April 1, 1958 E. H. MUDE 2,828,687

MACHINE FOR SEVERING, PRINTING AND STACKING TICKET STRIPS

Filed April 15, 1953 2 Sheets-Sheet 1

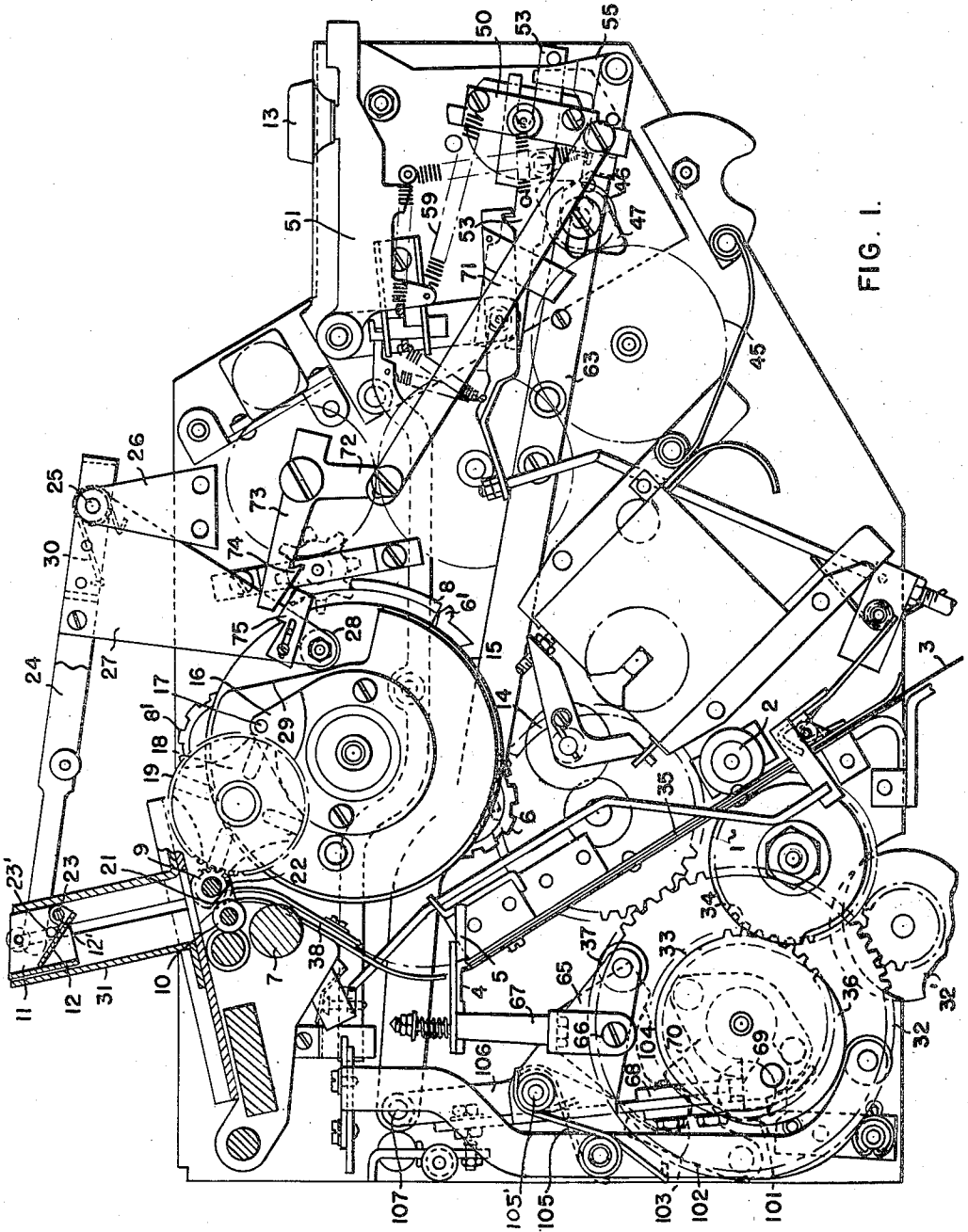


FIG. 1.

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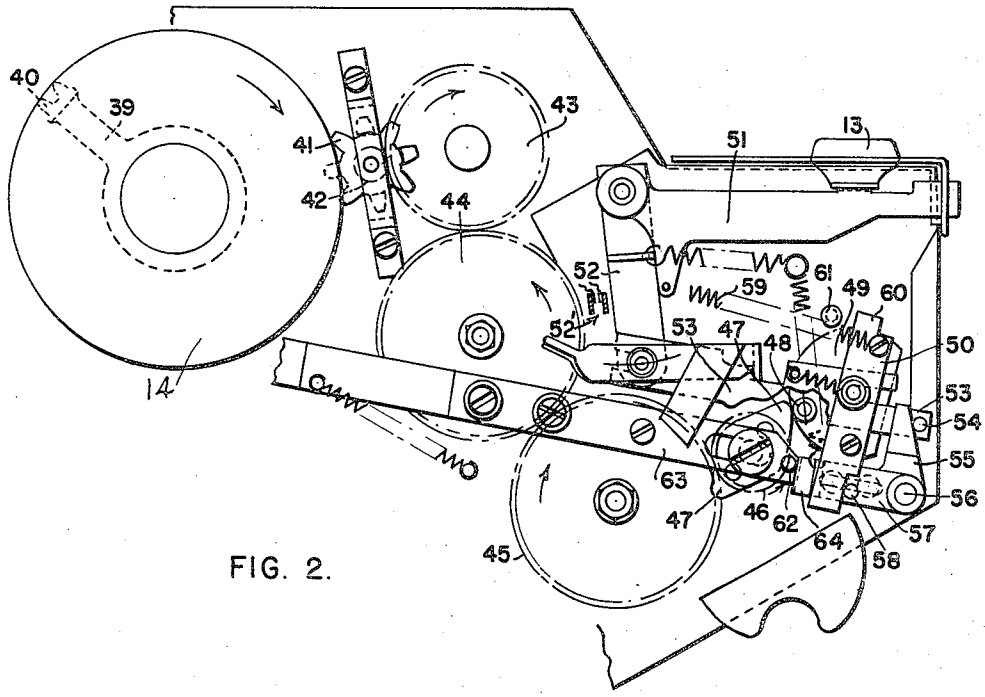


FIG. 2.

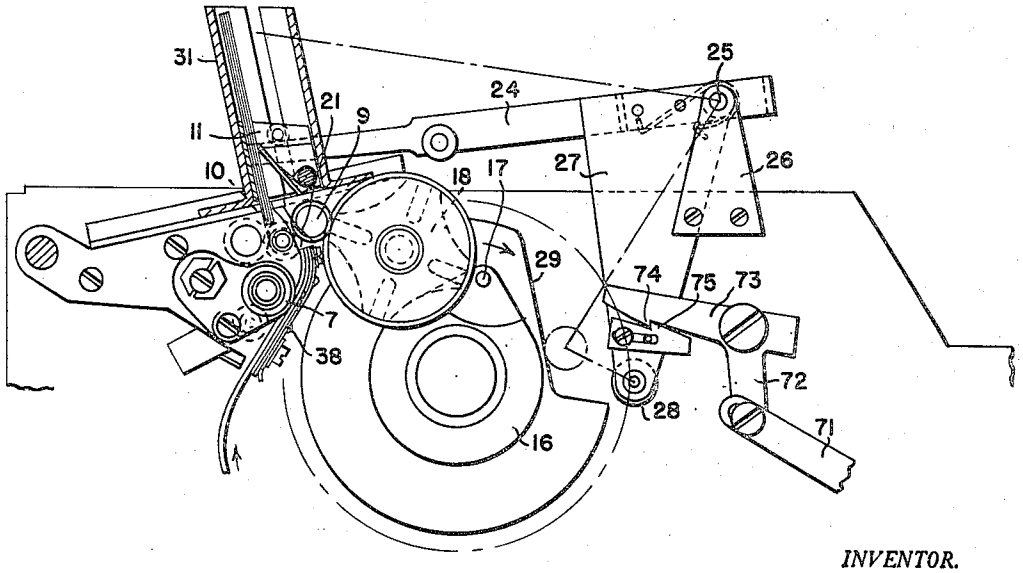


FIG. 3.

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MACHINE FOR SEVERING, PRINTING AND STACKING TICKET STRIPS

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7 Claims. (Cl. 101—66)

This invention relates to a ticket issuing machine and has for its object the provision of a machine which will issue a predetermined number of severed tickets and present the tickets stacked in a pile to the purchaser thereof.

More specifically, it is an object of the invention to provide a ticket issuing machine which comprises in combination means for feeding a ticket strip through a machine in predetermined successive lengths, means for severing each of the successive lengths from the strip, means for receiving the leading end of each of the lengths of the strip as it is severed and thereafter printing requisite data thereupon, means for receiving the leading end of the printed lengths of the strip during the printing operation and for feeding them to a stacker after the printing operation has been completed, and means for presenting the stacked pile of tickets to a purchaser after a predetermined number of tickets have been printed and stacked.

The invention will be more particularly described with reference to the accompanying drawings, in which:

Figure 1 illustrates in side elevation a machine constructed in accordance with the present invention with the side plate thereof removed;

Figure 2 illustrates in detail the mechanism for controlling the number of tickets fed to the stacking mechanism; and

Figure 3 illustrates in detail the mechanism for feeding the individual tickets to the stacking device.

Referring to Figure 1 of the drawings, there is provided a ticket issuing machine which comprises in combination rollers 1 and 2 for feeding a predetermined length of paper from a strip 3 thereof, a knife 4 and a block 5 for severing the said length of paper from the strip, roller 7 and printing dies 6 for receiving the leading end of the said length as it is severed and printing requisite data thereon, and rollers 9 and 10 for receiving the leading end of said printed length of paper and, after the printing operation on the paper has been completed, feeding the same to a stacker member 11 and pressure plate 12.

The structure and general operation of the machine are as follows:

A pinion 32 is driven by an electric motor 32'. The motor is energized upon the actuation of key 13. Depression of the key 13 depresses the lever 51 and moves the arm 52 in a clockwise direction closing contacts 52' energizing the motor circuit in a conventional manner. The pinion 32 is arranged in mesh with a pinion 14 adapted to drive a pinion operatively connected to and positioned behind a printing drum 15 as viewed in Figure 1 which carries dies 6, 6' and 8, 8' so disposed upon the printing drum so as to print an impression upon a length severed from the strip 3 when the said length passes between the dies 6, 6' and 8, 8' and the impression roller 7. Mounted so as to rotate with the printing drum is a plate 16 which carries a pin 17 arranged to engage once in every revolution of the printing drum with a Geneva

mechanism 18 so as to rotate a pinion 19 through one quarter of its periphery, which is equivalent to a complete rotation of a gripping roller 9. Thus, the gripping roller 9 is maintained in the position illustrated in Figure 1 for the remainder of the rotation of the printing drum and particularly while the dies 6, 6' and 8, 8' are printing upon the severed length of the strip 3. The disposition of the flat 21 on the gripping roller is such that it facilitates the feeding of the leading end of the length into the stacker 11 and 12 and insures that when the printing operation is completed the trailing edge 22 of the flat 21 grips the length between it and the roller 10 and feeds the length, which is now a printed ticket, into the stacker 11 and 12.

The stacking mechanism comprises an open-ended trough 11 of rectangular cross-section and a yieldingly mounted pressure plate 12 pivotally mounted upon a spindle 23 fixed to trough 11 and arranged so as to bear in response to the urging of a spring 12' coiled around the spindle 23' and acting between the plate 12 and a spindle 23' fixed to the trough 11 against any ticket issued by the gripping roller 9 and the roller 10 and so retain the ticket in the stacker as shown in Figure 3. The stacker is carried upon an arm 24 pivoted upon spindle 25 in a bracket 26 mounted upon the machine. The arm 24 is provided with a downwardly extending plate 27 which carries at the free end thereof a roller 28 which bears against the surface of a cam 29 so designed that when the desired number of tickets have been printed and ejected into the stacker the cam 29 permits the plate 27 to move in a clockwise direction under the influence of a spring 30 and so raise the stacker upwardly in a shield 31 so that the severed tickets extend from the free end of said shield to permit the purchaser to remove them from the stacker. It will be appreciated that while the stacker is in its lowermost position a purchaser cannot take hold of the tickets.

The pinion 32 in addition to meshing with the pinion 14 carries a further pinion 33 which meshes with a pinion 34 which carries the gripping member 1 in such a manner that for once in every revolution of the printing drum the gripping member 1 and the interengaging roller 2 grip the strip 3 and feed the same through a channel 35 and a severing device by a length equivalent to one ticket. During one complete revolution of the pinion 32 a roller 101 attached thereto moves the pivoted shoe 102 in a counterclockwise direction. The upper end of the shoe 102 is forked to engage the circular end 103 of a bell-crank lever 65 pivotally mounted on a spindle 66. The bell crank lever 65 carries a pillar 67, the upper end of which supports and moves the knife 4 so that when a strip equivalent to the length of a ticket has been fed by the feeding mechanism 1 and 2, the knife member 4 of the guillotine is operated to sever the leading end of the strip from the strip 3. Further rotation of the pinion 32 causes the roller 101 to engage the arm 104 of the lever 65 which rocks the said lever about its pivot 66 in a counter clockwise direction, moving the knife 4 clear of the paper strip.

It will be appreciated from the general description set out above that when the machine is operated the gripping member 1 together with the roller 2 feeds the strip 3 forwardly by an extent equivalent to the length of one ticket. The leading end of the web 3 is then gripped between the printing dies 6, 6' and 8, 8' and the impression roller 7 and at the same time the guillotine 4 and 5 is operated so as to sever the length of material from the strip equivalent to one ticket. The ticket is fed by the printing dies 6, 6' and 8, 8' and the impression roller 7 upwardly through the channel 38. Due to the fact that the flat 21 on the gripping roller 9 is disposed in the

position illustrated in Figure 1 the leading end of the tickets is unimpeded and passes freely between the rollers 9 and 10. When the ticket has been fully printed the Geneva mechanism 18 comes into operation so as to cause the trailing edge 22 of the flat 21 to grip the ticket which is released by the printing die 8' and the impression roller 7, and feed it between the wall of the stacker 11 and the yieldably mounted pressure plate 12.

The printing drum upon which the printing dies 6, 6' and 8, 8' are mounted carries, as is clearly illustrated in Figure 2, an arm 39 at the free end of which are formed two teeth 40 adapted to engage with the teeth of a pinion wheel 41 so as to rotate the same a distance equivalent to one tooth for each complete rotation of the printing drum. The printing dies 6, 6' and 8, 8' are omitted from the showing in Figure 2 for the purpose of clarity. The pinion 41 carries a second pinion 42 arranged to engage with a pinion 43 which in turn meshes with a pinion 44 operable to engage with a pinion 45 which engages with a pinion 46 upon which is mounted two lobes 47 disposed 180° apart.

With the arrangement hereinbefore described, it is such that for each rotation of the printing drum the pinion 46 rotates through 36°, thus insuring that at each fifth revolution of the printing drum the lobe 47 is brought into a position in which it engages with a pin 48 of a disc 49 adapted to carry a plate 50.

When a key 13 of the ticket issuing machine is depressed one arm 51 is lowered and the other arm 52 is moved in a clockwise direction to move a rod 53 to the left, as viewed in Figure 1. The rod 53 carries at one end thereof a pin 54 arranged to bear against one arm 55 of a bell crank lever pivotally mounted at 56 and thereby move the other arm 57 of the bell crank lever in a counterclockwise direction so as to move a pin 58 out of engagement with the lower end of the plate 50 which under the influence of a spring 59 is moved in a counterclockwise direction until the projection 60 bears against the pin 61. In such a position a pin 62 on a bar 63 is free to move in the longitudinal direction of the said bar in view of the fact that an abutment 64 on the free end of the arm 57 of the bell crank lever has been moved out of the path of the pin 62. Such being the case the bar 63 pivotally connected at 107 to the lever 106 is free to be moved in a longitudinal direction by the torsion spring 105 rotating the lever 106 in a clockwise direction around a pivot 105'. Rotation of the lever 106 in a clockwise direction brings the roller 37 mounted on the lower end of the lever 106 into engagement with cam 36. The bar 63 is now free to be moved to the left as viewed in Figure 1 by the rise of the cam 36 and to be moved to the right as viewed in Figure 1 by the action of the spring 105' when the roller 37 passes over the fall of the cam 36.

When the machine has issued five tickets one of the lobes 47 engages with the pin 48 and moves the disc 49 in a clockwise direction to permit the pin 58 to rise behind the lower end of the plate 50 and thereby bring the abutment 64 up into the path of the pin 62 on the end of the bar 63 when the bar 63 is moved to the right by the action of cam 36. Movement of the machine is then arrested by the lower end of the bar 68 carried by the lever 106 engaging with a shoulder 69 formed on a plate 70 mounted on the pinion 32 and preventing further rotation of the pinion 32.

In view of the fact that the cam 29 on the printing drum rotates once for every ticket printed and further in view of the fact that it is desired that the stacker trough 11 should be held at the lower end of the shield 31 means are provided whereby the roller 28 is held so that the stacker is in its lowermost position during the period that five tickets are issuing into the stacker.

The mechanism which permits this operation comprises a link 71 pivotally mounted at one end to the plate 50 and at the other end to an arm 72 of a bell crank lever, the other arm 73 of which is provided with a tooth 74 arranged to engage with a tooth 75 mounted on the plate 27 so that when the cam 29 moves the roller 28 into its extreme right hand position as viewed in Figure 1 the tooth 74 engages with the tooth 75 to lock the stacker trough 11 in its depressed position and is only released therefrom when the plate 50 is released by one of the lobes 47. When the stacker is released it moves together with the five tickets upwardly in the shield 31 and the free ends of the five tickets are presented to the vendor above the upper end of the bar 31 in a position which is believed will be evident by viewing the positions of the stacker through 11 in Figures 1 and 3.

Although the machine hereinbefore described specifically relates to a machine which delivers five tickets at a time it will be appreciated that other numbers of tickets may be issued at a time, for example, if only one lobe 47 instead of two diametrically disposed lobes is provided the machine will then automatically deliver ten tickets at a time.

Thus, it will be seen that according to the present invention there is provided a machine which is simple in its construction, efficient in its operation which automatically insures that a predetermined number of severed tickets are delivered to a stacker for each operation of the machine.

What is claimed is:

1. A ticket issuing machine comprising means for feeding successive predetermined lengths of a ticket strip through the machine, means for successively severing the predetermined lengths of the strip, means for stacking successive severed lengths of the strip in superimposed relation, means for feeding the severed lengths of the strip into the stacker, locking means for blocking further operation of the strip feeding means after the predetermined number of severed lengths of strip have been fed to the stacker, manually operated means for holding the locking means in an inoperative position and initiating the operation of the machine, and means including a lobe carried by a pinion rotatable through an angle dependent upon the number of lengths of strip delivered for releasing the locking means after a predetermined number of lengths of the strip have been fed through the machine.

2. A ticket issuing machine comprising means for receiving and stacking successive severed printed lengths of ticket strip, an open ended enclosure, an open ended member positioned within said enclosure for receiving said successive severed lengths of ticket strip, a yielding pressure plate for holding said lengths of ticket strip in superimposed relation against said member and means for displacing said member within said enclosure for exposing the leading ends of a stack of lengths of strip in superimposed relation after the stack has been accumulated.

3. A ticket issuing machine comprising means for stacking tickets and means for feeding successive severed printed lengths of ticket strip to said stacking means, said stacking means including shielding means, an open ended member for receiving said successive severed lengths of ticket strip, a yielding pressure plate for holding said lengths of ticket strip in superimposed relation against said member and means for positioning said member in a stationary position located to receive severed lengths of ticket strip from said feeding means during the feeding of a plurality of lengths of ticket strip and to thereafter position said member with respect to said shielding means to expose the leading ends of the stack of said accumulated lengths of strip.

4. A ticket issuing machine comprising means for feeding a predetermined number of successive predetermined lengths of ticket strip through the machine, means for successively severing the predetermined number of lengths of the strip, means for receiving the leading ends of the successive lengths as they are severed and printing req-

uisite data on the severed lengths, means for stacking the successive printed severed lengths of the strip, means for receiving the leading ends of the successive lengths as they are printed and feeding the successive lengths to the stacker, and means operating after the predetermined number of lengths have been stacked, for presenting the stacked predetermined number of lengths for removal from the machine.

5. A ticket issuing machine comprising means for feeding a predetermined number of successive predetermined lengths of ticket strip through the machine in response to a single actuation of a single machine operation initiating means, means for successively severing the predetermined number of lengths of the strip, means for receiving the leading ends of the successive lengths as they are severed and printing requisite data on the severed lengths, means for stacking the successive printed severed lengths of the strip, means for receiving the leading ends of the successive lengths as they are printed and feeding the successive lengths to the stacker, and means operating after the predetermined number of lengths have been stacked, for presenting the stacked predetermined number of lengths for removal from the machine.

6. A ticket issuing machine comprising means for feeding a predetermined number of successive predetermined lengths of a ticket strip through the machine, means for successively severing the predetermined number of lengths of the strip, control means including a printing roller for successively receiving the leading end of each of the severed lengths of the strip and successively printing requisite data on the predetermined number of lengths received, means for stacking successive printed severed lengths of the strip in superimposed relation, means for successively feeding the printed severed lengths of the strip into the stacker, locking means responsive to rotation of the printing roller for blocking further operation of the strip feeding means, severing means and printing roller after the predetermined number of lengths of strip have been fed to the stacker, and manually operated means for moving the locking means to an inoperative position and initiating the operation of the machine.

7. Apparatus in accordance with claim 6 wherein the manual means includes means for releasing the locking means after the predetermined number of lengths of the strip have been fed through the machine.

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