

May 2, 1939.

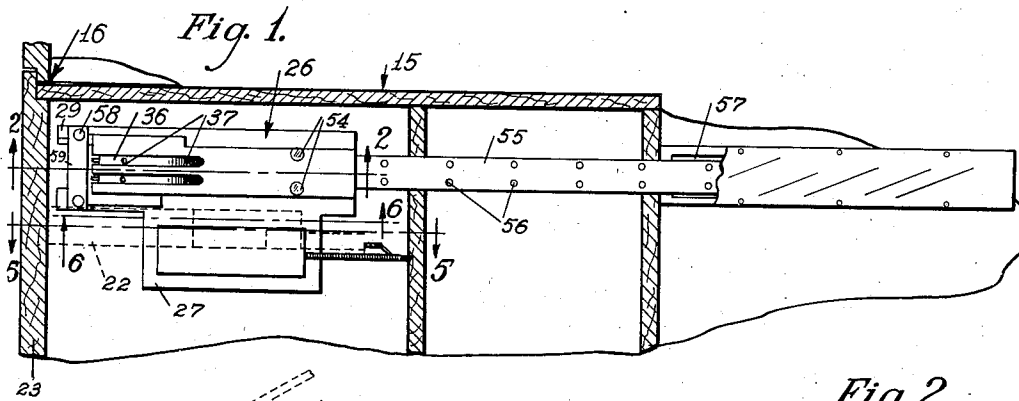
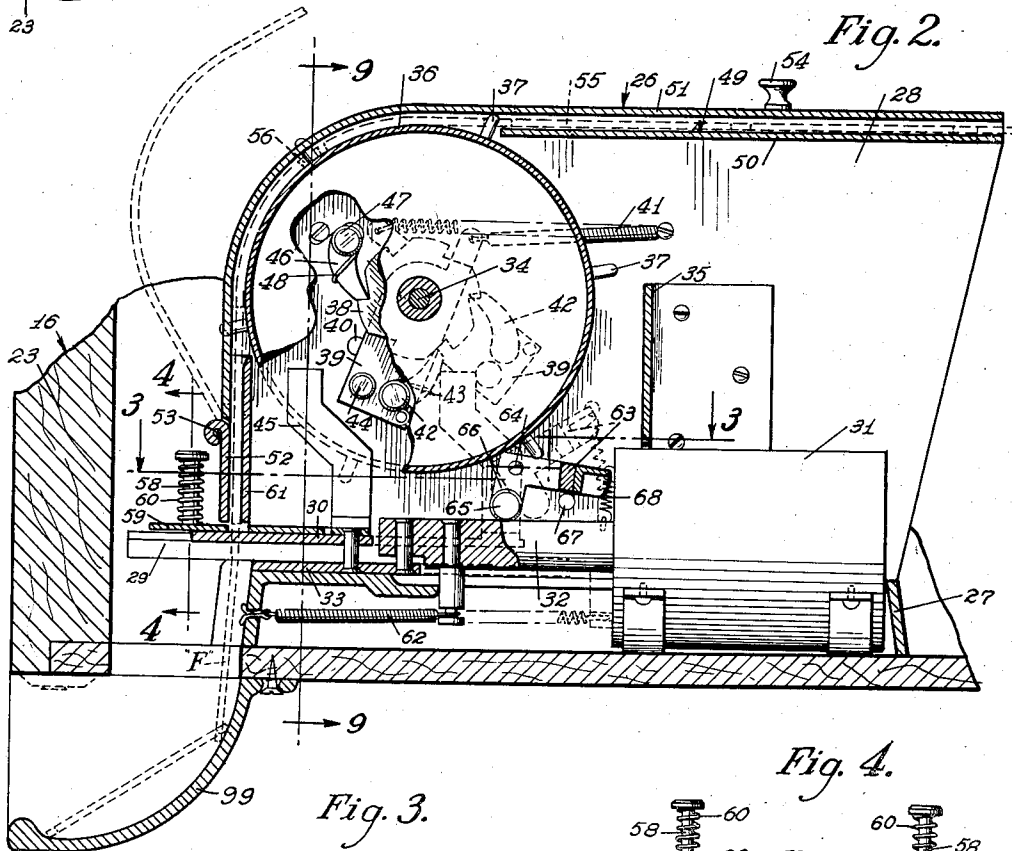
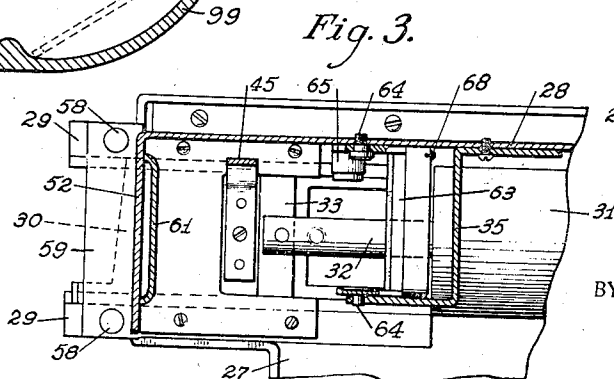
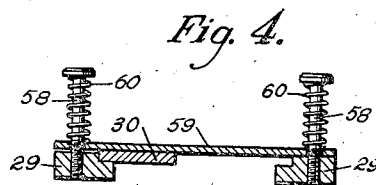
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2,156,931

SEVERING AND DISPENSING APPARATUS

Filed June 25, 1936

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

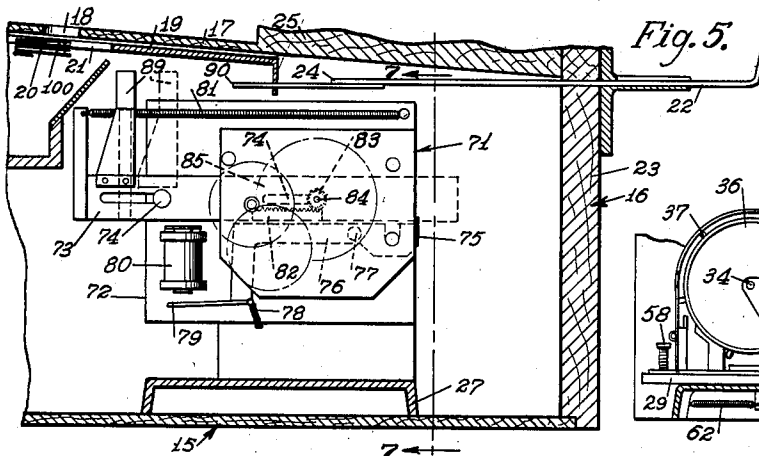


Fig. 5.

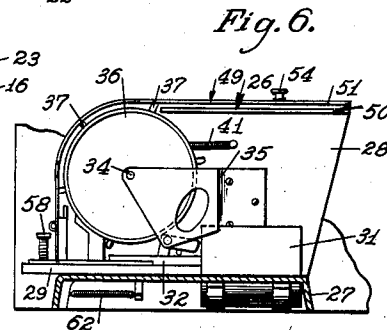


Fig. 6.

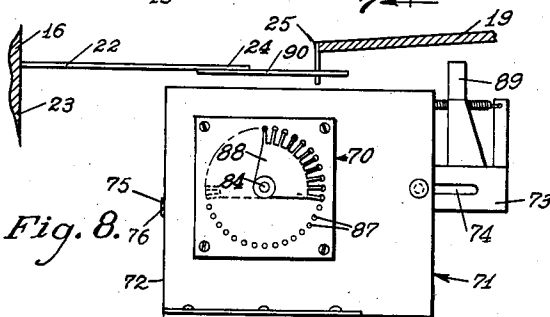


Fig. 7.

Fig. 8.

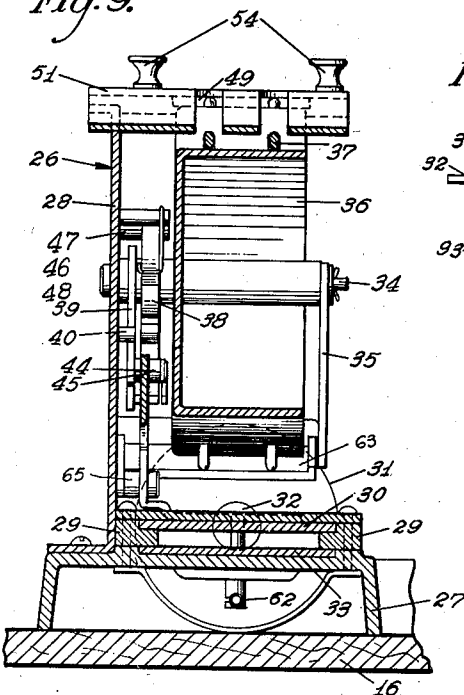


Fig. 9.

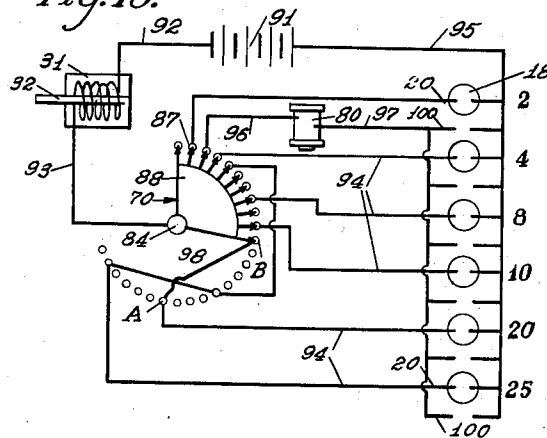


Fig. 10.

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UNITED STATES PATENT OFFICE

2,156,931

SEVERING AND DISPENSING APPARATUS

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Application June 25, 1936, Serial No. 87,228

10 Claims. (Cl. 164—49)

This invention relates to a severing and dispensing apparatus.

It is an object of this invention to provide an improved ticket dispensing device which is relatively simple and inexpensive in construction and efficient in use.

Another object of the present invention is to provide a ticket dispensing device which will issue a number of tickets corresponding to the score indicated at various outpockets in which played balls are adapted to be trapped.

A further object of the present invention is to provide an improved ticket dispensing device which will advance, sever and issue individual ticket portions in a relatively rapid succession.

A still further object of the present invention is to provide an improved ticket dispensing device which is of a simple and compact construction and which will render the device easily serviced.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings showing the preferred form of construction, and in which:

Fig. 1 is a fragmentary sectional plan view of an apparatus embodying the present invention;

Fig. 2 is a vertical sectional view taken on line 2—2 in Fig. 1;

Fig. 3 is a detail sectional plan view taken on line 3—3 in Fig. 2;

Fig. 4 is a vertical sectional view taken on line 4—4 in Fig. 2;

Fig. 5 is a sectional view showing a control for the new ticket dispensing device in elevation, and is taken along line 5—5 in Fig. 1;

Fig. 6 is a side elevational view of the present invention as seen along line 6—6 in Fig. 1;

Fig. 7 is a sectional elevation taken along line 7—7 in Fig. 5;

Fig. 8 is a side elevation taken along line 8—8 in Fig. 7;

Fig. 9 is a vertical cross section as seen along line 9—9 in Fig. 2; and

Fig. 10 is a schematic wiring diagram of an electrical circuit for controlling the present invention.

Referring to the drawings, a game apparatus is generally indicated at 15 and comprises a cabinet 16 having an inclined playing surface 17 with ball pockets 18 formed therein; a ball retaining member 19 slidably mounted below the said inclined playing surface 17 for move-

ment parallel thereto, said ball retaining member supporting a pair of ball actuated switches 20 and 100 below each of the pockets 18 and adjacent auxiliary openings 21 formed in the ball retaining member; a coin slide 22 is slidably mounted in a front wall 23 of the cabinet 16 and has its inner end portion 24 disposed in a plane whereby it is engageable with an arm 25 which depends from and is supported by the ball retaining member 19, when the coin slide 22 is moved inwardly (right to left, Fig. 5).

Suitably mounted in the cabinet 16 is a web advancing and severing unit 26 having a base 27 which supports: a vertical wall member 28, a pair of guide rails 29 for guiding a movable shearing element 30, and a means for effecting the slidable movement of the shear element 30 in the form of a solenoid 31 which has its armature 32 pivotally connected to a link 33 which is mounted upon the base 27 for slidable movement below the guide structure 29; said link 33 having pivotal connection with the movable shearing element 30. The armature 32 is urged into normal position by a spring 62.

Supported by each guide rail 29 is a vertically extending pin 58, and slidably mounted on these pins 58 transversely of the guide rails 29 is a stationary shear element 59 which is urged into shearing engagement with the upper surface of the movable shear element 30 (Fig. 9) by springs 60.

A shaft 34 is suitably mounted between the vertical wall 28 and the free end portion of a bracket 35 which is supported by the wall 28 as shown, and mounted upon the shaft 34 for rotatable movement therearound is a web advancing drum 36 which is provided with projecting lugs 37 for reasons which will become apparent presently. A ratchet member 38 is fixedly connected to the web advancing drum 36, by a common hub portion, for rotatable movement about the shaft 34. Loosely mounted upon the shaft 34, for pivotal movement, is an arm 39 which is normally urged into engagement with a stop 40 by a spring 41. Pivotaly mounted upon one free end portion of the arm 39 is a pawl 42 which is urged into engagement with the periphery of the ratchet 38 by a spring 43. Likewise mounted upon the free end portion of the arm 39 is a roller 44 which is adapted to be engaged by an arm 45 which extends vertically from the movable shear element 30 upon which it is mounted. A pawl 46 is pivotally mounted as at 47 upon the vertical wall 28 and is urged into engage-

ment with the peripheral edge of the ratchet 38 by a spring 48.

The web advancing and severing unit 26 is provided with a guideway 49 which is composed of a horizontally disposed support 50 and a cover plate 51 which extends around a segmental portion of the web advancing drum 36 in order to guide tickets around the latter from a horizontal plane to a vertical plane. The cover plate 51 has one end portion hinged to a lateral extension 52 of the vertical wall 28 as at 53, and its opposite end portion normally held in the position shown, by thumb nuts 54. It is to be noted that by a removal of these thumb nuts 54 the cover plate 51 may be pivoted out of its normal position (dotted lines Fig. 2) to permit a ticket or web 55 to be placed over the drum 36 with the lugs 37 thereof extending through openings 56 formed at intervals in the ticket 55, and the cover 51 again placed in fixed position as shown. The tickets 55 are stored within the cabinet 15 in a suitable compartment 57.

Supported upon the lateral extension 52 in spaced relation with respect to the latter is a member 61 which forms a guideway for the free end portion of the ticket 55 to guide the latter into cutting position.

The web advancing drum 36 is limited in its advancing movement by a latch bar 63 which is pivotally mounted between the vertical wall 28 and the supporting bracket 35 as at 64 for intermittent movement into and out of latching engagement with the lugs 37 on the periphery of the drum 36 by engagement of the vertically extending arm 45 with a roller 65 which is mounted, eccentrically of the pivotal point 64, on a depending arm 66 formed as an integral part of the latch bar 63. The latch bar 63 is normally held in ineffective position against a stop member 67 by a spring 68.

The solenoid 31 is embodied in an electrical circuit (Fig. 10) and is controlled by a commutator 70 of a timing unit 71. This unit 71 (Fig. 5) consists of a structural frame 72 having a slide bar 73 mounted thereon by pin and slot connections 74. The slide bar 73 is held in the position shown by a laterally extending portion 75 of a latch bar 76 which is pivotally mounted upon the structural frame 72 as at 77 and is urged into the position shown by a spring 78 having one end portion anchored to the frame 72 and its opposite end portion connected to a horizontally disposed portion 79 of the latch bar 76. An electro-magnet 80 is mounted upon the frame 72 and is adapted to attract the horizontally disposed portion 79 of the latch bar 76 so as to pivot the latter at 77, and this moves the laterally extended portion 75 out of engagement with the slide bar 73, whereupon the slide bar 73 will be urged in a direction from left to right (full to dotted line position) Fig. 5, by a tensioned spring 81. A rack bar 82 which is mounted upon the slide bar 73 engages with a gear 83 mounted upon a shaft 84 supported in the frame 72, and during the movement of the slide bar 73 from left to right (Fig. 5) the latter is retarded by a train of gears 85 having connection with the shaft 84 through a clutch arrangement 86. The commutator 70 is mounted upon the structural frame 72 and consists of a plurality of contact points 87 which are engageable by the contact fingers of a wiper member 88 which is fixed to the shaft 84 for movement therewith.

Extending vertically from the slide bar 73, upon which it is mounted, is an arm 89 which

is engageable by an extended arm 90 of the coin slide 22 so as to urge the slide bar 73 from dotted to full line position (Fig. 5) upon the inward stroke of the coin slide 22. This movement of the slide bar 73 will then be transmitted into the shaft 84 through the rack 82 and gear 83 thus resetting the wiper member 88 back into initial position (Fig. 8), the clutch member 86 moving over the connection to the train of gears 85, thus permitting an unretarded movement of the shaft 10 in a direction clockwise, Fig. 5.

Referring more particularly to Fig. 10 in which is shown a schematic wiring diagram of an electrical circuit, 91 indicates a source of electric energy the one side of which is connected to one side of the solenoid 31 by a conductor 92. A conductor 93 connects the opposite side of the solenoid 31 to the wiper member 88. The contact points 87 are connected to one side of the switches 20 by conductors 94, the opposite sides of which are grounded back into the source of energy by a conductor 95. The electro-magnet 80 has one side thereof connected to one of the contact points 87 and the opposite side thereof connected to one side of the switches 100 by a conductor 97, the opposite sides of which are grounded into the conductor 95.

It is to be understood that the connections of the switches 20 to the contact points are in conformity to certain score values and that the arrangement of the wires may be interchangeable with the various contact points 87, thus allowing an interchangeable score value with respect to the corresponding pockets 18.

Having described the construction of the present invention, an example of operation will now be given.

As shown in the drawings, the apparatus is in reset position and ready for playing. A ball is projected, by a manually operated plunger (not shown), into the upper area of the inclosed play board 17, gravitating thereover until trapped in one of the pockets 18, for example let it be the score opening 18 identified by the score number 20 (Fig. 10), whereupon current will flow from the source of energy 91 through the conductor 95 and the switch 100 associated with the score opening identified by the number 20, and by way of the conductor 97 into the electro-magnet 80, through the latter and by way of the conductor 96 into the contact point 87 associated therewith, thence by way of the wiper 88 and the conductor 93 into the coil of the solenoid 31 through the latter and the conductor 92 back into the source of energy 91. Simultaneously, current will flow from the source of energy 91 through the conductor 95 and the switch 20 associated with the score opening identified by the number 20 and by way of the conductor 94 into the contact point 87 identified by the letter "A" which is connected to the contact point 87 identified by the letter "B" by means of a conductor 98, thus causing current to flow through latter and by way of the wiper 88 and conductor 93 into the solenoid, through the latter and by way of the conductor 92 back into the source of energy 91.

The energization of the electro-magnet 80 causes the latter to attract the portion 79 of the latch bar 76, thereby pivoting the latter at 77 and disengaging the portion 75 with respect to the slide bar 73, whereupon the slide bar 73 will be free to move from left to right (Fig. 5) by action of the tensioned spring 81. The rack bar 82 will then transmit the motion into the shaft 84 by way of the gear 83 so that the shaft 84

will rotate the wiper 88 (clockwise Fig. 8), it being understood that this motion is retarded by the train of gears 85 which is brought into action through the clutch arrangement 86. Once the slide bar 73 is released for movement from left to right (Fig. 5) it passes all the way into full stroke or spent position (dotted lines Fig. 5), thus causing the wiper 88 to revolve with the shaft 84 into dotted line position (Fig. 8), the movement of the wiper fingers over the contact points 87 being such that the circuit is made and broken alternately.

The foregoing flow of current through the coil of the solenoid 31 causes the armature 32 to be attracted left to right, Fig. 2, and simultaneously causes the slide bars 33 and 30 and the vertically extending arm 45 to move from left to right (full to dotted lines Fig. 2) in which position the cutting edge of the element 30 will be to the right of the guide wall 61 (Fig. 3). In the course of movement of the arm 45 from full to dotted lines (Fig. 2) the arm 45 will engage the roller 44 and rock the arm 39 into dotted line position, and accordingly the pawl 42 will engage in the adjacent tooth in the ratchet 38 and cause the web advancing drum 36 to be rotated about the shaft 34 one step, corresponding to the distance between two lugs 37, thus moving a corresponding length of ticket through the guideway 49 into the vertical guideway formed by the extension 52 and the wall 61 supported thereby, and moving the free end portion of the ticket 55 into the position shown at "F". More than one length of ticket is prevented from passing into position "F" by means of the latch bar 63 which, upon the latter part of the movement of the arm 45, is urged into dotted line position (Fig. 2) by engagement of the latter with the roller 65, the latch bar 63 blocking further movement of the drum 36 by engaging the lugs 37.

It is to be understood that the first impulse of current through the circuit has caused the foregoing movement of the drum 36. The wiper 88 is now moving slowly in a clockwise direction, Fig. 8, and the contact fingers of the latter move off the contact points upon which they are shown (Fig. 8), thus breaking circuit to the coil of the solenoid 31, whereupon the armature 32 is freed from magnetic attraction and will be urged back into full line position by the spring 62. The shear element 30 will likewise move back into initial position and in doing so the cutting edge of the latter will sever the end portion "F" of the ticket 55 from the pack, in its shearing engagement with the stationary shear element 59, whereupon the severed portion of the ticket will be vended or issued to the customer by means of a suitable chute 99.

The wiper continuing in its clockwise movement will cause the contact fingers to engage the contact points 87 "A" and "B" so as to complete the circuit to the coil of the solenoid 31 twenty consecutive times thereby actuating the ticket advancing and severing unit a corresponding number of times to issue twenty tickets into the chute 99.

With the apparatus in spent position, that is with the slide bar 73 in dotted line position (Fig. 5) and a ball resting in one of the pockets 18, an operation of the coin slide 22 is required in order to reset or put the apparatus into playable position. To this end a coin of proper denomination is placed in an aperture of the slide 22 and the latter is pushed inwardly (right to left Fig. 5) whereupon the inner end portion 24 of the slide

22 will engage the depending arm 25 of the ball retaining member 19, and the extension 90 of the slide 22 will engage the vertically extending arm 89 of the slide bar 73 so that when the slide 22 reaches full stroke position the ball retained by the switch 20—100 will drop through an auxiliary opening formed in the member 19 and drop onto a ball return runway which will direct the thus liberated ball to an elevating means (not shown), and simultaneously the slide bar 73 will be urged into full line position against the action of the spring 81, whereupon the spring 78 will pivot the latch bar 76 at 77 and cause the laterally extending portion 75 to latch the bar 73 against movement by action of the spring 81.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification, without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to protect by Letters Patent is:

1. Dispensing mechanism comprising a cabinet provided with a dispensing outlet, a ticket advancing and shearing means within said cabinet and including a supporting structure having a shaft mounted thereon, a web advancing drum supported upon said shaft and having a ratchet formed thereon engageable with a pawl, said pawl being supported upon an arm which is loosely mounted upon said shaft, an arm extending vertically from a movable shear element and engageable with a roller carried by said loosely mounted arm, said movable shear element being slidably mounted in said supporting structure and having connection with a reciprocating means for movement therewith, said web advancing drum being arranged to advance a web from one plane of movement into a plane which is at right angles to the first named plane, said last named plane transversing the path of movement of said movable shear element, said movable shear element having shearing engagement with a stationary shear element; and means for actuating said reciprocating means thereby causing the free end portion of said web to be severed and delivered to said dispensing outlet.

2. A dispensing apparatus comprising a plurality of selectively operable switch members, a ticket advancing and shearing means and including a supporting structure having a shaft mounted thereon, a web advancing drum supported upon said shaft and having a ratchet formed thereon engageable with a pawl, said pawl supported upon an arm which is loosely mounted upon said shaft, an arm extending vertically from a movable shear element and engageable with a roller carried by said loosely mounted arm, said movable shear element being slidably mounted in said supporting structure and having connection with a reciprocating means for movement therewith, said web advancing drum being arranged to advance a web from one plane of movement into a plane which is at right angles to the first named plane, said last named plane being transverse to the path of movement of said movable shear element and the latter having shearing engagement with a stationary shear element; and electrical means controlled by the said switch members for selectively actuating the said recip-

rotating means a predetermined number of times thereby delivering a predetermined number of severed portions of the web into the said dispensing outlet.

3. Ticket dispensing mechanism for use with apparatus having a plurality of selectively operable switch means, said mechanism including a rotatable web-feed drum, reciprocally operable pawl and ratchet mechanism for rotating said drum in steps, an electrically driven device for reciprocating said pawl and ratchet mechanism, and means for shearing said web operable once for each web-feeding step of said drum, together with mechanism for energizing said electrically operable means to rotate said drum a determined number of steps responsive to the operation of a selected one of said switch means, said last-mentioned mechanism including a sequence switch having a plurality of fixed contacts and a movable contactor normally in a starting position and bridging a determined number of said fixed contacts, mechanical motor means for moving said movable contactor, electrically operable release mechanism for said mechanical motor means and operable to actuate the latter, said release means being in circuit with each of said first-mentioned selectively operable switch means, said electrically operable means for reciprocating the pawl and ratchet mechanism likewise being in circuit with each of said selective switch means for substantially simultaneous energization with said release means, both the latter and said first-mentioned electrically operable means being in circuit with a source of power through said fixed contacts and said movable contactor, and the latter being driven by said mechanical motor means upon operation of said electrical release means when one of said selectively operable switch means is actuated to energize said first-mentioned electrically operable reciprocating means until said movable contactor passes out of contacting engagement with the particular switch means actuated, and mechanism operable to restore said movable contactor to starting position and energize said mechanical motor means.

4. Ticket dispensing mechanism for use with apparatus having a plurality of selectively operable switch members, said mechanism including a web-advancing drum having radially extended web-engaging fingers, means mounting said drum for rotation, reciprocally operable ratchet mechanism for advancing said drum in steps, electrically operable driving means having a reciprocally movable drive member drivingly associated with said ratchet mechanism, stop means in the form of a member movable into blocking position relative to one of said radial fingers once for each reciprocation of said drive member, web-severing means including a stationary shear and a reciprocable shear cooperable therewith and drivingly connected with said reciprocable drive member for shearing movement once during each reciprocation of the reciprocable drive member aforesaid, together with control mechanism for energizing said electrically operable means a determined number of times depending upon which of said selectively operable switch members is actuated, said control means including a mechanically driven sequence switch and electrically operable release means in circuit with each of said selectively operable switch members and operable by actuation of any one of the latter to start the operation of said sequence switch, the latter having

a plurality of sequentially engageable contacts each in circuit with one of said selectively operable switch members, said switch further including a movable contact member in circuit with said first-mentioned electrically operable drum stepping means and operable when released to intermittently energize said electrically operable driving means through said sequentially engageable contacts until said moving contactor passes out of engagement with the particular fixed contact which corresponds to the selectively operable switch member actuated.

5. Ticket dispensing mechanism for use with apparatus having a plurality of selectively operable switch members, said mechanism including a web-advancing drum having radially extended web-engaging fingers, means mounting said drum for rotation, reciprocally operable ratchet mechanism for advancing said drum in steps, electrically operable driving means having a reciprocally movable drive member drivingly associated with said ratchet mechanism, stop means in the form of a member movable into blocking position relative to one of said radial fingers once for each reciprocation of said drive member, web-severing means including a stationary shear and a reciprocable shear cooperable therewith and drivingly connected with said reciprocable drive member for shearing movement once during each reciprocation of the reciprocable drive member aforesaid, together with control means including a sequence switch in circuit with said electrical driving means and each of said selectively operable switch members, and provided with electrically operable release means also in circuit with said selectively operable switch members and adapted to release said sequence switch for operation to energize said electrical driving means a determined number of times depending upon which of said selectively operable switches has been actuated.

6. Apparatus of the class described comprising a web feeding device, a cooperating web severing and dispensing device, electrically actuated means for operating said feeding device and said severing and dispensing device in synchronous relation, and electrically operated means comprising a plurality of selectable circuit closure members each adapted to effect the operation of said means a predetermined number of times for effecting the severing and dispensing of a corresponding number of sections of the web.

7. Apparatus of the class described comprising a web feeding device, a web severing and dispensing device, electrically actuated means for operating said web feeding device and said severing and dispensing device in synchronous relation, means comprising a multi-contact switch having a movable switch arm for effecting the intermittent operation of said operating means, means for operating said arm, and a circuit for said operating means and said switch comprising a plurality of selectable circuit closure members each adapted to cooperate with said switch for effecting the operation of said operating means a predetermined number of times for effecting the severing and dispensing of a corresponding number of sections of said web.

8. Apparatus of the class described comprising a web feeding device, a web severing device, electrically actuated means for operating said devices in synchronous relation, a circuit for said operating means comprising a multi-contact

switch provided with a switch arm movable into successive engagement with said contacts for controlling the actuation of said operating means, a timing device for actuating said switch arm for effecting the intermittent energization of said operating means, and a plurality of circuit closure members each adapted to cooperate with said switch for effecting the operation of said operating means a predetermined number of times for severing a corresponding number of sections from the web.

9. Apparatus of the class described comprising a web severing device, a device for feeding a web to said severing device for severance thereby, electrically actuated means for operating said devices in synchronous relation, a circuit for said operating means comprising a multi-contact switch provided with a cooperating movable switch arm for effecting the intermittent energization of said operating means, a plurality of circuit closure members each adapted to cooperate with said switch for effecting the actuation of said operating means a predetermined number of times for effecting the severing of a corresponding number of sections of said web,

mechanism for timing the movement of said switch arm, and manually operable means for energizing said timing mechanism.

10. Mechanism for severing successive portions of a web and dispensing the same comprising a switch provided with a movable circuit closing arm and cooperating contacts, a plurality of selectably operable circuit closure members each when closed being electrically connected with certain of said contacts, a web severing device, a device for feeding a web thereto for severance of successive portions therefrom, electrically actuated means controlled by said switch for operating said severing and dispensing devices in synchronous relation a predetermined number of times in accordance with the circuit connections of said contacts with said selectably operable closure members, timing mechanism for operating said arm to and from circuit closing relation with respect to said contacts for effecting the intermittent action of said operating means, and a manually operable device adapted to energize said timing mechanism.

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