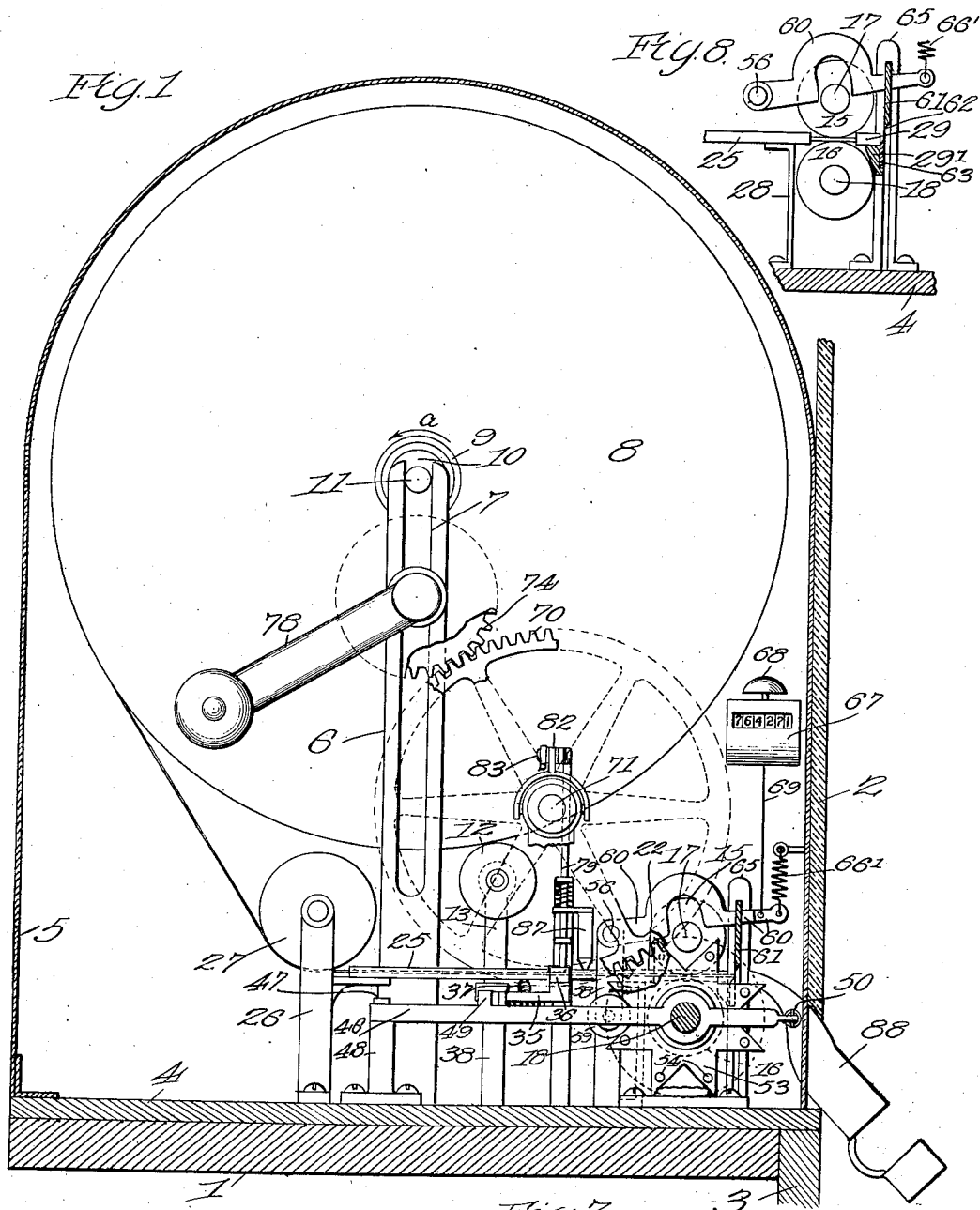


C. H. CRAWFORD.  
TICKET DISPENSER.  
APPLICATION FILED JAN. 21, 1909.

955,385.

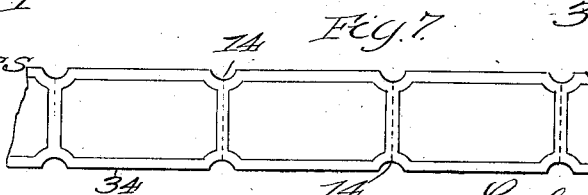
Patented Apr. 19, 1910.

2 SHEETS—SHEET 1.



Witnesses

G. A. Brown,  
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Carl M. Crawford

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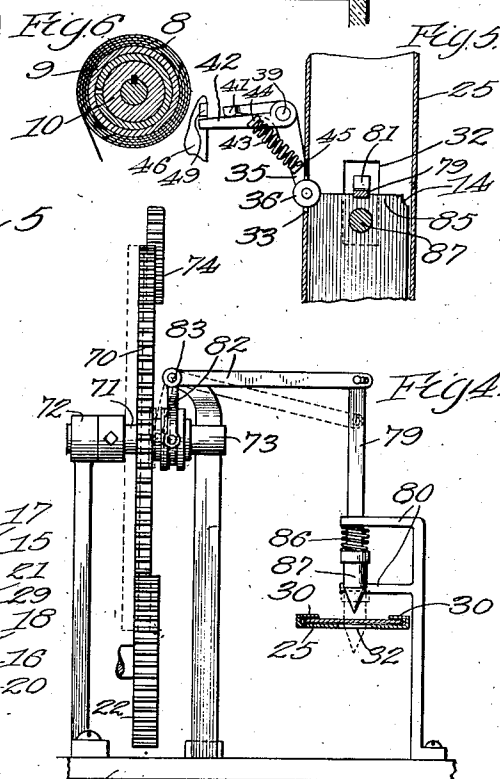
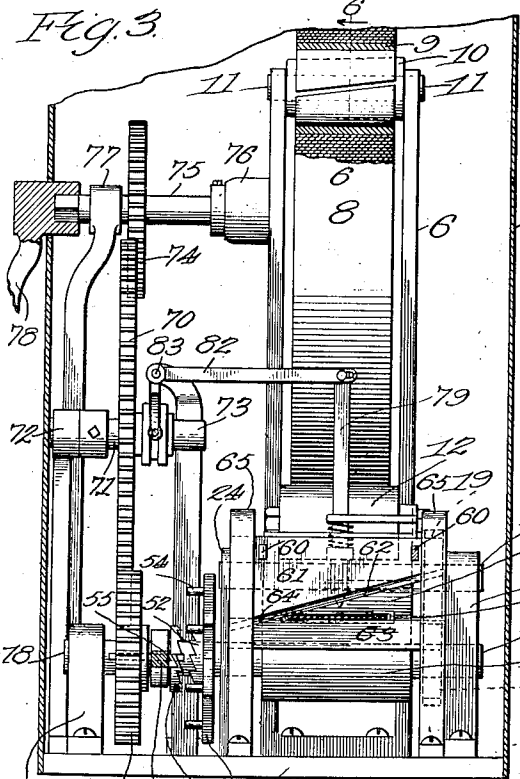
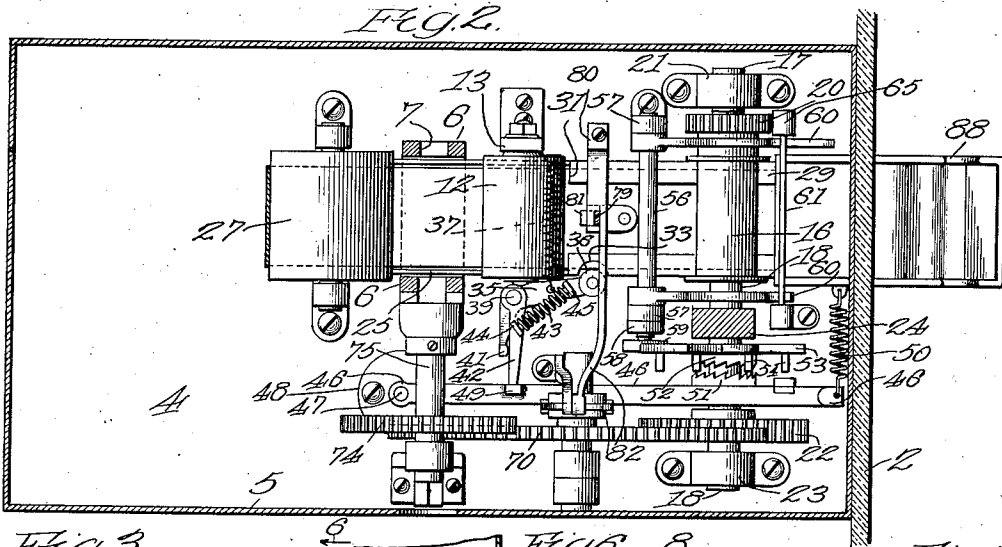
TICKET DISPENSER.

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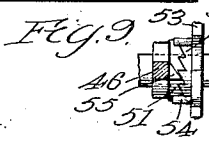
955,385.

Patented Apr. 19, 1910.

2 SHEETS—SHEET 2.



23 22 46 51 4  
Witnesses  
Ed. Davies  
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# UNITED STATES PATENT OFFICE.

CARL H. CRAWFORD, OF CHICAGO, ILLINOIS, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO MILLS NOVELTY COMPANY, A CORPORATION OF ILLINOIS.

## TICKET-DISPENSER.

955,385.

Specification of Letters Patent.

Patented Apr. 19, 1910.

Application filed January 21, 1909. Serial No. 473,517.

*To all whom it may concern:*

Be it known that I, CARL HENRY CRAWFORD, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Ticket-Dispenser, of which the following is a specification.

This invention relates to improvements in ticket dispensing machines designed to be operated by a cashier for the purpose of supplying a ticket to a purchaser subsequent to the payment, to the cashier, of a prescribed amount.

One object of the invention is the provision of a sub-dividing mechanism for subdividing a strip of paper into single tickets, which mechanism is actuated by a feeding mechanism and is tripped into driven relation with the feeding mechanism by means cooperating with the paper or ticket strip.

A further object of the invention consists in the provision of means cooperating with the ticket strip to throw the machine out of gear at a predetermined time.

A further object consists in means for mutilating or defacing the last ticket of the strip, preferably, when the machine is thrown out of gear.

The invention has other objects which will be more fully set forth in connection with the accompanying drawings and will be more particularly pointed out and ascertained in and by the appended claims.

In the drawings:—Figure 1 is a side elevation of a machine embodying the main features of my invention, with the casing shown in section. Fig. 2 is a plan sectional view thereof. Fig. 3 is a sectional view on line 3—3 of Fig. 1. Fig. 4 is an enlarged detail view of the mechanism for throwing the machine out of gear. Fig. 5 is a detail plan sectional view of the strip guide with the paper strip and a part of the throw-out mechanism shown in Fig. 4. Fig. 6 is a sectional view of the spindle inserted in the roll. Fig. 7 is a plan view of a portion of the ticket strip. Fig. 8 is a side elevation of the knife guide and support showing the manner of supporting the lower stationary knife. Fig. 9, is a detail sectional view of a portion of the clutch and clutch lever.

Like numerals of reference designate similar parts throughout the different figures of the drawings.

As shown 1 designates the change shelf

of a cashier's cage while the usual front glass is indicated at 2 and the lower front wall at 3. The machine preferably includes a base 4 to which all of the bearings of the operative parts are secured and which may be disposed upon or anchored to the change shelf 1 in any desired manner. A casing 5 surrounds the mechanism and may be secured to the base 4 in any desired manner.

An upright 6 is mounted on the base 4 and is slotted at 7 to receive a ticket roll spindle. The roll of tickets 8 is usually wound upon a paste-board core 9 and a roll spindle is provided having a conical central portion 10 and lateral trunnions 11 projecting therefrom. The ends of the body portions 10 engage the inside portions of the upright 6 and the trunnions 11 fit in the slotted portion 7 as clearly shown in Figs. 1 and 3.

A support is provided for the ticket roll to support the same in the upright 6 and as shown the support consists of a roller 12 mounted in an upright 13. As the roll 8 is unwound the roller 12 permits free rotation of the roll 8 and the center of the roll gradually descends as the roll diminishes in size. The roller 12 is preferably disposed out of vertical alinement with the roll spindle so as to normally thrust the trunnions 11 in the direction of the arrow *a*, of Fig. 1, so as to produce a sufficient amount of drag to prevent the roll 8 from unwinding too freely. By this means I avoid the provision of springs and any part engaging the roll except the roller 12 and I also avoid the provision of any kind of fastening means for the spindle in the upright 6.

The roll 8 consists, in the present embodiment, of a continuous strip of paper having a width equal to the width of a single ticket and the separate tickets are preferably printed on the strip, and on both sides thereof, before the roll is made up so that when the machine delivers a ticket it will be a printed ticket having, if desired, subject matter identifying the establishment in which it is used. As shown in Fig. 7, the strip of paper of which the roll 8 is composed is notched at 14 and as shown the notches are formed on both sides of the ticket although this is an incident to the printing process or system now in use as in the present machine the ticket need only be notched on one side. The notches 14

are disposed along the outer margin of the strip at points equal to the length of a single ticket, or at such points as it is desired to sub-divide the strip into tickets of a predetermined length.

Feeding mechanism is provided and as shown the same is in the form of rollers 15 and 16 mounted upon shafts 17 and 18 respectively. The ends of said shafts carry gears 19 and 20, respectively, and a bearing 21 is provided outside of said wheels. Said gears 19 and 20 insure rotation of the rollers 15 and 16 in unison. The opposite end of the shaft 18 is provided with a gear wheel 22 and is mounted in a bearing 23. An intermediate bearing 24 is provided for said shafts 17 and 18.

A ticket strip guide 25 is mounted upon a standard 26, at one end, which standard carries a roller 27 beneath which the strip passes to the guide 25 as clearly shown in Fig. 1. The opposite end of said guide 25 is mounted upon a support 28 and said guide extends from the roller 27 to the feed rolls 15 and 16. The paper strip is inserted through the guide 25 in starting the machine, until it reaches the feed rollers. Between the feed rollers and the sub-dividing mechanism there is a short guide 29 similar in cross-section to the guide 25, which guide 29 is supported at 29'. As shown in Fig. 4 the guides 25 and 29 consist of flat plates having lateral margins 30 overhanging the strip so as to retain the same in place. As shown in Fig. 2 the overhanging margin extends rearwardly to a point indicated at 31. The guide is entirely open from the point 31 to the roller 27 so as to facilitate insertion of the strip when the roll is first put in and to facilitate withdrawal of the last ticket when the roll is exhausted, as will hereinafter more fully appear. The bottom of the guide 25 is provided with an opening 32 the purpose of which will hereinafter more fully appear. On one side the guide 25 is provided with a recess 33 through which the margin 34 of the strip projects and with which the notches 14 register when the strip is advanced in the guide 25. A bell crank lever is provided with a roller 36 which is held in the recess 33 by a spring 37, connected with said lever 35 and with a suitable stationary part. When the straight margins 34 of the strip are adjacent the recess 33 said margins hold the roller 36 outwardly from the recess 33, as shown in Fig. 2, but when the notches 14 register with the recess 33 the spring 37 draws the roller 36 into the recess as shown in Fig. 5. The lever 35 is pivoted on a support 38 at 39 and is provided with an upwardly projecting lug 41. A trip arm 42 is also pivoted at 39 and is held in engagement with the lug 41 by a spring 43 interposed between lugs 44, and 45 on the lever 35. The spring 43 is an ex-

pansible spring and normally holds the arm 42 against the lug 41, in the position shown in Fig. 2, but permits movement of the trip arm 42 to the right. A clutch lever 46 is pivotally mounted at 47, to a support 48, and is provided with a lug 49 which is engaged by the trip arm 42 to hold the lever 46 in the position shown in Fig. 2. When a notch in the ticket strip reaches the recess 33 it allows the roller 36 to recede therein, the movement of the bell crank lever 35, under the action of spring 37, acts through the lug 41 to shift the trip-arm 42 out of engagement with the lug 49 of lever 46. A spring 50 connected with the lever 46 swings the same toward the feed rolls as soon as the lug 49 is released and the trip arm 42 slides on the right hand side of the lug 49, as clearly shown in Fig. 5. The clutch lever 46 is connected with a clutch member 51 which is splined to the shaft 18 and serves to throw said clutch member 51 into engagement with a clutch member 52 which is loosely mounted on the shaft 18.

A star wheel 53 is secured to the clutch member 52 and is provided with pins 54 adapted for engagement with a lug 55 on the lever 46. A shaft 56, mounted in bearings 57 carries a rigidly secured arm 58 on the lower end of which is a roller 59 which is engaged and operated by the star wheel. Knife arms 60 are rigidly secured to the shaft 58 and project forwardly through the knife 61. The knife 61 is provided with an inclined cutting end 62 so as to afford a draw-cut and coöperates with a stationary knife 63. In order to maintain the knives 61 and 63 (which comprise the sub-dividing mechanism) in close engagement the knife 61 is so proportioned that the lower left hand corner 64 will be in engagement with the knife 63 when the knife 61 is in its upper position. The knife 61 extends into guides 65 which permit of reciprocation of the knife 61 by the arm 60 when the shaft 66 is actuated by the star wheel through the arm 58. The star wheel 53 produces the downward cutting action while a spring 66' returns the knife to the position shown in Fig. 1. The parts are so arranged that when the point of one projecting portion of the star wheel has passed under the roller 59 a corresponding pin will have been advanced into engagement with the lug 55 and will have shifted the lever 46 to disengage the clutch members before the roller 59 engages the lowest point between the point projections, such pin having passed the lug 55. Reliance is placed upon the spring 66' to complete the right hand movement of the roller 59 into the lowest position of the star wheel so as to arrest the star wheel when the roller 59 has reached the position shown in Fig. 1, and thereby stop the knife 61 at the upper position. At such a time the clutch

members will be out of engagement and the spring will serve to stop the star wheel. The outward movement of the clutch lever 46 by one of the pins 54 will move the lug 49 outwardly far enough to allow the spring 43 to flip the trip arm 42, from the position shown in Fig. 1 to the position shown in Fig. 5. The knife cannot operate until the next notch 14 trips the lever 35. It will thus be seen that while the knife is operated from the source of power applied to the feeding roller it is tripped into and out of action so as to always cut the strip of tickets into predetermined lengths without regard to the specific extent of rotation of the feed rollers. Therefore reliance is not placed upon the feed rollers or any stoppage mechanism whatever for operating the feeding mechanism for a predetermined distance to advance the strip a predetermined length and the strip is always sub-divided at points adjacent the notches 14 by reason of the fact that the roller 36 and the recess 33 are disposed a distance rearwardly from the knife equal to the length of one ticket. It will be clear from the foregoing that while the knife is driven from the shaft of one of the feed rollers it is not necessarily driven in timed relation with the feed rollers as a longer ticket would require a greater rotation of the feed rollers to advance it to the knife than would a shorter ticket therefore the knife is driven in timed relation with the notches on the ticket strip. A counter 67 is disposed in said casing 5 and is provided with a bell 68 and a connection 69 with one of the knife arms 60 so that every time the knife is actuated to sub-divide the strip into a ticket the counter is operated and totals the number of tickets out. An intermediate gear 70 is slidably mounted upon shaft 71, secured in bearings 72 and 73, and meshes with gear 22. A crank gear 74 is mounted upon a shaft 75 having bearings 76 and 77. A crank 78 is secured to said shaft 75 and is operated by the cashier to actuate the gear 74.

I will next describe how the machine is thrown out of gear when the roll 8 has been exhausted and the last ticket has reached the knife. A spring actuated arm 79 is mounted in bearings 80 and is provided on its lower end with a foot 81 which rests on the paper strip as it is being fed or advanced through the guide 25. The upper end of the arm 79 is connected with a bell crank lever 82, pivoted at 83 and provided with a fork 84 engaging the hub of the gear 70. When the last ticket has reached the position shown in Fig. 5 the last notch 14 permits the roller 36 to be swung inwardly so as to actuate the star wheel through the clutch, heretofore described, and cut off the next to the last ticket. Immediately thereafter the end 85 of the last ticket will have been advanced

from under the foot 81 and the latter will drop under the action of spring 86 thereby acting through the bell crank lever to shift the gear 70 out of mesh with the gear 74. As will be seen by reference to Fig. 3 the gear 70 is in full mesh with the gear 22 but is in half mesh with the gear 74 so that when the gear 70 is thrown out of mesh with the gear 74 it will still be in mesh with gear 22. It will thus be seen that it will be merely necessary for the operator to reengage the gear 70 with the gear 74 when the machine is again started.

In order to prevent the cashier from surreptitiously selling the last ticket after it has been removed from the machine I desire to mutilate the last ticket and to this end a mutilator 87 is connected with the rod 79 so that when the foot drops the mutilator will pass through the ticket and punch the same so as to indicate to the ticket taker that this ticket is void. It will be obvious that when the gear 70 has been thrown out of mesh with the gear 74 it will be impossible to further advance the strip by reason of the fact that the crank 78 will rotate freely without ringing the register bell 68 or operating the knife and this will indicate to the operator that the ticket roll has become exhausted. The casing 5 will then be removed, the spindle and core raised upwardly out of the slot 7. A new roll will be inserted and then the operator will push the gear 70 into mesh with the gear 74 thereby raising the rod 79 and with it the foot and mutilator so that the end of the strip can be inserted beneath the roller 27 and the guide 25 and up to feed rollers 15 and 16. In inserting the strip the operator will hold the arm 35 outwardly until the notch at the intersection of the first and second ticket of the strip has passed the wheel 36, when the arm 35 will be released by the operator. The insertion of the strip in the guide 25 will support the foot 81 and hold the gear 70 in mesh with the gear 74 and the mutilator will be out of engagement with the strip by reason of the fact that it is somewhat elevated therefrom when the foot 81 is in the nominal position shown in Fig. 1. The machine will now be ready for operation and the casing will be replaced. The tickets will be delivered to the purchaser through a chute 88 projecting through the front glass 2 of the cashier's cage.

The bell 68 forms an audible signal indicating to the cashier that one ticket has been delivered and therefore I avoid the provision of any kind of stop mechanism which would reduce the speed with which the tickets could be consecutively delivered. According to the present construction if a purchaser desires ten tickets the crank must be rotated continuously until the bell rings a corresponding number of times and thereby

saves a great deal of time which is an important item at crowded periods. It will also be noted that the knife cannot operate until the roller 36 has been thrust into a notch 14 and therefore it is not necessary for the cashier to stop the crank at a predetermined point as the knife will not operate as the result of any slight further rotation of the feed rolls an amount less than the length of a ticket.

It will be seen that the notched strip is advanced toward the knife by the feeding means to bring a notched portion of the strip in cutting alinement with the knife, and that, at such time, the knife is placed in operative relation with the feeding means so that if the operation of the feeding means is continued the knife will cut off a ticket at a notched portion of the strip.

I claim:—

1. A machine for dispensing tickets from a ticket strip comprising in combination, means for advancing or feeding the ticket strip, means for cutting or sub-dividing the strip into tickets, said last mentioned means being adapted for operation by the ticket feeding mechanism but being normally disconnected therefrom, and means controlled by the ticket strip for operatively connecting the cutting mechanism with the strip feeding mechanism.

2. A machine for dispensing tickets from a ticket strip comprising in combination, means for feeding or advancing the ticket strip, means for sub-dividing or cutting the strip into tickets, said last mentioned means being adapted for operation by the feeding mechanism but being normally disconnected therefrom, means controlled by the ticket strip for operatively connecting the cutting mechanism with the feeding mechanism to thereby cause a ticket to be severed from the strip, and means operating automatically to thereafter disconnect the feeding and cutting mechanisms.

3. A machine for dispensing tickets from a previously notched ticket strip comprising in combination, means for advancing the ticket strip and means for operating the same, means for sub-dividing the strip into tickets, said last mentioned means being normally disconnected from the feeding or advancing mechanism, and automatic means for operatively connecting the ticket subdividing means with the strip advancing mechanism when a notched portion of the strip reaches a predetermined point in its travel.

4. A machine for dispensing tickets from a printed strip comprising in combination, a pair of feed rollers, means for applying power thereto for advancing the strip, mechanism for subdividing said strip into tickets, an element for driving said mechanism, a trip device controlled by the strip for throw-

ing said element into driving relation with the feed rollers to operate said mechanism, said element having means cooperating with said device for throwing itself out of driven relation with said feed rollers.

5. A machine for dispensing tickets from a printed strip comprising in combination, feed rollers for advancing the strip, a knife for cutting the strip into tickets, an element loosely connected with one of said feed rollers for operating said knife, and a trip device controlled by the ticket strip for throwing said element into driven relation with one of said feed rollers, said element having means for throwing itself out of driven relation with said feed roller.

6. A machine for dispensing tickets from a printed strip comprising in combination, feed rollers for advancing the strip, a knife for cutting the strip into tickets, a star wheel loosely connected with one of said feed rollers, a lever operatively connecting said knife and star wheel and provided with a roller engaging the points of the latter, a trip device controlled by the ticket strip for throwing said star wheel into driven relation with said feed rollers to operate said knife, pins disposed on said star wheel for engaging said trip device and throwing the star wheel out of driven relation with said feed rollers, and a spring connected with said lever for insuring stoppage of the star wheel at a predetermined point.

7. A machine for dispensing tickets from a printed ticket strip comprising in combination, feeding means for advancing the strip, mechanism for subdividing the strip into tickets, instrumentalities controlled by the ticket strip for placing said mechanism in driven relation with said feeding means, and a device controlled by the ticket strip for rendering the machine inoperative.

8. A machine for dispensing tickets from a printed ticket strip comprising in combination, feeding means for advancing the strip, mechanism for subdividing the strip into tickets, instrumentalities controlled by the ticket strip for placing said mechanism in driven relation with said feeding means, and a device controlled by the ticket strip for rendering the machine inoperative and mutilating a portion of the strip.

9. A machine for dispensing tickets from a printed strip comprising in combination, feeding means for advancing the strip, mechanism for subdividing the strip into tickets, instrumentalities controlled by the ticket strip for placing said mechanism in driven relation with said feeding means, and a device controlled by the ticket strip for mutilating a portion thereof.

10. A machine for dispensing tickets from rolled strip comprising in combination, means for advancing the strip, mechanism for subdividing the strip into tickets, a U-

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shaped vertically slotted standard for the roll, a spindle for the roll disposed in the vertically slotted portions of the standard, and a roller supporting said roll in said standard and located out of vertical alinement with the center of said roll for imposing a drag upon the unwinding action thereof.

11. A ticket machine for dispensing tickets from a strip comprising in combination, means for advancing the strip, mechanism for subdividing the strip into tickets, a gear wheel for said feeding means, an intermediate gear in full mesh with said first mentioned gear, a crank gear in half mesh with said intermediate gear, and means controlled by the ticket strip for thrusting said intermediate gear out of mesh with said crank gear and partly out of mesh with said feeding means gear to render the machine inoperative.

12. A machine for dispensing tickets from a previously notched ticket strip comprising in combination, means for advancing the strip, mechanism for sub-dividing the strip into tickets, said sub-dividing mechanism being normally out of driven relation with the strip advancing means, and a device for automatically placing said sub-dividing mechanism into driven relation with the advancing means when a notched portion of the ticket strip reaches a predetermined point in its travel.

13. A machine for dispensing tickets from a previously notched ticket strip comprising in combination, means for advancing the strip and means for operating the same, mechanism for sub-dividing the strip into tickets, said sub-dividing mechanism being normally disconnected from the strip advancing means, and a device for automatically placing said sub-dividing mechanism in driven relation with said feeding or advancing means whenever a notched portion of the ticket strip reaches a predetermined point in the travel of the strip.

14. A machine for dispensing tickets from a previously notched ticket strip, means for advancing the strip, a knife for sub-dividing the strip into tickets, means for operating said knife, said operating means being normally disconnected from the strip advancing means, and means for operatively connecting the knife operating mechanism with the strip advancing means whenever a notched portion of the ticket strip reaches a predetermined point in its travel.

15. A machine for dispensing tickets from

a ticket strip previously provided with marginal notches spaced apart from each other equal to the length of the tickets to be cut, a knife for cutting the strips into tickets having knife operating mechanism, feeding means for advancing the strip toward said knife to position a notched portion of the strip in cutting alinement therewith, and a device controlled by the ticket strip for placing said knife operating mechanism in operative relation with said feeding means when a notched portion of the strip is in cutting alinement with said knife.

16. A machine for dispensing tickets from a ticket strip previously provided with marginal notches spaced apart from each other equal to the length of the tickets to be cut, a knife for cutting the strip into tickets and provided with knife operating mechanism, means for advancing the strip toward said knife to position a notched portion of the strip in cutting alinement with said knife, and mechanism operating automatically for placing the knife operating mechanism in operative relation with the advancing means when a notched portion of the strip is in cutting alinement with said knife.

17. A machine for dispensing tickets from a strip previously provided with marginal notches spaced part from each other equal to the length of the tickets to be cut, a knife for severing the strip at its notched portions into tickets and provided with actuating mechanism, strip feeding means for advancing the strip to bring a notched portion of the strip in cutting alinement with the knife, and means operating automatically to operatively connect the knife actuating and strip feeding mechanisms whenever a notched portion of the ticket strip is brought into alinement with said knife.

18. A machine for dispensing tickets from a previously notched ticket strip comprising in combination, an operating handle, strip feeding mechanism controlled by said handle, mechanism for sub-dividing the strip into tickets, said sub-dividing mechanism being normally disconnected from said handle, and means operating automatically to connect the sub-dividing mechanism with the operating handle whenever a notched portion of the strip reaches a predetermined point in its travel.

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Witnesses:

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