of tickets which may be issued during the life of the machine. Both of these counters will be located within the outer housing of the machine, and hence will not be subject to unauthorized tampering.

The shaft of the motor 4 carries a pinion 54 which meshes with a gear 56 pivoted on a stud carried by the frame and carrying a pinion 58. Secured to the shaft 30 there is a gear 60 arranged to mesh with the pinion 58, but provided with an arcuate portion 62 which is mutilated by removal of the teeth. In the position of rest of the machine, this mutilated portion is opposite the pinion 58 so that the gear 60 will not be rotated even though the pinion 54 may be driven by the motor. Thus, it will be seen that if a number of units are associated with a common motor the motor may be running for the operation of one unit but may not serve to drive the gears 60 of one or more of the other units. Pivoted at 64 to the face of the gear 60 is a gear segment 66 carrying teeth of the same pitch as those of the gear 60. A pin 70 secured to the gear 60 enters an enlarged opening 68 in the segment 66 to limit its movements. A spring 72 normally urges the segment 66 outwardly, but in the rest position of the machine it is retained in the position illustrated in Figure 4, by engagement of a detent lever 76 with a pin 74 carried by the segment. As illustrated in that figure the segment is thus held out of engagement with the pinion 58. On the other hand, when released by the detent lever 76, it may move outwardly under the action of the spring 72 to present its teeth to the pinion 58 in continuation of the teeth of the gear 60, the teeth of the gear and segment being so arranged that they are aligned at both ends of the segment.

Secured to the shaft 30 adjacent the gear 60, and in the present instance of the same diameter, there is a gear 78 which, however, does not engage the pinion 58. This gear 78 is meshed with a gear of the same size 80 carried by the shaft 40. By this arrangement the shafts 30 and 40 are constrained to rotate together at the same angular velocity.

The operation of the machine is controlled by a feeler 82, which normally rests upon a ticket 84 supported on a plate 86 forward of the severing knives. The plate 86 is provided with a slot 88 extending in the plane of movement of the feeler 82, but so arranged that when the feeler 82 is in its normal position backed up by the stop 83 it rests on the ticket 84 above a solid portion or ledge 85 of the plate 86. A spring 90 urges the feeler 82 downwardly and in a clockwise direction, as viewed in Figure 3, about its pivotal connection 90 with a lever 94 pivoted on a stud at 96 and provided with a rearward extension 98 engaged below an insulating plate 100 which carries electrical contacts 102 which in their upper position are designed to close the motor circuit. A cam 104, shaped as illustrated in Figure 3, is adapted to engage at proper times a following roller 106 carried by the lever 94.

Located to the right of the lever 94 and pivoted on a stud substantially aligned with the stud 96 there is an independent lever 108 of bell crank form, the horizontal arm of which is also adapted to engage a switch plate 100. A rotor 110 on the lever 108 is adapted to be engaged by a cam 112 secured to the shaft 40 and of

generally concentric form with the exception of a notch 114.

Pivoted at 116 to the lever 94 is a vertically extending link 120, this link and lever being urged downwardly by a spring 118 reacting between the frame and the pivot 116. At 122 the lower end of the link 120 is pivoted to a lever 124 carried by a shaft 126 to which is secured the detent lever 76 previously referred to.

At the forward ends of the guides 6 and 8 10 there is located a fixed knife 128 with which cooperates a movable knife 130 provided with an upwardly extending finger 132 constantly in engagement with the fixed knife 128 at one side of the path of the ticket strip which is guided to pass between the knives. The movable knife 130 is formed on the upper end of a plate which is pivoted at 134 to a bell crank 136. A spring 138 surrounding a pin 140 which is pivoted at 142 and which projects through an opening in 20 the movable knife, urges the knives into engagement with each other so that they may produce clean cutting.

The bell crank 136 is pivoted at 144 and provided with a roller 146 engaging within a cam 25 groove 148 formed in the inner face of the drum 28.

The drawings illustrate the machine in its normal position of rest. At such time the feeler 82 rests on the rear end of a severed ticket 84 30 which is projecting forwardly from the machine in a position to be taken by a patron of the establishment in which the machine is situated. The end of the ticket strip extending from the supply is located between the guides 6 and 8 and one of the openings therein is engaged by the finger 16, which locates the forward end of the strip somewhat rearwardly of the cutting plane of the knives 128 and 130. In the rest condition of the machine, the strip is not engaged 40 by the serrated ridge 32 and consequently may be moved freely between the drum 28 and the disc 36. The printing surfaces carried by the discs 36 and 38 such as the dating head 42, are out of engagement with the strip at such time.

When the projected ticket 84 is pulled out of the machine its frictional engagement with the feeler 82 pulls the feeler forwardly so that as the ticket clears the feeler the feeler will drop into the slot 88 in the plate 86. When this occurs the lever 94 is rocked to move the switch plate 100 upwardly and so close the circuit through the motor to start operation thereof. Even if the feeler follows the ticket to any substantial extent forwardly without falling into the slot the lever 94 will rock to start the machine, i. e., the slot is not strictly necessary, and the frictional pulling of the finger forwardly with the ticket is sufficient to initiate the operation. At the same time, the link 120 moves downwardly under the action of both springs 118 and 90 and thereby the detent lever 76 is caused to release the pin 74 so that the segment 66 is rocked outwardly by the spring 72, completing the continuity of the teeth on the gear 60 and 65 meshing with the pinion 58.

Rotation of the shafts 30 and 40 is thus effected. Almost immediately the cam slot 114 moves away from the follower 110 of the lever 108 with the result that this lever moves upwardly into such position that it will retain the plate 100 in its upper position even though it is released by the lever 94. Thereafter, the cam 104, by engagement with the follower roller 106 raises the lever 94 and feeler 82 to such positions 75

that the feeler will be above the path of the ticket strip when it advances, and will be restored by spring 90 to a position above ledge 85. At the same time, the detent lever 76 is raised into position to engage the pin 74 when it comes around.

As the rotation of the shafts continues, the serrated ridge 32 pinches the ticket strip against the disc 36, serving to advance it between the open knives and over the plate 86 below the lifted feeler 82. During such action the printing elements may engage the ticket strip printing on it the date or other data, as may be desired. During this advance of the ticket strip, the finger 16 is pulled forwardly against the action of spring 26 and raised until it clears the hole in which it was engaged. Thereafter it rides on the surface of the ticket strip until the next hole comes along, when it drops downwardly, entering such hole.

Before the lower knife 130 is raised by the action of the cam 138 to engage the ticket strip, the ridge 32 disengages the strip, whereupon the finger 16, now engaged in a hole therein, pulls the strip slightly rearwardly to align the previous hole with the knives so that the cut will be accurately taken through the hole. Thereafter, the lower knife is raised to sever the strip, leaving on the plate 86 the severed ticket. The cam 104 then frees the follower roller 106 so that the feeler 82 may drop upon the severed ticket. The switch is, in the meantime, held closed by the action of the bell crank 108. The further drive by the motor permits the cam 148 to lower the knife 130 to clear the space for the subsequent advance of the ticket strip and as this occurs the roller 110 drops into the notch 114 in the cam 112 opening the motor circuit. The overrun causes the pin 74 to ride on the upper edge of the detent lever 76, which is rigidly held against downward movement by engagement of the feeler 82 with the ticket which is backed up by the portion 85 of the plate 86. The action of the pin on the upper surface of the lever 76 and its eventual arrest by the hooked end of the lever 76 causes retraction of the segment 66 and consequent disengagement of the pinion 158. The parts are thus restored to their initial position for subsequent actuation by removal of the presented ticket.

During this operation the counters 48 and 50 are actuated by rotation of the crank pin 44.

In the event that the ticket stock becomes exhausted and no ticket is presented for removal from the machine, it will be obvious that the feeler 82 will rest upon the plate 86 and consequently further operation of the machine will be prevented. The machine which has been described is of very simple construction and designed for very rapid and quiet operation. The quietness of the machine is very largely due to the provision of the clutch arrangement by which a smooth and silent clutching action takes place, upon release of the pin 74.

It will be obvious that if printing on the tickets is not desired the machine may operate without the provision of any printing device such as 42.

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

1. A ticket issuing machine comprising means for guiding a ticket strip; means for severing a ticket from the strip; means for presenting a severed ticket in delivery position; and means for effecting a cycle of operation of the machine including a ledge, a finger normally resting on a

portion of a severed ticket located in delivery position and backed up by said ledge, means mounting said finger for movement with the ticket beyond the edge of said ledge when the ticket is removed, means rendered effective by movement of the finger beyond the edge of said ledge to initiate a cycle of operation of the machine, and means for restoring said finger to said normal position during the cycle of operation.

2. A ticket issuing machine comprising means for guiding a ticket strip; means for severing a ticket from the strip; means for presenting a severed ticket in delivery position; and means for effecting a cycle of operation of the machine including a finger normally resting on a severed ticket located in delivery position, means rendered effective by frictional drag of the ticket upon the finger to move the finger during removal of the ticket thereby to initiate a cycle of operation of the machine, and means for restoring said finger to said normal position during the cycle of operation.

3. A ticket issuing machine comprising means for guiding a ticket strip; means for severing a ticket from the strip; means for presenting a severed ticket in delivery position; and means for effecting a cycle of operation of the machine including a rest for a severed ticket in delivery position, a finger normally engaging a portion of a severed ticket backed up by said rest, means rendered effective by frictional drag of the ticket upon the finger to move the finger during removal of the ticket thereby to initiate a cycle of operation of the machine, and means for restoring said finger to said normal position during the cycle of operation.

4. A ticket issuing machine comprising means for guiding a ticket strip; means for severing a ticket from the strip; means for presenting a severed ticket in delivery position; and means for effecting a cycle of operation of the machine including a rest for a severed ticket in delivery position, a control member yieldingly urged towards said rest, a finger pivoted to said control member and normally engaging a severed ticket located upon said rest and restraining movement of the control member towards said rest, and means rendered effective to initiate a cycle of operation of the machine when the control member is forced to move towards said rest by frictional drag of the ticket upon the finger during removal of the ticket to cause the finger to move, about its pivotal connection with the control member to remove its restraint upon the latter.

5. A ticket issuing machine comprising means for guiding a ticket strip; means for severing a ticket from the strip; means for presenting a severed ticket in delivery position; and means for effecting a cycle of operation of the machine including a rest for a severed ticket in delivery position, a control member yieldingly urged towards said rest, a finger pivoted to said control member and normally engaging a severed ticket located upon said rest and restraining movement of the control member towards said rest, means rendered effective to initiate a cycle of operation of the machine when the control member is forced to move towards said rest by frictional drag of the ticket upon the finger during removal of the ticket to cause the finger to move about its pivotal connection with the control member to remove its restraint upon the latter, and means for restoring said finger to its restraining position during the cycle of operation.

6. A ticket issuing machine comprising means

for guiding a ticket strip; means for severing a ticket from the strip; means for presenting a severed ticket in delivery position; and means for effecting a cycle of operation of the machine including a rest for a severed ticket in delivery position, a control member yieldingly urged towards said rest, a finger pivoted to said control member and normally engaging a portion of a severed ticket backed up by said rest and restraining movement of the control member towards said rest, and means rendered effective to initiate a cycle of operation of the machine when the control member is forced to move towards said rest by frictional drag of the ticket upon the finger during removal of the ticket to cause the finger to move about its pivotal connection with the control member to remove its restraint upon the latter.

7. A ticket issuing machine comprising means for guiding a ticket strip; means for severing a ticket from the strip; means for presenting a severed ticket in delivery position; and means for effecting a cycle of operation of the machine including a rest for a severed ticket in delivery position, a control member yieldingly urged towards said rest, a finger pivoted to said control member and normally engaging a portion of a severed ticket backed up by said rest and restraining movement of the control member towards said rest, means rendered effective to initiate a cycle of operation of the machine when the control member is forced to move towards said rest by frictional drag of the ticket upon the finger during removal of the ticket to cause the finger to move about its pivotal connection with the control member to remove its restraint upon the latter, and means for restoring said finger to its restraining position during the cycle of operation.

8. A ticket issuing machine comprising means for guiding a ticket strip; means for severing a ticket from the strip; means for presenting a severed ticket in delivery position; and means for effecting a cycle of operation of the machine including a rest for a severed ticket in delivery position, a control member yieldingly urged towards said rest, a finger pivoted to said control member and normally engaging a severed ticket located upon said rest and restraining movement of the control member towards said rest, means rendered effective to initiate a cycle of operation of the machine when the control member is forced to move towards said rest by frictional drag of the ticket upon the finger during removal of the ticket to cause the finger to move about its pivotal connection with the control member to remove its restraint upon the latter, and means for moving said finger to clear the advancing end of the ticket strip and for restoring it to its restraining position during the cycle of operation.

9. A ticket issuing machine comprising means for guiding a ticket strip; means for severing a ticket from the strip; means for presenting a severed ticket in delivery position; and means for effecting a cycle of operation of the machine including a rest for a severed ticket in delivery position, a control member yieldingly urged towards said rest, a finger pivoted to said control member and normally engaging a portion of a severed ticket backed up by said rest and restraining movement of the control member towards said rest, means rendered effective to initiate a cycle of operation of the machine when the control member is forced to move towards said rest by frictional drag of the ticket upon the finger during removal of the ticket to cause the finger to move about its pivotal connection with the control member to remove its restraint upon the latter, and means for moving said finger to clear the advancing end of the ticket strip and for restoring it to its restraining position during the cycle of operation.

10. A ticket issuing machine comprising means for guiding a ticket strip; means for severing a ticket from the strip; means for presenting a severed ticket in delivery position; a motor for driving the machine, a switch controlling said motor; and means for effecting a cycle of operation of the machine including a finger normally resting on a severed ticket located in delivery position, a member controlled by said finger upon removal of the severed ticket to close said switch, a second member actuated by the operation of the motor in the initial portion of a cycle of operation to hold said switch closed independently of the first mentioned member, and means actuated during a cycle of operation to remove said finger from the path of advance of the ticket strip and simultaneously cause said first mentioned member to lose control of said switch while the latter is held closed by the second member.

11. A ticket issuing machine comprising means for feeding and guiding a ticket strip; means for severing a ticket from the strip; and means for effecting a cycle of operation of the machine; said means including a driving pinion, a gear adapted to mesh with said pinion but having a portion from which teeth are omitted, a segment having teeth and pivoted to said gear to occupy either an outer position to complete the continuity of the gear teeth and mesh with said pinion or an inner position to break such continuity, means for urging said segment towards its outer position, means for restraining said segment in its inner position out of mesh with said pinion, and means for rendering said restraining means inoperative to thereby produce meshing of the segment and pinion to initiate operation of the machine.

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