E. E. SPENGLER.

TICKET MACHINE.

APPLICATION FILED JULY 6, 1917.

1,391,424.

Patented Sept. 20, 1921.

4 SHEETS—SHEET 1.

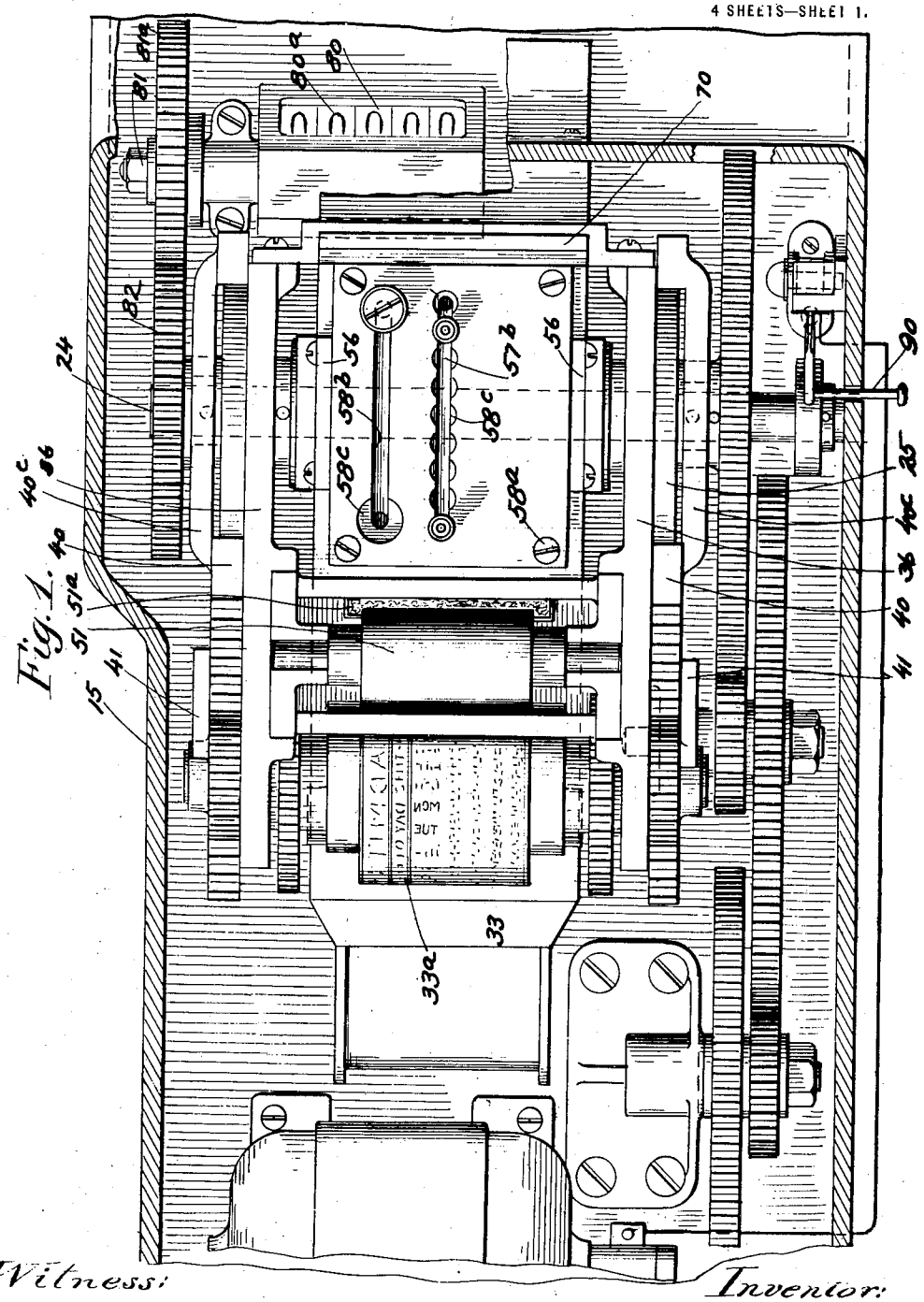


Fig. 1.

Witness:

C. C. Burnap

Inventor:

Edward E. Spengler

By Sheridan, Scott & Sheridan, Attys

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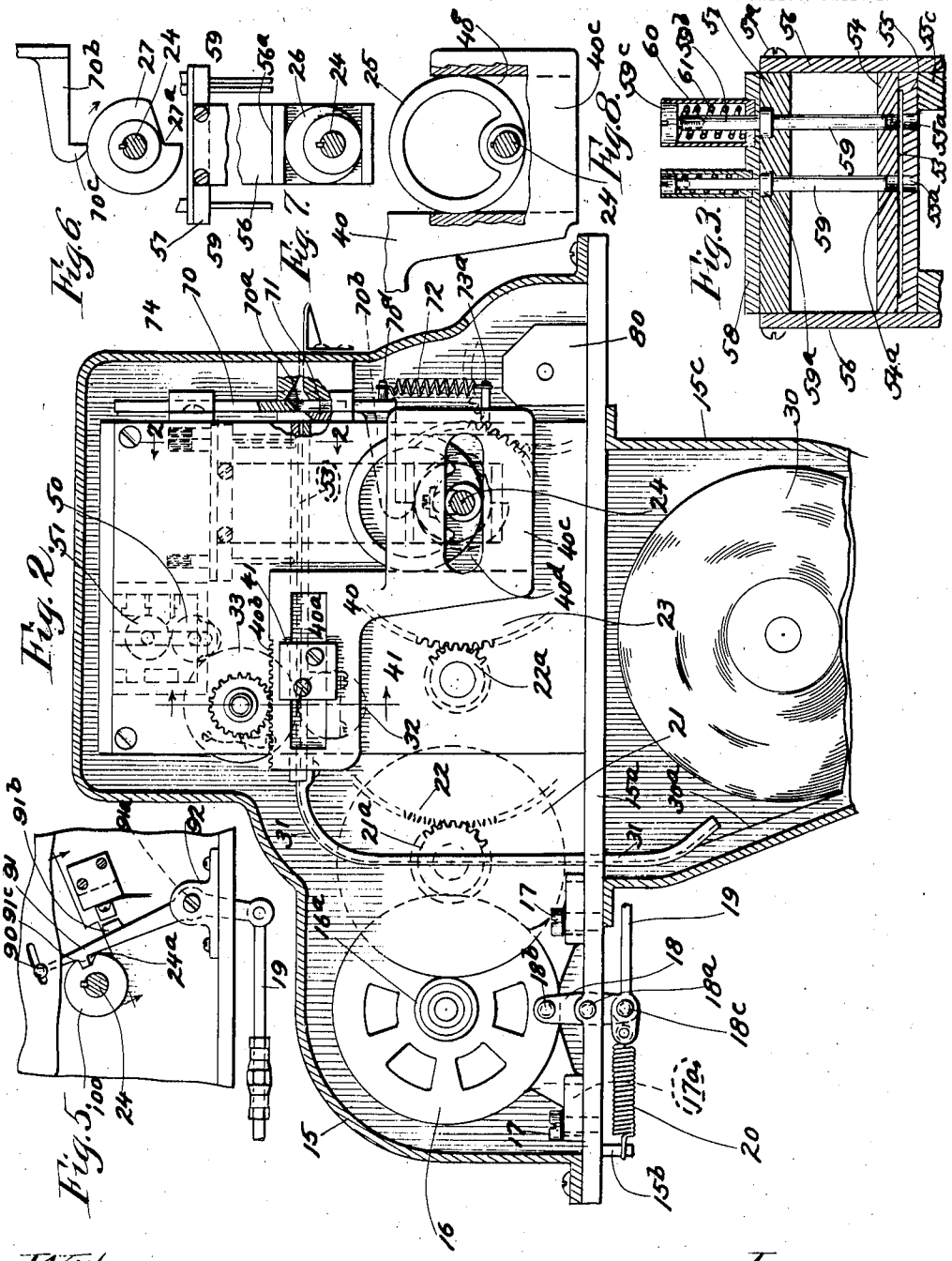
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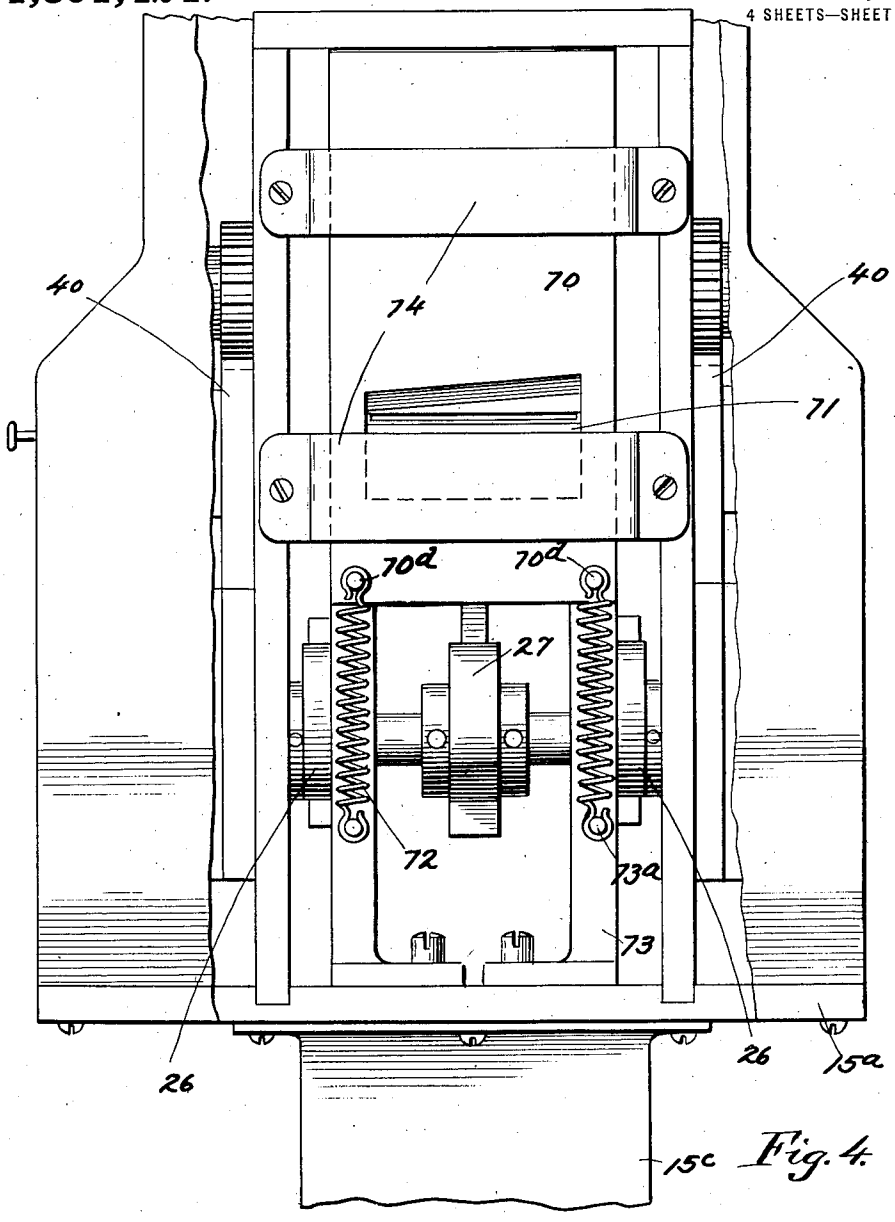


Fig. 4.

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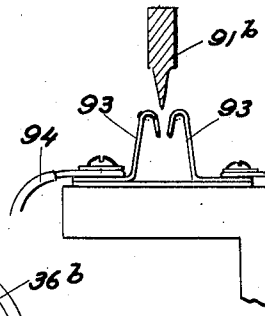


Fig. 12.

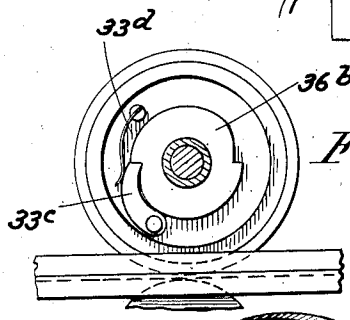


Fig. 11.

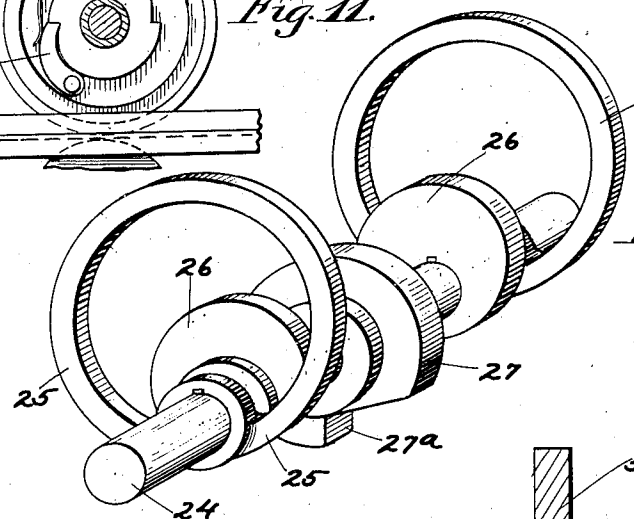


Fig. 10.

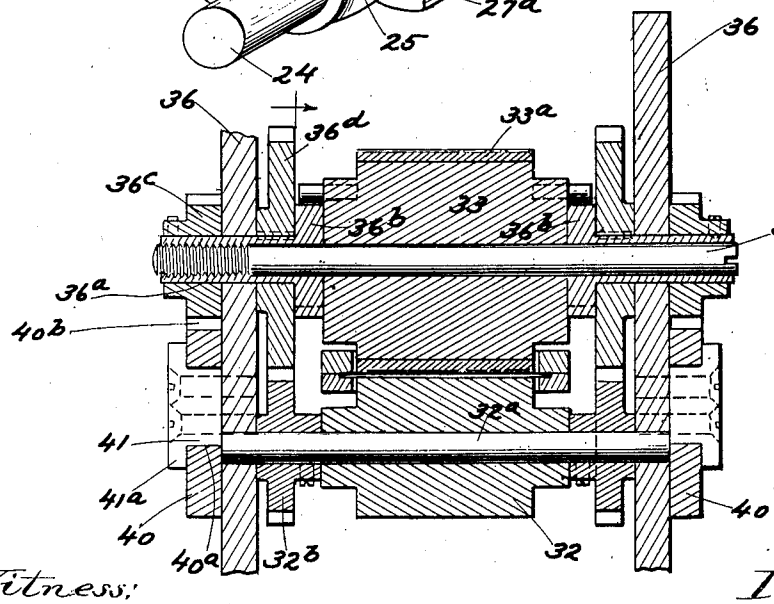


Fig. 9.

Witness:

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UNITED STATES PATENT OFFICE.

EDWARD E. SPENGLER, OF CHICAGO, ILLINOIS.

TICKET-MACHINE.

1,391,424. Specification of Letters Patent. Patented Sept. 20, 1921.

Application filed July 6, 1917. Serial No. 178,893.

To all whom it may concern:

Be it known that I, EDWARD E. SPENGLER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Ticket-Machines, of which the following is a specification.

This invention relates to improvements in ticket machines and has for its object to provide a machine of that nature which, when provided with a supply of paper or other suitable material, will first print, then punch as desired, and then cut off the completed ticket, at the same time registering each ticket prior to its delivery by the machine.

In connection with motion picture theaters, for example, my machine is capable for use to print the tickets according to a conventional form and punch the tickets as desired to indicate the date of sale and price of ticket, for example, my punching machine being readily adjustable for proper punching as desired. After the punching of the ticket, the same is fed beneath a cutting mechanism, and at the same time registered and then cut off for delivery to the user. Similarly, my machine may be used for street car transfer use to print a transfer as needed and properly punch the same, thereafter cutting it off and registering it. My machine is adapted to other and similar uses, as will be obvious.

Another object resides in the specific mechanism for carrying out the operation described above. These and other objects will be set forth and described in the following specification and shown in the accompanying drawings, in which—

Figure 1 is a plan view of my machine;

Fig. 2 is a vertical longitudinal section through the same;

Fig. 3 is a transverse section through the punching member;

Fig. 4 is an end elevation of the same;

Fig. 5 is a detail view of the operating handle and switch mechanism;

Fig. 6 is a detail of the cutter-knife and cam;

Fig. 7 is a detail of the punch operating cam;

Fig. 8 is a detail of the printing and feeding mechanism operating cam;

Fig. 9 is a transverse section through the printing and feeding members;

Fig. 10 is a perspective of the main cam-carrying shaft;

Fig. 11 is an end view of the printing roll and ratchet mechanism; and

Fig. 12 is a detail of the actuating switch.

Like numerals refer to like elements throughout the drawings, in which 15 designates generally an inclosing casing mounted on base 15ª. Carried by this base is an operating electric motor 16 slidably mounted on the base and attached thereto for limited sliding movement by screws 17 projecting through suitable slots 17ª in the base of the motor 16. A link 18 is pivoted intermediate its extremities at 18ª to the base 15ª, and is pivotally attached to the motor at 18ᵇ at one end and at the other end at 18ᶜ to an operating rod 19 between one end of which and a lug 15ᵇ depending from the base 15ª is stretched a coiled spring 20 normally serving to draw the motor 16 into position shown in Fig. 2 through the medium of the link 18. The motor shaft carries a friction wheel 16ª in contact with a second friction wheel 21, which in turn carries the gear 21ª which meshes with a gear-wheel 22. This gear-wheel in turn carries a small gear 22ª which meshes with the main driven gear 23 carried upon the main operating shaft 24. Secured upon this shaft 24 are the eccentrics or cams 25 for the purpose of operating the printing and feeding mechanism. Also mounted upon this shaft 24 are the eccentrics or cams 26 operating the punching mechanism, and also located upon the shaft 24 between the cams 26 is the cutter operating cam 27 having a notch 27ª in its periphery, as shown in Fig. 10. Mounted in the auxiliary depending casing 15ᶜ, depending from the base 15ª, is a spool 30 carrying a supply of paper or the like which runs off this spool, as indicated by numeral 30ª, into the guide 31 which guides it to and between the feeding roll 32 and the printing roll 33, see Figs. 2 and 9. The feeding roll is carried upon the shaft 32ª below the printing roll 33, the outer surface of the latter carrying the printing plates 33ª secured thereto in any suitable manner.

The printing drum or roll 33 is rotatably mounted upon the shaft 34, which extends across between the stationary side plates 36 of the frame and is threaded into a sleeve 36ª at one side of the frame, this sleeve being provided with a ratchet wheel 36ᵇ at one end and carrying the gear or pinion 36ᶜ at its other end. Keyed to the sleeve 36ª between the ratchet wheel 36ᵇ and gear 36ᶜ is the pinion 36ᵈ, see Fig. 9, which meshes

with a gear 32^b carried by the shaft 32^a, which also carries the feed roll. This construction is similar at both sides of the frame, so that there is a pair of gears transmitting the rotation of the printing roll 33 to the feed roll 32 for the purpose of simultaneously feeding and printing a strip of paper, as will be obvious.

Slidably mounted on each of the side frame members 36 is a rack member 40, having slots 40^a therein, said slots embracing the guide blocks 41 which have the overhanging portions 41^a and are attached to the side frame members as shown in Figs. 2 and 9. Above the guide blocks 41, the rack members 40 are provided with teeth 40^b which mesh with the cogs or pinions 36^c. The rack members 40 are further provided with projecting portions 40^c slotted at 40^d and provided with recesses 40^e, within which lie the cam members 25, the shaft 24 projecting through the slot 40^d.

As above stated, the printing roll 33 is rotatably mounted upon the shaft 34 and is located between the ratchet wheels 36^b. The printing roll is provided with ratchets 33^c pivotally attached at the ends thereof, said ratchets coacting with the ratchet wheels 36^b, see Fig. 11, being normally held in contact therewith by the leaf springs 33^d also carried by the printing roll.

It will be obvious that as the shaft 24 is rotated the cams 25 will reciprocate the rack members 40 to and fro, and, owing to the provision of the ratchet mechanism, rotation will only be imparted to the printing roll on one stroke of the rack members, this movement operating to feed the paper between the feed roll 32 and the printing roll 33 to simultaneously print the paper by pressing it against the roll. Suitable construction and arrangement of the printing plates will result in complete printing for each operative one half stroke of the rack member, and in the form shown I have so constructed the printing roll that it will carry two similar printing plates and will make a half rotation through the actuation of the rack member for each revolution of the shaft 24, said half rotation operating to print one ticket or coupon.

Pressing against the surface of the printing roll 33 is the inking roller 50, see Fig. 2, receiving its source of ink from the feed roll 51 in contact with ink-carrying substance, such as felt, or the like, indicated by numeral 51^a—see Fig. 1.

It will be obvious that by unscrewing the shaft 34 it may be readily withdrawn and the printing roll lifted bodily from its position, rendering replacement or substitution of a roll carrying other printing type easy.

After being fed between the printing and feeding rolls, the strip of paper is passed through the passage 53, see Figs. 2 and 3 for example, between the apertured guide plate 54 and the stationary die plate 55 mounted upon suitable uprights 55^c. Slidably mounted at each side of the uprights for vertical reciprocation are the side plates 56, between which is secured the punch-carrying plate 57 by screws 57^a or the like. Mounted upon this punch plate is the locking plate 58 suitably secured thereto by screws 58^a, or the like, see Fig. 1. Carried by the punch-carrying plate 57 are the punch members 59 depending therefrom above suitable apertures 55^a in the die plate 55 and guided by suitable apertures 54^a in the guide plate 54. These punches 59 are provided with enlarged collars or heads 59^a which are slidably mounted in suitable slots 57^b in the punch-carrying plate 57 beneath the locking plate 58. This locking plate 58 is provided with slots 58^b above the heads 59^a which will permit adjustment of the punch members therein but which are smaller than the diameter of the heads 59^a to prevent vertical movement of the punches 59 relative to the carrying plate 57. Extending upwardly from the heads 59 are the stems 59^b upon which are slidably mounted the sleeve members 60. Screw heads 59^c are located at the top of the stems 59^b and coiled springs 61 extend around the stems 59^b between the bottoms of the sleeves 60 and the screw heads 59^c. Dished out recesses or seats 58^c are provided in the top of the plate 58, as shown in Figs. 1 and 3. The springs 61 serve to normally maintain the sleeve members 60 seated in the seats 58^c to lock the punch members 59 in desired position.

By suitably locating the slots in the plate members described above and the seats 58^c it is possible to locate the punch members 59 as desired to punch in proper relation to indicia printed on the tickets. When it is desired to change the position of the punch members, it is only necessary to raise the sleeves 60 and slide the punch members in their slots to the desired position, and then release the sleeves 60 to permit them to seat in position locking the punches in changed position. As shown, one pair of punches is located in one slot with comparatively small sleeves surrounding them and with nine different positions or locations to correspond, for example, to the seven days of the week and afternoon or evening, to permit the printing, for example, of motion picture theater tickets and to punch the date of sale and also the afternoon or evening performance on the ticket. Another punch is located in the other slot and is provided with two portions for ad-

justment, which correspond to the price, such as five or ten cents, this arrangement, of course, being entirely dependent upon the use to which the machine is to be put, and the number of punching operations which are required.

The side plates 56 are provided with flanges 56[a], see Figs. 2 and 7, for example, which project over the operating cams 26, the latter being arranged in such relation to the cams 25, for example, that upon rotation of the shaft 24 the punches will be maintained out of the passage 53 until a ticket has been printed and advanced to a position beneath the punches ready for punching, which will be effected by the final downward movement of the side plate members 56 effected by the cam 26.

Located on the other side of the punching mechanism from the printing roll is the cutter plate 70 having a cutting edge 70[a] and coacting with a stationary cutter 71 at the front of the machine. This cutting plate 70 is provided with the angularly disposed arm 70[b], see Figs. 2 and 6, this arm 70[b] being provided with a contact head 70[c] normally contacting with the cam 27. Pins 70[d] project from the front of the cutter plate 70, see Fig. 4, and coiled springs 72 are attached thereto and extend downwardly for attachment with pins 73[a] carried by uprights 73, which also carry the stationary cutter 71. Guide strips 74 extend across the front of the cutting member 70, as shown in Fig. 4. The springs 72 serve to maintain the head 70[c] of the cutting plate arm 70[b] in constant contact with the cam surface of the cam 27, and as the same is rotated by the shaft 24 in relation to the printing and punching mechanism, it will maintain the cutting plate 70 out of cutting position to permit feeding of the printed and punched ticket therethrough until in proper position, when the head 70[c] will drop into the notch 27[a] in cam 27, effecting cutting of the ticket and severing it from the remainder of the roll. Suitable registering mechanism, generally indicated by numeral 80, is provided and comprises the counter 80[a], driven in any suitable manner from the shaft 81 carrying the pinion 81[a] which meshes with the pinion 82 carried upon the shaft 24, see Fig. 1, each revolution of the shaft 24 being registered by the counter 80, each revolution of said shaft corresponding to the severing of a completed ticket; and since the revolution is practically completed before the severing takes place, it will be obvious that each ticket is registered before it is finally cut off, thereby preventing removal of the tickets without their being registered.

To operate the machine, I provide an operating handle 90, see Figs. 1 and 5, which is attached to the crank arm 91 pivoted at 91[a] in a suitable bearing 92, carried by the frame of the machine. Below the pivotal point 91[a] the arm 91 is pivotally attached to the operating rod 19 previously described. The arm or crank 91 carries a contact member 91[b] located adjacent the spring contacts 93 which provide a gap in one of the current wires 94. When the crank 91 is moved into position contacting the portion 91[b] with the contacts 94 the circuit, of which terminals 94 form one wire, will be closed and current will flow to the motor 16. Movement of the crank arm 91 necessary to effect this closing of the circuit operates through the movement of rod 19, etc., to move the motor 16 and friction wheel 16[a] to contact the latter with the friction wheel 21, thereby setting the mechanism in operation. When it is desired to throw the motor out of operation, it is highly desirable to have the same stop at the completion of the cycle of operations, or at the completion of a revolution of the shaft 24, and for this purpose I provide a collar 100 on shaft 24, said collar being provided with a notched portion 24[a] so constructed that when the arm 91 is moved to position shown in Fig. 5, the motor having been thrown out of contact and operation with the driving mechanism, a lug 91[a] on arm 91 will slide into the notch 24[a] and bring the shaft 24 to a stop. By properly locating the notch 24[a] this stop will be made at the completion of a cycle of operation.

It will be noted that I have located my printing and punching apparatus above the strip of paper which permits the ready removal and adjustment of these punches without interference with the strip of paper.

It will also be obvious that while I have shown and described one embodiment of my invention, the same is susceptible of modifications and improvements, and I do not wish to be restricted to the form shown and described except as defined in the appended claims.

What I claim is:

1. In a machine of the class described, a ticket printing member, a ticket punching member, means to supply paper to said members, actuating means for said members and said means, said actuating means comprising a motor element, and means to slide said motor element bodily into and out of operation with respect to said members and feeding means.

2. In a machine of the class described, a printing means, a punching means, ticket feeding mechanism constructed and arranged to feed a ticket to said printing means and thereafter to said punching means, said punching means comprising a punch, and means whereby said punch may be moved into any one of a number of positions to thereby permit of said ticket being

punched at a predetermined point relative to the printed matter appearing thereon.

3. In a machine of the class described, a printing means, a punching means, ticket feeding mechanism constructed and arranged to feed a ticket to said printing means and said punching means successively, said punching means comprising a punch, means whereby said punch may be moved into any one of a number of positions to thereby permit of said ticket being punched at a predetermined point relative to the printed matter thereon, and means to normally maintain said punch in desired position.

4. In a machine of the class described, means for printing and feeding a ticket, punching mechanism in advance of said printing and feeding means comprising an apertured plate and a coacting punch member, a member carrying said punch, said punch being mounted for movement relative to said member whereby said ticket may be punched at a predetermined point relative to the printed matter thereon, and means coacting with said member to lock said punch in desired position.

5. In a machine of the class described, means for printing and feeding a ticket, punching mechanism in advance of said printing and feeding means comprising an apertured plate and a coacting punch member, a member carrying said punch, said punch being mounted for movement relative to said member whereby said ticket may be punched at a predetermined point relative to the printed matter thereon, and means coacting with said member to lock said punch in desired position, said last-named means comprising a sleeve member carried by said punch.

6. In a machine of the class described, means for printing and feeding a ticket, punching mechanism in advance of said printing and feeding means comprising an apertured plate and a coacting punch member, a member carrying said punch, said punch being mounted for movement relative to said member whereby said ticket may be punched at a predetermined point relative to the printed matter thereon, means coacting with said member to lock said punch in desired position, said last-named means comprising a sleeve member carried by said punch, and a spring operatively inserted between said punch and said locking member to normally maintain the matter in locking position.

7. In a machine of the class described, a printing means, a punching means, a ticket severing means, and means to actuate all of said means in proper relation in such wise that when paper or the like is fed to said machine the same will first be printed in the form of a ticket, then properly punched relatively to the printed matter thereon to provide a desired indication, and finally cut off and delivered, said punching means being adjustable whereby the point or points at which each ticket is punched may be varied as desired.

8. In a machine of the class described, means for supporting a roll of paper or similar material, printing means, means for guiding said paper to said printing means, a drive shaft, a reciprocatory driving connection between said drive shaft and said printing means, means carried by said shaft for reciprocating said connection, means whereby said printing means is only operated upon movement of said connection in one direction, a motor for driving said shaft, reduction gearing interposed between said motor and said shaft, and means whereby said motor may be moved bodily into and out of driving engagement with said gearing.

9. In a machine of the class described, means for supporting a roll of paper or similar material, printing means, means for guiding said paper to said printing means, a drive shaft, a reciprocatory driving connection between said drive shaft and said printing means, means carried by said shaft for reciprocating said connection, means whereby said printing means is only operated upon movement of said connection in one direction, a motor for driving said shaft, reduction gearing interposed between said motor and said shaft, means whereby said motor may be moved bodily into and out of driving engagement with said gearing, and means whereby when said motor is moved out of driving engagement said shaft will be positively stopped at the conclusion of one rotation thereof.

10. In a machine of the class described, means for supporting a roll of paper or similar material, a rotary printing element, means for guiding said paper to said printing element, a drive shaft, a rack for operating said printing member adapted to embrace said shaft, means carried by said shaft for operating said rack and hence said printing element, punching mechanism adapted to perforate said paper after the same has been printed and at a point or points definitely located with relation to the printed matter thereon, means carried by said shaft for operating said punching mechanism, means for severing said paper after the same has been punched and for delivering the same in the form of tickets, and means also carried by said shaft for operating said severing means.

11. In a machine of the class described, means for supporting a roll of paper or similar material, printing roll, means for guiding said paper to said printing roll, a drive shaft, a reciprocatory driving connection between said drive shaft and said print-

ing roll, means carried by said shaft for reciprocating said connection to thereby operate said printing roll, punching mechanism adjacent said printing means, means for feeding said paper after the same has been printed to said punching means, means also carried by said drive shaft for operating said punching mechanism in such wise that said paper is punched at a predetermined point relative to the printed matter thereon, and means for subsequently severing and delivering said said paper in the form of tickets.

12. In a machine of the class described, means for supporting a roll of paper or similar material, printing means, means for guiding said paper to said printing means, a drive shaft, a reciprocatory driving connection between said drive shaft and said printing means, means carried by said shaft for reciprocating said connection to thereby operate said printing means, punching mechanism adjacent said printing means, means for feeding said paper after the same has been printed to said punching means, means also carried by said drive shaft for operating said punching mechanism in such wise that said paper is punched at a predetermined point relative to the printed matter thereon, means for adjusting said punching mechanism whereby the point at which said paper is punched may be varied, and means for subsequently severing and delivering said paper in the form of tickets.

13. In a machine of the class described, means for supporting a roll of paper or similar material, printing means, means for guiding said paper to said printing means, a drive shaft, a reciprocatory driving connection between said driving shaft and said printing means, means carried by said shaft for reciprocating said connection to thereby operate said printing means to print said paper in the form of tickets, means for thereafter punching each of said tickets at a predetermined point relative to the printed matter thereon, and means whereby the position of said punching means may be varied relatively to said printed matter.

14. In a machine of the class described, means for supporting a roll of paper or similar material, printing means, means for guiding said paper to said printing means, a drive shaft, a reciprocatory driving connection between said driving shaft and said printing means, means carried by said shaft for reciprocating said connection to thereby operate said printing means to print said paper in the form of tickets, and means for thereafter punching each of said tickets at a predetermined point relative to the printed matter thereon, said punching means being adjustable whereby the point at which each ticket is punched may be varied as desired.

15. In a machine of the class described, means for printing a ticket, means for thereafter punching said ticket at a definite point or points relatively to the printed matter thereon, and means for successively actuating said printing and punching means.

16. In a machine of the class described, means for printing a ticket, means for thereafter punching said ticket at a definite point or points relatively to the printed matter thereon, and means for successively actuating said printing and punching means, said punching means being adjustable, whereby the point or points at which each ticket is punched may be varied as desired.

In testimony whereof, I have subscribed my name.

EDWARD E. SPENGLER.