Oct. 25, 1966 W. T. SHACKELFORD 3,280,678

METHOD AND APPARATUS FOR DISPENSING TICKETS

Filed Oct. 23, 1964 3 Sheets-Sheet 1

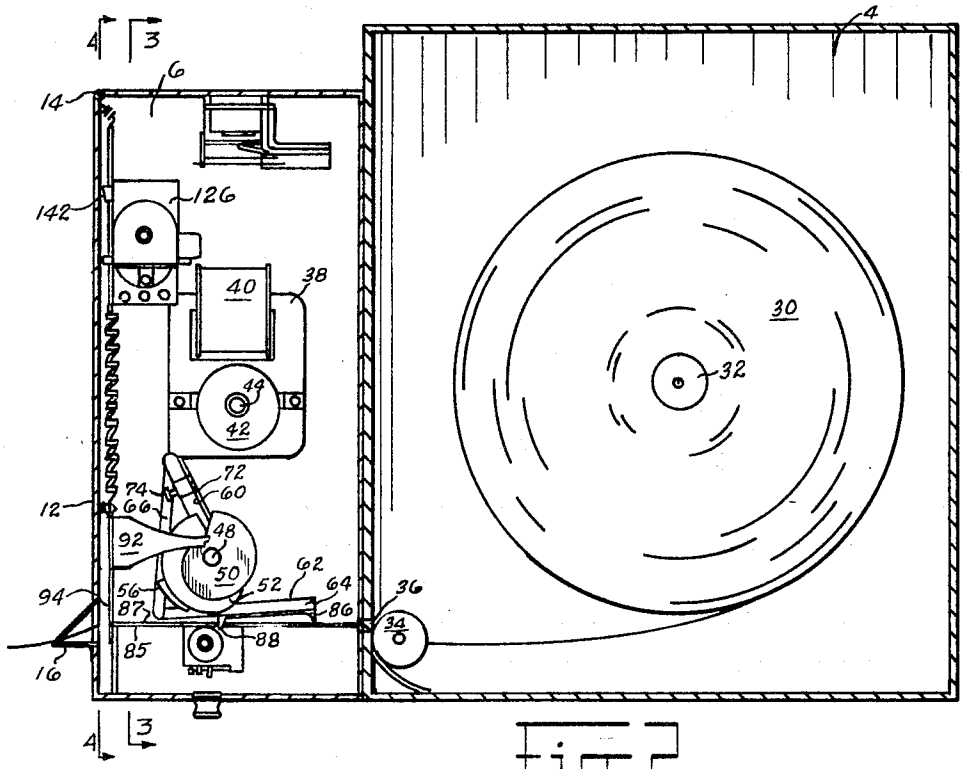

Fig 2

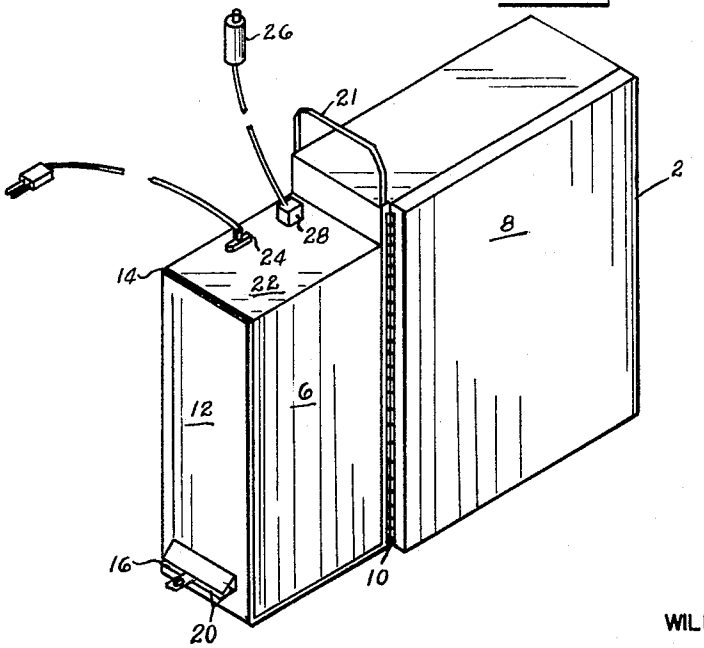

Fig 1

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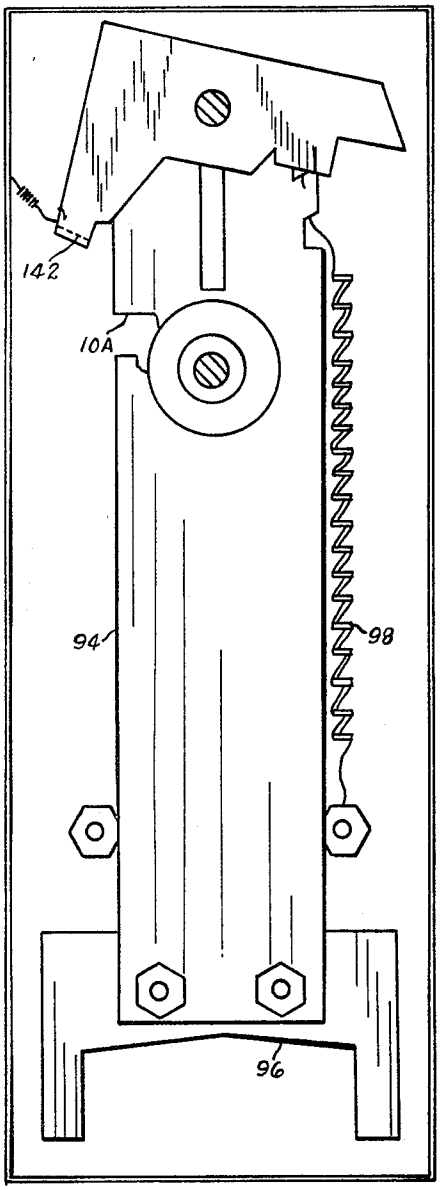

Fig 4

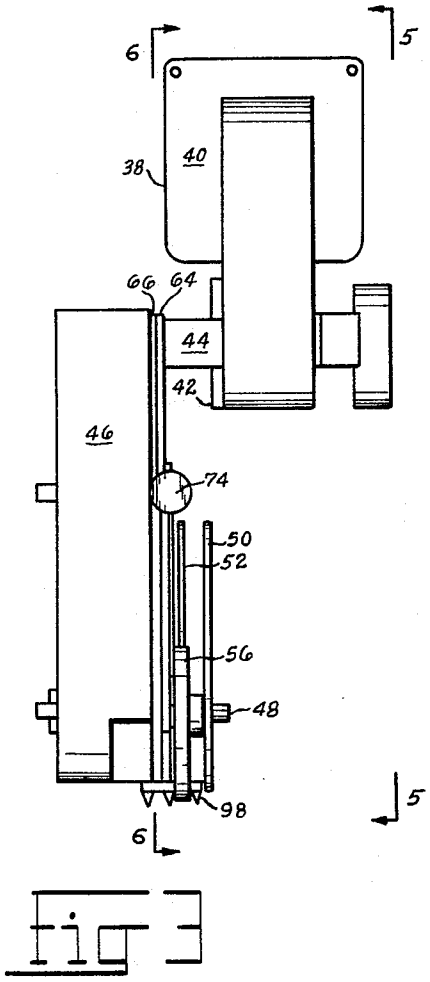

Fig 3

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Fig 5

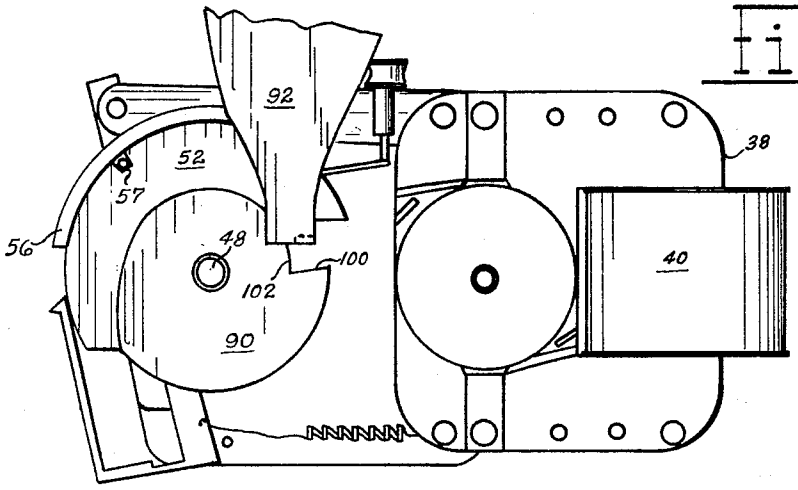


Fig 6

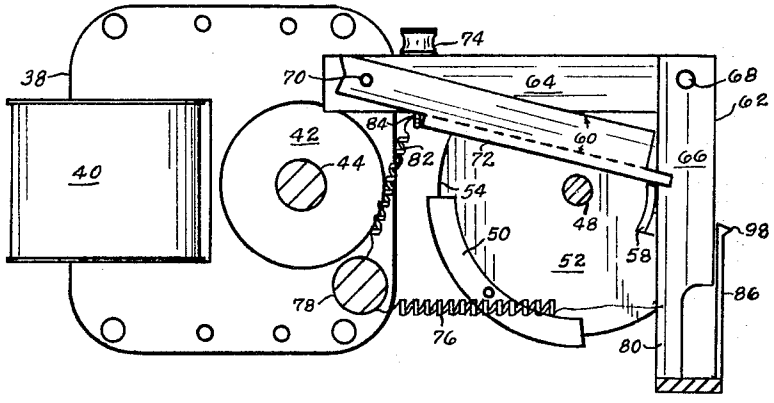
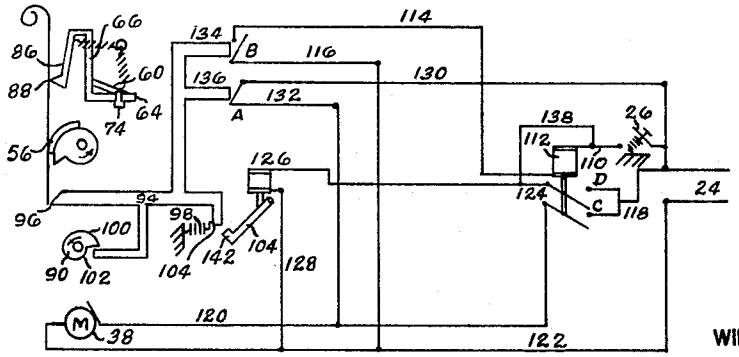


Fig 7



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METHOD AND APPARATUS FOR DISPENSING TICKETS

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Filed Oct. 23, 1964, Ser. No. 406,085
15 Claims. (Cl. 83—35)

This invention relates to ticket vending machines to be used at theaters, ball games and the like for issuing tickets.

A practical problem encountered in selling tickets at public functions in small communities and the like is that the ball park, community theater or other public place is not used continually. In the case of a small community, a ball park might be used once a week, for instance, during the football season and then after the season is over not used again either until the next season or at least not until another sport comes into season. Also, in the case of community theaters, a play might be given for several nights consecutively and then there will be a long lapse before another play is given. In these particular instances, and other similar instances, a large number of people will buy tickets in a short period of time. Accordingly, it is desirable to have some mechanical means of dispensing tickets with speed, accuracy, and with little effort on behalf of the person selling the tickets. However, since previously known mechanical ticket dispensing devices are large in size and require permanent installation at the site to be utilized, small communities have had to make a choice between doing without mechanical ticket dispensing machines or making an expensive permanent installation of ticket dispensing machines at each site of its public functions.

Accordingly, I have developed a low cost, small portable ticket dispensing device which can be carried out to the ball game or to the play, etc., just prior to the time when ticket sales are to begin, and be immediately functional for vending tickets.

Because of the portability of my device, it has been found that its utilization at various different functions requires dispensing tickets of various sizes and shapes. Accordingly, I have devised a method of dispensing tickets of various sizes and shapes in my portable ticket dispensing means.

In order that the ticket salesman be able to sell tickets with utmost expediency, I have constructed my device so that the salesman may be able to issue one ticket at a time or issue a string of partially cut tickets. When issuing a string of partially cut tickets, only the last ticket issued is cut away from the roll of tickets from which all the tickets are issued. In this manner, the ticket salesman can devote his attention primarily to the task of receiving the customer's money and making change.

Numerous other objects, features and advantages of the present invention will be apparent from consideration of the following specification, taken in conjunction with the accompanying drawings, in which:

FIG. 1 is a perspective view of the ticket vending device showing the outside components of the device.

FIG. 2 is an elevational view of the device with the cover broken away.

FIG. 3 is a sectional view taken along the line 3—3 of FIG. 2 showing the motor compartment of the device.

FIG. 4 is taken along the lines 4—4 of FIG. 2 and shows the motor compartment cover.

FIG. 5 is an elevational view of the mechanical element of the device as seen from lines 5—5 of FIG. 3.

FIG. 6 is an elevational view of the mechanical element of the device with the gear box broken away as seen along lines 6—6 of FIG. 3.

FIG. 7 is a schematic view of the electrical components of the device.

Referring now more particularly to the drawings, FIG. 1 shows my ticket dispensing device 2 having a ticket roll compartment 4 and a mechanical compartment 6, which compartments comprise the body of my device. The ticket compartment 4 has a door 8 mounted on hinges 10 so that the door can be opened and tickets inserted in the ticket compartment 4. The mechanical compartment 6 has a door 12 mounted on hinges 14. The door 12 has at its end opposite from the hinges 14 a lip-like construction 16 comprising two metal plates 18 and 20 that converge toward each other and form an opening for the tickets to be issued from the dispensing device. A convenient carrying handle 21 is connected to the ticket compartment so that the device can be easily lifted and carried.

The mechanical compartment has at its end 22 electrical connections 24 and 28. The electrical connection 24 is adapted to be connected to a power source, and the connection 28 is adapted to lead to a switch device 26 which actuates the machine.

As seen in FIG. 2, the ticket compartment houses the tickets 30 around a spindle 32, and the tickets are mounted so that they will lead into the mechanical compartment 6 around another spindle 34 through the aperture 36. Both spindles 32 and 34 are adjustable in width so that the tickets of varying width can be handled by the machine. Because of the construction of the mechanical elements of the device, both roll tickets as represented by the roll 30 and tickets not in a roll can be dispensed from the device. The tickets not on a roll can be folded into the ticket housing 4 so that the tickets next to be dispensed are arranged close to the spindle 34. In this arrangement when the mechanical components of the device dispense a ticket through the lips 16, another ticket will be pulled into the mechanical compartment 6. By this manner of operation it can be seen that the only limitation on the arrangement of the tickets in the ticket compartment 4 is that the ticket next to be dispensed must be relatively free from any obstructions in the ticket compartment. While the device may be utilized in any position when using roll tickets, the operator should take care to insure that when using unrolled tickets the weight of the tickets does not rest on that group of tickets next to be dispensed.

As best seen in FIGS. 2 and 6, the mechanical components of the device comprise a motor 38 which has the conventional coils 40 and rotor 42 and shaft 44. The shaft 44 is connected to a gear box 46 as best seen in FIG. 3, which gear box 6 has an output shaft or cam shaft 48 connected to cams 50 and 52. As best seen in FIG. 6, the cam 52 has a flanged surface 54 onto which a rubber surface 56 is attached by the cap screws 57. The cam 52 also carries a tab or projection 58 which is displaced circumferentially around and radially inwardly from the rubber surface 56.

Mounted for pivoting movement on the motor structure 38 are the cam followers 60 and 62. The cam follower 62 is composed of two components, 64 and 66. The cam follower component 66 is pivoted on pivot pin 68 on the end of component 64, and component 64 is pivoted at its opposite end on pivot pin 70 mounted on the motor structure 38. The cam follower 60 is also pivoted on pivot pin 70, and has a flanged portion 72 on its surface remote from the cam follower component 64. An adjusting screw 74 is mounted on the cam follower element 64 and positioned so that the end of the screw 74 will bear against the flanged portion 72 of the cam 60. In this manner, adjustment of the screw 74 will cause vertical adjustment between the cam follower component 64 and the cam follower 60. A spring 76 is attached to the motor housing 38 at 78 and to the cam follower component 66 at 80; and another spring 82 is connected to

the motor housing at 78 and to the cam follower component 64 at 84. Springs 76 and 82 bias the cam follower components 66 and 64 towards the cam shaft 48. Since the cam follower component 64 through its adjusting screw 74 is displaced from the cam follower 60, the force of the spring 82 pulls the cam follower 60 towards the cam shaft 48 and the cam follower element 64 is held away from the cam shaft 48 by the screw element 74.

When the motor 38 is energized and the cam 52 is caused to rotate in the direction of the arrow in FIG. 6, the tab projection 58 moves the cam follower component 66 to the right as shown in FIG. 6 against the bias of spring 76 and subsequently comes in contact with the cam follower 60 causing it to move upward in FIG. 6. The upward movement of the cam follower 60 causes the cam follower components 64 and 66 of the cam 62 to move upward since the adjusting screw 74 bears against the flange 72 of the cam follower 60.

The cam follower element 66 carries a fork-like structure 86 at one end thereof, which fork-like structure has a plurality of pointed projections 88 at one end thereof. The pointed projections 88 are adapted to engage the holes or indentations customarily cut into admission tickets of the type to be dispensed by applicant's device. The outward movement of the cam follower element 66 causes similar movement by the fork-like structure 86 and its pointed projections 88. The movement of the pointed projections 88 engages the hole or identations of the roll of tickets to be dispensed, and when the tab or projection 58 engages the cam follower 60 causing upward movement of the cam follower components 64 and 66, the pointed projections 88 of the fork-like structure 86 cause the tickets to be moved upwardly as viewed in FIG. 6. If the projections 88 are not aligned with the hole of a ticket during the first portion of its movement, they will slide along the surface of the tickets until they reach a hole and at this point begin to move the tickets. Because of this function it can be seen that the machine will operate to dispense tickets varying in length to some degree since the ticket hole, wherever it might be located, will be moved up to a predetermined point on every cycle of the machine. This feature further functions to realign the tickets with the cutting device during every cycle. The cutting device will be more fully described hereinafter.

As the cam 52 rotates to the point where the tab or projection 58 nears the top of its arc, the rubber surface 56 attached to the flange 54 of the cam is rotated into contact with the tickets, and as the tab of projection 58 begins to recede from the cam follower element 66 so that it returns back toward the cam shaft 48 under the tension of the spring 76, the pointed projections 88 are withdrawn from the tickets and the rubber surface of the flange 54 continues to move the tickets in an upward direction as viewed in FIG. 6. The tickets continue to move upwardly until the rubber surface 56 is disengaged therefrom by continued rotation of the cam 52. It can be seen that the tickets will be moved during this portion of the cycle in a distance depending upon the length of the rubber surface 56 on the flange 54. If the ticket salesman desires to sell shorter or longer tickets that are too long or short to be compensated for by the fork 86 and its projections 88 acting on the tickets as described above, he merely loosens the cap screw 57 from the rubber surface 56 and replaces the rubber surface with another rubber surface of a different length. In this manner, applicant's device can be utilized to dispense tickets of varying lengths.

As best seen in FIG. 5, the cam shaft 48 carries another cam 90 which rotates in the same direction as cam 52. The cam 90 is arranged so as to actuate the ticket cutting device or guillotine and is disposed in close association with the cutting device cam follower 92. As best seen in FIG. 2, the cutting device 94 is attached to the door 12 of the mechanical compartment 6 of the device. As seen in FIG. 4, the cutting device comprises a cutting edge 96 which is sharpened to cut the tickets dispensed by the machine and is urged toward the tickets by the spring 98. As the cam shaft 48 rotates and causes the tickets to be moved through the machine as previously described, the cam 90 is caused to rotate and move the cutting device cam follower 92 and the cutting device 94 against the bias of spring 98 away from the path of the tickets. When the cam shaft 48 has rotated to the point where the rubber surface 56 is disengaged from the tickets, the cutting device cam follower 92 slips from the high portion 100 to the low portion 102 of the cam 90. At this point the spring 98 biases the cutting device 94 towards the tickets in such a manner that the cutting edge 96 cuts the tickets. This is the procedure in which one ticket is dispensed from applicant's machine. If the ticket salesman wishes to dispense more than one ticket without cutting them apart from each other, the cutting device 94 is moved by the cam 90 back to a position where it is engaged by a tab 142 in the slot 104 so that its movement towards the ticket under the bias of spring 98 is limited. However, even when the tab 142 is positioned in the slot 104 there is a limited amount of movement of the cutting device 94 so that it partially engages the tickets. Because of the shape of the cutting edge 96 of the cutting device 94 only the outside portions of the cutting edge 96 engage the tickets. Accordingly, the series of tickets is partially cut and impressed with the cutting device between the tickets so that they can be readily torn apart or neatly folded. When the ticket salesman has issued the desired number of tickets, the tab is withdrawn from the slot 104 and the next ticket is cut in the manner as described above.

Because of the particular construction of my machine it is very easy to load tickets into the ticket compartment 4 and thread the tickets through the mechanical compartment. The machine can be set on a table in the position as shown in FIG. 1, or flat on a table and the ticket compartment door 8 opened to completely expose the ticket compartment to the operator. As seen in FIG. 2, the tickets are simply placed in their proper position in the ticket compartment 4 and the loose end of the series of tickets is inserted around the spindle 34, between the plates 87 and 85, and up until it abuts the underside of the cutting device 94, which is approximately the length of two tickets.

Removal of the tickets is also simple in that all that is required is to gently pull the tickets from between the plates 85 and 87 towards the compartment and remove the roll from the compartment.

Referring now to FIG. 7, the device is connected to a power source at 24 and has a remotely controlled actuating switch 26 as previously described. The actuating switch 26 is connected through line 110 to the solenoid 112, and from the solenoid 112 through line 114 to the normally closed switch B. Switch B is connected to the other side of the power source through line 116. By closing the actuating switch 26, the solenoid 112 is energized and closes switches C and D. Closing switch C connects the power source through line 118 through switch C through line 120 to the motor 38. The motor 38 is connected through line 122 to the other side of the power source 24. The closing of switch D connects the power source 24 through line 118, through switch D, through line 124 to the solenoid 126. The solenoid 126 is connected to the other side of the power source through line 128 and 122. Switch A, the function of which will be explained later, is connected to the power source through line 130 and the motor 38 through lines 132 and 120; the motor 38 being connected to the other side of the power source through line 122 as previously explained.

When the ticket salesman closes switch 26, the solenoid 112 will be energized to close switches C and D. The closing of switch C causes the motor 38 to be energized and, through the gear box as shown in the previous figures, rotates cams 90 and 56. Rotation of the cam 56

will function to eject tickets from the device, and rotation of the cam **90** will function to operate the guillotine or cutting device **94** as previously explained. Associated with the cutting device **94** are two projections **134** and **136** which actuate switches A and B. Normally open switch A is constructed in association with projection **136** so that it will be closed before the projection **134** opens switch B. When the motor **38** is energized and rotates cam **90**, the cutting device **94** is moved against the bias of the spring **98** so that the projection **136** closes switch A. The closing of switch A creates a parallel circuit to the motor through line **130** from the source and through line **132** and **120** to the motor **38**, and from the motor **38** to the other side of power source through line **132**. Immediately after the closing of switch A, projection **134** opens switch B which deenergizes the solenoid **112**. Deenergizing the solenoid **112** opens the circuit to motor **38** through the switch C; however, the motor remains energized through switch A. Continued rotation of the cam **90** by the motor **38** causes the cutting device **94** to slip from the high portion **100** of the cam **90** to the low portion **102** under the bias of spring **98**. This causes the cutting edge **96** of the cutting device **94** to come in contact with the tickets and cut off a ticket. Also, the projections **134** and **136** close switch B and open switch A, in that order. The closing of switch B is ineffective if the actuating switch **26** is open. If the actuating switch **26** is open, the circuit leading through switch A is the only circuit, which energizes motor **38**. Consequently, withdrawing the projection **136** from the switch A opens switch A and the circuit leading to motor **38** is opened, thereby stopping the motor.

Between the actuating switch **26** and the solenoid **112** is a line **138** that leads from line **110** to **124**. When actuating switch **26** is closed and the solenoid **112** is energized to close switches C and D, and if the actuating switch **26** is opened again before a complete cycle of the motor, it can be seen that solenoid **112** will remain energized through a holding circuit comprised of: line **118** from the power source **24** through switch D, through line **138**, line **110**, solenoid **112**, line **114**, switch B, line **116**, and line **122** to the other side of the power source **24**. In this manner, as soon as the actuating switch **26** is closed to energize the solenoid **112**, the solenoid will remain energized until switch A is closed through the holding circuit created by line **138** even though the actuating switch **26** is immediately opened. In this manner, one ticket will be issued from the machine with only an instantaneous actuation of the actuating switch **26**.

When the solenoid **112** is actuated and switch D is closed, it can be seen that solenoid **126** is energized through line **118**, switch D, and line **114**; lines **122** and **128** connecting the solenoid **126** to the other side of the power source **24**. With this arrangement, solenoid **126** will be energized every time the machine cycles. Since the solenoid **112** which operates switch D is opened by switch B, the solenoid **126** will be deenergized when switch B is opened. However, if switch **26** is held closed by the ticket salesman, it can be seen that solenoid **126** will remain energized through switch **26**, lines **138** and line **124** to the solenoid **126**, and to the other side of the power source through lines **122** and **128**; or, through line **118** from the power source through switch D, and through line **124** to solenoid **126**, and back to the other side of the power source **24**. If the solenoid **126** remains energized by the ticket salesman holding the actuating switch **26** closed through more than one cycle, the solenoid **126** will hold the lever **140** and its tab-like projection **142** in the slot **104** of the cutting device **94**. Accordingly, when the cam **90** rotates to the point where the cutting device **94** would normally be biased by the spring **98** back toward the lower portion **102** of the cam **90**, the tab **142** fits into slot **104** so as to hold the cutting device **94** and keep it from cutting off tickets with its sharpened end **96**. In this manner, several consecutive cycles of the machine can take place to issue several tickets without cutting the tickets apart from each other.

It will be obvious to those skilled in the art that many variations may be made in the embodiments chosen for the purpose of illustrating the present invention without departing from the scope thereof as defined by the appended claims.

What is claimed as my invention is:

1. In a ticket dispensing device of the type wherein a series of connected tickets are moved along a prescribed path by movable elements which cyclically engage in spaced successive holes along the length of said series of tickets, the combination therewith of a ticket advancing member for intermittently engaging the surface of said series of tickets and means for synchronizing the movement of said movable elements and said ticket advancing member so that said movable elements are withdrawn from said holes during a portion of the cycle in which said ticket advancing member engages the surface of said tickets, means intermittently movable for selectively severing tickets from said series of tickets.

2. In a ticket dispensing device of the type wherein a series of connected tickets defining spaced apertures therein are moved along a predetermined path by movable elements which cyclically engage said tickets and move across the surface of said tickets until contacting one of said apertures and then move said tickets along said predetermined path, the combination therewith of a ticket advancing member having a resilient portion for intermittently engaging the surface of said series of tickets, means for synchronizing the movement of said movable elements and said ticket advancing member so that said movable elements are withdrawn from said apertures during the portion of the cycle in which said ticket advancing member engages the surface of said series of tickets and means selectively intermittently movable for separating at least one ticket from said series of tickets.

3. In a device for dispensing tickets of the type wherein a series of connected tickets defining spaced apertures therein are moved along a predetermined path from a ticket storage compartment by movable engaging elements which intermittently engage said series of connected tickets and move across the surface thereof until engaging one of said spaced apertures and then move said series of connected tickets along said predetermined path, the combination therewith of a rotatable ticket advancing member having a resilient portion for intermittently engaging the surface of said tickets, means for coordinating the movement of said movable engaging elements with the rotation of said rotatable ticket advancing member whereby said movable engaging elements move said series of tickets in alignment with said resilient portion of said rotatable ticket advancing member and are withdrawn from said spaced apertures during at least a portion of the cycle in which said resilient portion of said rotatable ticket advancing member engages the surface of said series of tickets, and means selectively and intermittently detaching at least one ticket from said series of tickets.

4. A ticket dispensing device for dispensing tickets comprising a motor, a cam shaft driven by said motor, a first cam fixedly attached to said cam shaft and having a projection extending therefrom for actuating a cam follower, a cam follower having a first component pivotally attached to a fixed point, a second component pivotally attached to said first component at an end remote from said fixed point in such a manner whereby said projection actuates said second component to displace it radially away from said cam shaft and subsequently actuates said first component to displace it radially away from said cam shaft thereby imparting a tangential motion to said second component, said second component having integrally constructed therewith a fork-like structure having pointed projections thereon for engaging said tickets; said first cam also having a flanged portion extending circumferentially around a portion of its periphery and radially out-

wardly and circumferentially displaced from said projection, said flanged portion having removably attached thereto a resilient surface constructed and arranged to frictionally engage said tickets; a cutting device biased toward said tickets, a second cam fixedly attached to said cam shaft and in close association with said cutting device to actuate said cutting device.

5. The device as claimed in claim 4 wherein the displacement of said first component is adjustable.

6. The device as set forth in claim 4 having means for selectively retarding the movement of said cutting device.

7. In a ticket dispensing machine of the type wherein a fork-like structure having projections thereon engages holes in a series of connected tickets to move them along a predetermined path, the combination therewith of a friction surface for subsequently engaging said tickets, means for cutting said tickets, and means for adjusting said fork-like structure with relation to said cutting means so that said tickets can be adjusted to be cut at various locations along their length.

8. In a ticket dispensing machine for dispensing tickets having the combination of a fork-like structure with projections thereon for engaging holes in said tickets, a friction surface for engaging the surface of said tickets, and cutting means for cutting said tickets; the improvement therein of said fork-like structure being constructed and arranged to slide said projections along the surface of said tickets until said projections engage one of said ticket holes and then moving said tickets in alignment with said friction surface whereby said tickets will be moved a distance according to their length and be cut between their lengths.

9. A ticket dispensing device comprising a ticket compartment and a mechanical compartment, said ticket compartment being constructed so that rolled or unrolled tickets of various widths and lengths can be retained in said ticket compartment and fed from said ticket compartment to said mechanical compartment, said mechanical compartment being constructed so that said tickets can be dispensed therefrom.

10. A ticket dispensing device as set forth in claim 9, and further comprising means for remotely controlling said mechanical compartment.

11. A ticket dispensing machine comprising an electrically actuated motor for ejaculating tickets from a ticket housing, means remotely positioned from said machine for actuating operation of said motor, means to continue said operation until a ticket has been ejaculated, said remotely positioned means energizing said means to continue said operation until a predetermined plurality of tickets has been ejaculated, and means for cutting said tickets at the end of said motor operation.

12. In a ticket dispensing device an electrical circuit comprising an electrical power source, a remotely situated actuating switch connected to said power source, a motor for dispensing tickets from a ticket housing, said actuating switch energizing a relay switch which connects said electrical power source to said motor, said relay switch being arranged with said power source to remain energized after said actuating switch is opened, said device being constructed and arranged to disconnect said motor from said power source after a predetermined period of time.

13. A method of dispensing tickets comprising sliding a pointed projection along a series of tickets until said projection contacts a hole in said tickets, moving said tickets a predetermined distance with said projections, contacting said tickets with a resilient member and thereby further moving said tickets another predetermined distance, and cutting said tickets.

14. A method of dispensing a series of apertured tickets of various lengths from a ticket container along a predetermined path, said method comprising threading said tickets through an adjustable spindle, sliding a bifurcated element over the surface of said series of tickets until said element contacts an aperture, moving said element and said series of tickets to a predetermined position, withdrawing said element from said aperture, contacting said tickets with a resilient member and further moving said series of tickets another predetermined distance, and cutting said series of tickets.

15. A method of dispensing a series of apertured tickets from a ticket container along a predetermined path, said method comprising sliding a bifurcated element over the surface of said series of tickets until said element contacts an aperture of said tickets, moving said tickets with said element to a predetermined position along said predetermined path, withdrawing said element from said aperture, contacting said tickets with a rotating resilient member and thereby moving said tickets another predetermined distance along said predetermined path, partially cutting said seires of tickets between the ticket lengths, and cutting the last ticket dispensed away from said series of tickets.

References Cited by the Examiner

UNITED STATES PATENTS

2,219,650	10/1940	Helsel	83—260 X
2,309,191	1/1943	Helsel	83—260 X
2,475,804	7/1949	Rouan et al.	83—242 X

FOREIGN PATENTS

666,430	2/1952	Great Britain.

WILLIAM S. LAWSON, *Primary Eaminer.*