

Dec. 9, 1930.

F. ELLER

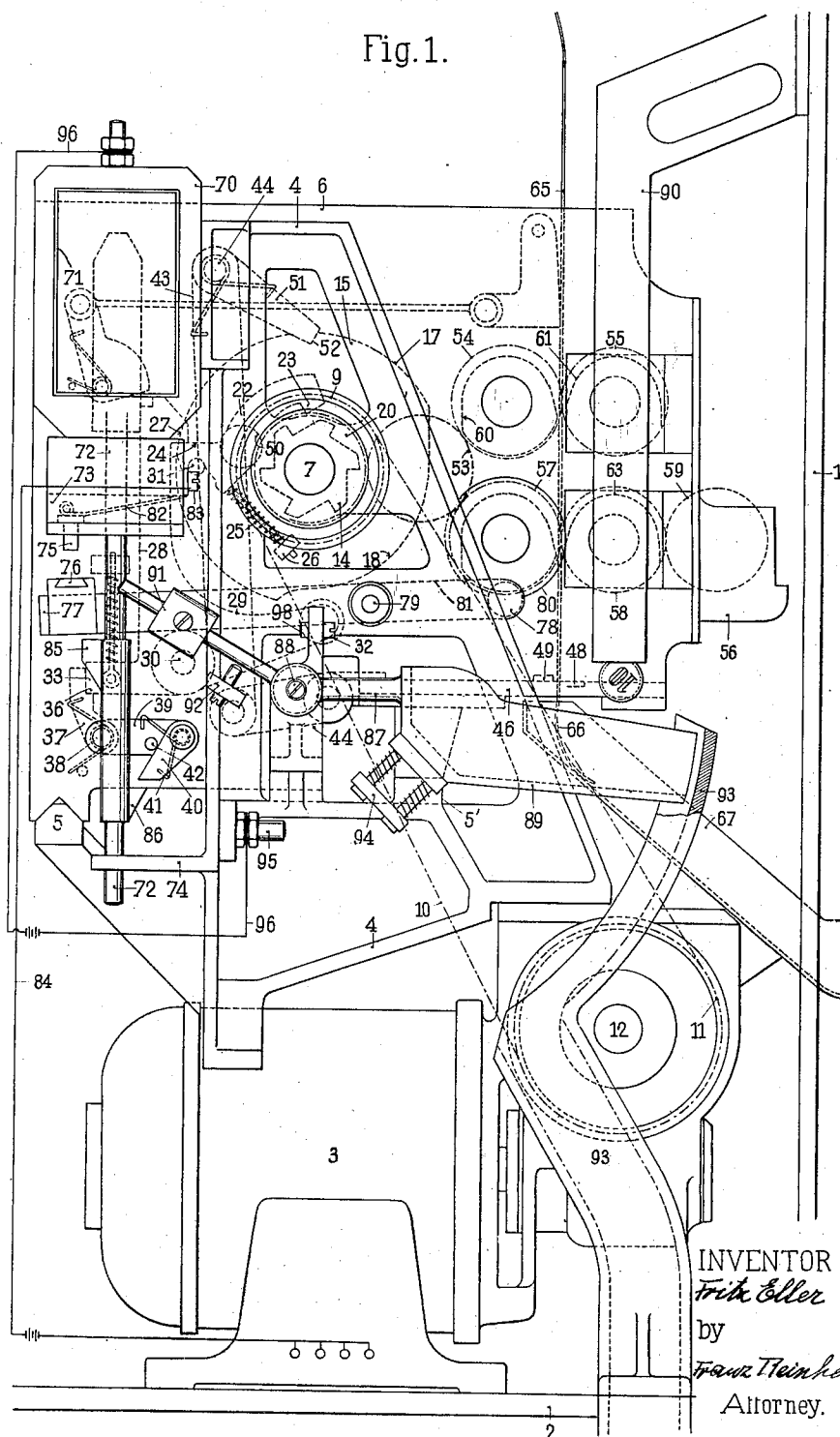
1,784,585

COIN CONTROLLED SALES APPARATUS

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3 Sheets-Sheet. 1

Fig. 1.



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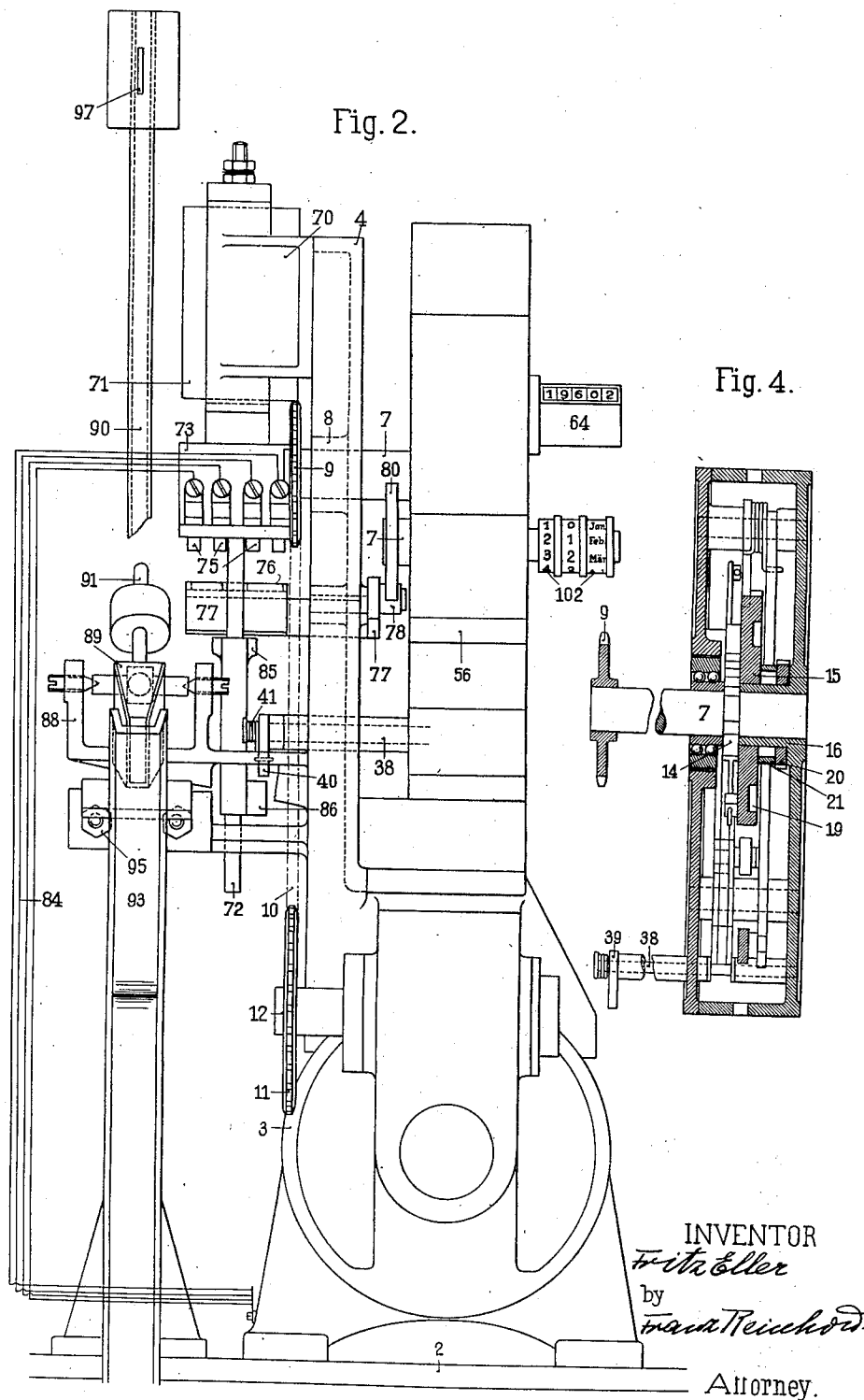
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Fig. 3.

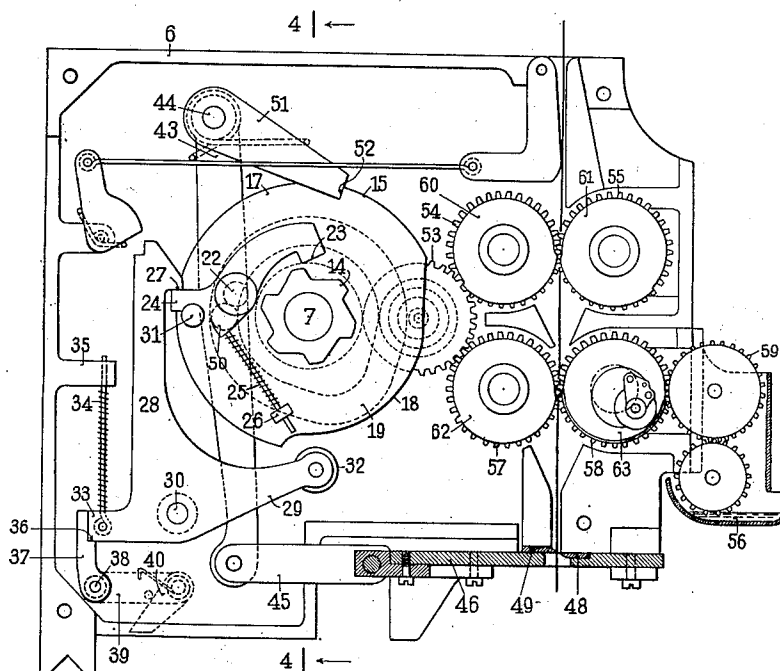
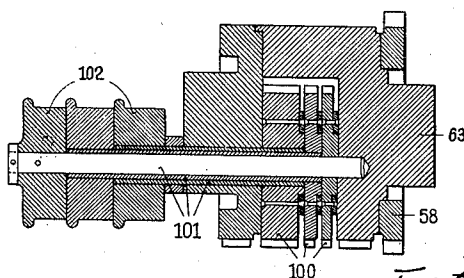


Fig. 5.



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UNITED STATES PATENT OFFICE

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COIN-CONTROLLED SALES APPARATUS

Application filed December 15, 1927. Serial No. 240,292.

My invention relates to improvements in coin controlled sales apparatus, and more particularly in apparatus for selling tickets such as railway tickets provided with means for stamping the issue date on the individual tickets. As now constructed, sales apparatus of this class are constructed so as to contain a pile of tickets provided with printed matter relating to the journey, the cost of the ticket, and the like, and electromagnetically operated stamping means are provided for stamping the date on the said ticket. Therefore, a large number of printed tickets must be kept in store, and further, a strong current is needed for energizing the electromagnet. The object of the improvements is to provide an apparatus of the class referred to in which blank tickets are kept in store, the said descriptive matter being printed on the said blank tickets within the apparatus itself together with the date. Another object of the improvements is to provide an apparatus in which a comparatively weak current is needed for printing the tickets. With these objects in view the invention consists in providing an apparatus for printing tickets of any known or preferred construction with coin controlled rotary operating mechanism. In one embodiment of the invention a printing apparatus is used which is normally disconnected from the rotary driving member, and in which the coin controlled mechanism controls a coupling member for connecting the printing mechanism with the said rotary driving member. Preferably, the said coin controlled mechanism is further provided with means for starting the motor connected with the said rotary driving member.

In the accompanying drawings,
Fig. 1, is an elevation of the apparatus with the side wall of the housing removed,

Fig. 2, is a similar elevation looking from the right in Fig. 1, the front and side wall of the casing being removed,

Fig. 3, is an elevation showing the printing mechanism, the front wall of the housing being removed,

Fig. 4, is a sectional elevation taken on the line 4—4 of Fig. 3, and

Fig. 5, is a sectional view showing the printing roller.

In the improved coin controlled apparatus any known or preferred apparatus for printing tickets may be provided. In the example shown in the drawings a printing apparatus of the construction shown in the patent of the United States No. 1,529,639, granted to me March 10, 1925, has been provided.

The operative parts of the apparatus are enclosed within a housing having a front wall 1 and a bottom wall 2. On the said bottom wall an electromotor 3 is mounted, and the casing of the said motor provides a support for a frame 4 carrying the operative parts of the mechanism. On a bracket 5 and a lug 5' of the said frame a casing 6 is mounted which provides a support for the printing apparatus.

As has been described in my aforesaid patent, the printing apparatus comprises a rotary shaft 7 mounted in the end walls of the casing 6 and in a bearing 8 made in the frame 4. To the outer end of the said shaft a sprocket wheel 9 is secured which is connected by a chain 10 with a sprocket wheel 11 secured to a shaft 12 connected in a suitable way with the motor shaft. The shaft 7 is made integral with a coupling member 14 formed with a plurality of coupling teeth. At the side of the said member a cam disk 15 is rotatably mounted on a sleeve 16 projecting inwardly from one of the end walls of the casing 6, which cam disk is provided with a circumferential cam face comprising a concentric portion 17 and a portion 18 of reduced radius, and with a cam groove 19. On the sleeve 16 a gear wheel 20 is rotatable which is fixed to the cam disk 15 by means of a ring 21. On the cam disk a pawl 22 is rockingly mounted which is formed at one end with a claw 23 adapted for coupling engagement with the coupling member 14. A rearwardly extending arm 24 of the pawl is acted upon by a spring 25 bearing on a lug 26 secured to the cam disk, and it is normally engaged by a nose 27 of an arm 28 of a bell crank lever 28, 29 mounted on a bolt 30 secured to one of the said end walls of the casing 6. When thus engaged by the nose 27 the arm 24 bears on a

pin 31 secured to the cam disk 15. The arm 29 of the bell crank lever carries a roller 32, which is in position for engagement with the peripheral cam faces 17 and 18 of the cam disk 15. A third arm 33 of the bell crank lever 28, 29 is acted upon by a coiled spring 34 bearing on a lug 35 projecting from the wall of the casing and tending to rock the bell crank lever with its nose 27 out of engagement with the arm 24 of the pawl 22. The arm 33 bears on a shoulder 36 of an arm 37 fixed to a rock shaft 38 mounted in the end walls of the casing 6 and extending outwardly therefrom. To the outer end of the said shaft an arm 39 is fixed on which a pawl 40 is mounted, a spring 41 tending to hold the said pawl in engagement with a pin 42 fixed to the arm 39.

At the side of the cam disk 15 there is a lever 43 which is rockingly mounted on a bolt 44 secured to the side walls of the casing 6, and which is connected at its bottom end with a link 45 jointed to a slide 46 carrying a blade 48 cooperating with a blade 49 secured to the bottom wall of the casing 6. At a part intermediate its ends the lever 43 carries a roller 50 engaging in the cam groove 19 of the disk 17. The cam groove 19 is formed so as to impart reciprocating movement to the lever 43 and the blade 48 upon rotation of the disk 17. The bolt 44 carries a pawl 51 engaging in a notch 52 of the cam disk for preventing rotation thereof in anticlockwise direction.

The gear wheel 20 is in mesh with an intermediate gear wheel 53 adapted to transmit rotary movement to two trains of gear wheels 54, 55, and 57, 58, 59. The gear wheels 54 and 55 are connected with feed rollers 60 and 61 having feeding portions corresponding in length to the length of the card or ticket to be printed upon and portions reduced in diameter, and the gear wheels 57 and 58 are connected with printing rollers 62 and 63. The roller 63 is equipped with types for printing on the ticket, and it is provided with mechanism for printing successive numbers of the tickets. Further, the roller carries movable types for printing the date on the tickets. As appears more particularly from Fig. 5, the types representing the date are formed on disks 100 fixed to telescoping shafts 101 projecting outwardly from the roller 63 and each carrying a disk 102 provided with figures representing the types of the disks 100.

The gear wheel 55 is provided with registering mechanism 64 for counting the number of the tickets delivered by the apparatus, and the gear wheels 58 and 59 are connected with a suitable ink applying apparatus 56.

Above the mechanism so far described a reel carrying a strip of cardboard 65 is mounted, which strip is taken from the said reel by means of the feed rollers 60, 61, passed between the printing rollers 62, 63, and, after printing, cut by means of the blades 48, 49,

the printed and separated ticket 66 being delivered to a chute 67 ending in a tray.

If it is desired to print a ticket, the motor 3 is started so as to rotate the shaft 7, and the bell crank lever is rocked with its nose 27 away from the arm 24 of the pawl 22. The spring 25 throws the said pawl into coupling engagement with one of the teeth of the coupling member 14, so that the cam disk 18 is coupled with the shaft 7, and the roller 32 engages the portion 18 of reduced diameter of the cam disk 15. The lever 43 is rocked to the left so that the blade 48 cuts a ticket previously printed, which ticket slides on the chute 67 and out of the housing 1, where it can be taken by the passenger. From the cam disk 17 rotary movement is transmitted to the feed rollers 60, 61 and the printing rollers 62, 63, which, after about two thirds of a complete rotation, and after the blade 48 has been returned into initial position, advance the strip 65 and print thereon the impression, so that a new ticket is passed downwardly and into position for being cut upon the next operation of the apparatus. After the cam disk has performed about one third of a complete rotation the roller 32 gets on the portion 17 of larger diameter of the cam disk, so that the nose 27 is again in position for engagement with the arm 24, in which position it is locked by the arm 37. Therefore, after one rotation of the cam disk, the arm 24 impinges upon the nose 27, so that the pawl 22 is rocked out of coupling engagement with the coupling member 14 and the cam disk 15 is arrested.

The mechanism so far described is known in the art, and the novelty of the invention resides in the combination of the apparatus or other ticket printing apparatus with the coin controlled controlling mechanism for the printing apparatus.

To the top part of the frame 4 a frame 70 is secured on which an electromagnet 71 is mounted, the armature of which is connected with a rod 72 passed through a box 73 and guided at its bottom end in a bracket 74. The box 73 is provided with spring-pressed contact pins 75 projecting downwardly therefrom and into position for engagement with contact pieces 76 carried by and insulated from an arm 77 rockingly mounted on the frame 4 at 79. On the rear end of the arm 77 a roller 78 is mounted which normally engages in a notch 81 of a disk 80 secured to the outer end of the shaft carrying the gear wheel 57 and the roller 62. In the position of the parts shown in Fig. 1 the roller 78 engages in the said notch, and the contact pieces 76 are out of contact with the contact pins 75. But when starting the apparatus the lever 77 is lifted and the roller 78 rides on the circumference of the disk 80 thus holding the contact pieces 76 in contact with

the pins 75. At the end of a complete rotation of the disk 80 the roller 78 gets again into engagement with the notch 81 of the disk 80, so that the bridge 76 is retracted from the pins 75. The contact pins 75 are connected by the springs 82 with terminals 83 connected by leads 84 with the electromotor.

To the rod 72 a lug 85 is fixed which is in position for engagement with the lever 77 and lifts the same with the contact pieces 76 into engagement with the pins 75 when the rod 72 is elevated by the electromagnet 71. Below the pawl 40 a lug 86 is fixed to the rod 72, and the said lug is adapted to rock the arms 39 and 37 in anti-clockwise direction for releasing the bell crank lever 28, 29. When the rod 72 moves downwardly the pawl 40 yields against the tension of the spring 41.

Thus, by the upward movement of the rod 72 the pawl 22 is rocked into coupling engagement with the member 14, and the circuit of the motor 3 is closed, so that the motor and the shaft 7 are rotated, and rotary movement is transmitted from the said shaft to the printing and delivering mechanism.

Coin controlled means are provided for energizing the electromagnet 71. As shown, an arm 87 rockingly mounted on a bracket 88 carries a gutter 89 disposed below a chute 90 through which the coins fall on the said gutter. The arm 87 is connected with a weighted lever 91 slightly overbalancing the weight of the arm 87 and the gutter 89, so that the coin falling on the gutter 89 is capable to rock the gutter 89 downwardly, until the lever 91 is arrested by a pin 98. Normally the gutter and the weighted lever 91 are supported on a pin 92. The coin falling on the gutter 89 is delivered through a chute 93 to a case collecting the coins. The gutter 89 carries a spring-pressed bridge 94 adapted to connect contact pins 95 connected by leads 96 with the electromagnet 71 and a source of electric energy.

When a passenger desires to buy a ticket he inserts the proper coin through a slot 97 and into the chute 90, the said coin falling on the gutter 89 and being delivered there-through to the chute 93. By the coin the gutter 89 is rocked downwardly so as to connect the contact pins 95 and to close the circuit of the electromagnet 71. The electromagnet lifts the rod 72, so that the motor 3 is energized, and the printing mechanism is started. After the printing mechanism has once been started, the arm 77 is locked in circuit closing position by the roller 78 riding on the disk 80. After the coin has left the gutter 89 the said gutter is returned into the position shown in Fig. 1 thus interrupting the circuit of the electromagnet 71 at 95. Therefore the rod 72 moves downwardly, and the arm 37 is rocked into position for locking the bell crank lever 28, 29 in the position for engag-

ing the arm 24 of the pawl 22, so that the printing mechanism is disconnected from the shaft 7 at the end of one rotation of the cam disk 17. The circuit of the motor 3 is likewise interrupted at the end of a complete rotation of the printing mechanism by the roller 78 engaging in the notch of the disk 80.

The electric current required for operating the apparatus is very small. The power to be developed by the electromagnet is small because it is necessary only to lift the lever 77 and to rock the arm 37. Further, the current consumed by the motor 3 is small. The apparatus can be operated at low cost because only blank strips of card board need be kept in store.

While in describing the invention reference has been made to particular examples embodying the same I wish it to be understood that my invention is not limited to the constructions shown in the drawings, and that various changes may be made in the general arrangement of the apparatus and the construction of its parts without departing from the invention.

I claim:

1. A system for printing tickets, comprising a printing apparatus, rotary driving means therefor, an electric motor connected with said driving means, means for coupling said printing apparatus and driving means, means operative at the end of a printing operation for setting said coupling means into non-coupling position, a switch controlling the supply of energy to said motor, an electromagnet and its armature, means on said armature loosely engaging said switch and adapted to close the same, means controlled by said printing mechanism for holding said switch in closed position while the printing mechanism is being operated, means on said armature adapted for loose engagement with said setting means for operating the same, and coin controlled apparatus for energizing said electromagnet.
2. A system for printing tickets, comprising a printing apparatus, an electromotor for driving the same, a switch included in the circuit of said electromotor, an electromagnet and its armature adapted for loose engagement with said switch for closing the same, a switch in the circuit of said electromagnet, a rockingly mounted receptacle in position for receiving coins and adapted to close said switch of the electromagnet, said receptacle being open at the end remote from its fulcrum, a chute below said receptacle in position for receiving coins therefrom, a guide member extending upwardly from said chute and into position for closing the open end thereof, and means controlled by the printing mechanism for holding the switch of the electromotor in circuit closing position during the operation of the printing apparatus.
3. A system for printing tickets, compris-

- ing a printing apparatus, driving means therefor, means for coupling said printing apparatus and driving means, means operative at the end of a printing operation for setting said coupling means into non-coupling position, an electromagnet and its armature, a member tending to lock said coupling means in non-coupling position, a device adapted when energizing said electromagnet and operating its armature to throw said locking member out of locking engagement with said coupling means and to release said locking member upon continued movement of said armature, said device being mounted for yielding upon return movement of the armature, and coin controlled means for energizing said electromagnet.
4. A system for printing tickets, comprising a printing apparatus, driving means therefor, means for coupling said printing apparatus and driving means, means operative at the end of a printing operation for setting said coupling means into non-coupling position, an electromagnet and its armature, a rockable trip lever tending to lock said coupling means in non-coupling position, an arm mounted on said trip lever in position for being engaged by said armature when energizing said electromagnet and for being released therefrom upon continued movement of said armature, said arm being mounted for yielding upon return movement of the armature, and coin controlled means for energizing said electromagnet.
5. A system for printing tickets, comprising a printing apparatus, rotary driving means therefor, an electric motor connected with said driving means, an electromagnet and its armature, means for coupling said printing apparatus and driving means, means operative at the end of a printing operation for setting said coupling means into non-coupling position, a rocking trip lever tending to hold said setting means in position for holding the coupling means in non-coupling position, an arm rockingly mounted on said trip lever in position for being engaged by said armature for rocking said trip lever and for being released by the armature continuing its movement, said arm being yieldingly mounted for permitting return movement of the armature, and coin controlled apparatus for energizing said electromagnet.
6. A system for printing tickets, comprising a printing apparatus, rotary driving means therefor, an electromotor connected with said driving means, an electromagnet and its armature, a switch included in the circuit of said electromotor and controlled by said armature, means for coupling said printing apparatus and driving means, means operative at the end of a printing operation for setting said coupling means into non-coupling position, a rocking trip lever tend-
- ing to hold said setting means in position for holding the coupling means in non-coupling position, a stop on said trip lever in position for being engaged by said armature for rocking said trip lever and for being released by the armature continuing its movement, said stop being yieldingly mounted for permitting return movement of the armature, and coin controlled apparatus for energizing said electromagnet.
- In testimony whereof I hereunto affix my signature.
- FRITZ ELLER.