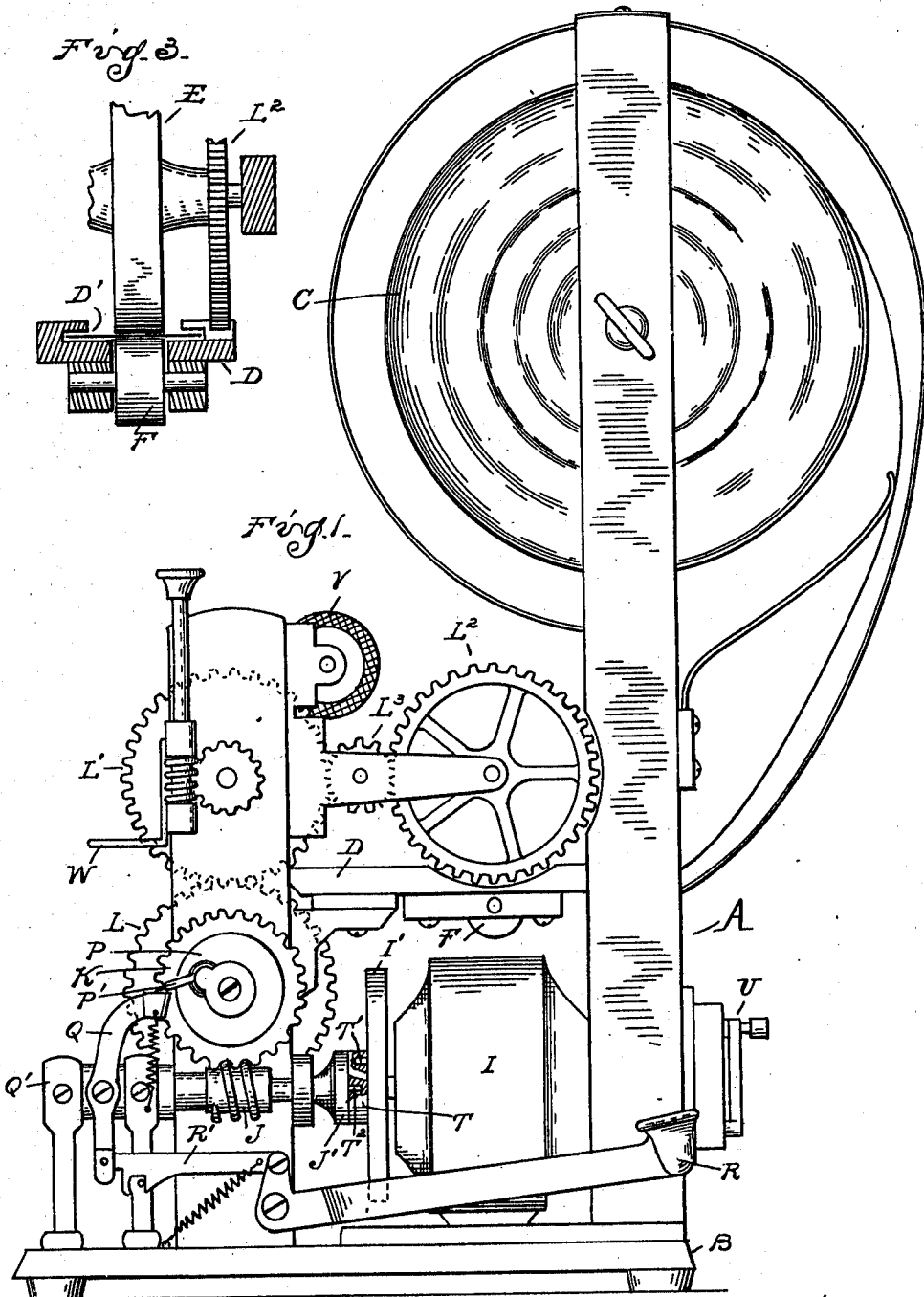


T. M. VAUGHAN.  
TICKET PRINTING MACHINE.  
APPLICATION FILED MAR. 27, 1909.

970,768.

Patented Sept. 20, 1910.

2 SHEETS—SHEET 1.



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# UNITED STATES PATENT OFFICE.

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## TICKET-PRINTING MACHINE.

970,768.

Specification of Letters Patent.

Patented Sept. 20, 1910.

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*To all whom it may concern:*

Be it known that I, THOMAS M. VAUGHAN, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Ticket-Printing Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

It is the object of the invention to obtain a construction of machine particularly adapted for the printing of admission tickets in places of amusement and for similar purposes.

To this end the invention consists in various features of construction as hereinafter set forth by which I obtain a small, compact construction of machine capable of being conveniently placed in a ticket selling booth and adapted to print the tickets successively as rapidly as needed, and to keep an accurate tally of the number printed.

In the drawings—Figure 1 is an elevation of the machine; Fig. 2 is a longitudinal section through a portion of the mechanism; Fig. 3 is a cross section; and Fig. 4 is an end elevation.

A is a suitable frame mounted upon a base plate B.

C is a rolled paper strip mounted upon the upper portion of the frame, and D is a horizontally - arranged guideway along which the strip is fed. Adjacent to this guideway are arranged the feed rolls E and F, the printing cylinder G, and the rotary platen H. These rotary parts are all driven in timed relation to each other by suitable gearing, and, as shown, the driving power is furnished by a small electric motor I upon the base. A worm shaft J is directly driven from the motor shaft and operates a worm gear K upon the shaft of the platen H. From the platen motion is communicated to the printing cylinder by intermeshing gears L<sup>1</sup> and the feed roll E is driven from the gear L<sup>1</sup> through the gear wheel L<sup>2</sup> and intermediate gear L<sup>3</sup>.

The type or printing face is preferably formed of rubber, which is mounted upon a segment of the drum G, as indicated at G'. A cut-off for the paper strip is arranged adjacent the rear end of this segment preferably comprising a knife M and a coöperat-

ing plate N—one being arranged upon the platen and the other upon the printing drum. The arrangement is such that at the completion of the printing the strip will be severed just in rear of the printed portion, permitting the severed part to drop from the machine.

To feed just the right length of paper for each of the tickets, the feed roll E is provided with a raised segment E' of a peripheral length equal to the ticket. This segment is arranged to engage with the strip at the same time that the type surface comes into engagement therewith and to disengage the strip at the time of cut-off. Thus the strip is fed intermittently and is drawn from the reel as required.

The guide D is preferably provided with grooved ways D' for the opposite edges of the strip which properly aline it with the printing roll and platen. There is also provided a finger O carried by the roll G which presses down the end of the paper strip into contact with the platen and prevents it from fouling with the type segment. This finger or guide, as illustrated, is formed by a U-shaped piece of spring wire clamped to the cylinder G and having its ends overlapping the edge of the rubber type G'.

It is very important that the machine should be under the absolute control of the operator so as to print just the number of tickets required and no more. I have therefore provided a clutch in the drive mechanism which disengages automatically after each complete operation, but which may be tripped by the depression of a control lever. As illustrated, the clutch P is arranged in the worm gear K, but is not shown in detail as it may be of any suitable construction. A projecting finger P' carried by the driven member of the clutch is adapted to engage with a trip lever Q fulcrumed upon the standard Q' on the frame and when thus engaged the clutch is unclamped, permitting the motor to run freely without imparting any movement to the printing mechanism. The lever Q is operated by a finger lever R through the medium of a link R', and the arrangement is such that a depression of the lever R will withdraw the trip lever Q and permit the automatic engagement of the clutch. The inertia of the mov-

ing parts of the mechanism is checked upon the disengagement of the clutch by a suitable friction brake which, as indicated at S, engages a groove S' in the platen bearing 5 against one surface thereof.

To lessen the noise which would be communicated from the motor to the mechanism and frame of the machine, I preferably arrange a deadening washer T between the 10 motor shaft and the worm shaft J. This washer is preferably formed of leather or similar material and acts as a coupler by the engagement therewith of the pins T' T<sup>2</sup> projecting oppositely from disks I' and J' 15 on the motor shaft and worm shaft respectively. The motor is controlled by an electric switch U mounted upon the frame preferably at the rear thereof.

For inking the type, a felt roll or other 20 suitable inker, V is arranged to contact with the type surface during each revolution of the roll G. W is a stripper for disengaging the printed ticket from the surface of the type.

In operation, the machine may be placed 25 within easy reach of the operator in a ticket-selling booth, and where the motor is employed is suitably connected with a source of current. Whenever the switch is closed 30 the motor will be set in operation but the printing mechanism will not be operated until the lever R is depressed. If a single ticket is required the lever R is depressed and permitted to immediately assume its 35 normal position. This will cause the coupling of the clutch in one complete revolution thereof, after which the finger P' engaging with the lever Q will again release the clutch. On the other hand, if a number of 40 tickets are required the lever R may be held depressed until the desired number has been printed and cut off.

To keep an accurate tally of the number of tickets issued, a register is placed upon 45 the machine and, as shown, is mounted on one side of the frame thereof. This register X is driven by the intermeshing gears Y from the platen shaft and tallies every rotation of the platen. Thus no more tickets 50 are issued than are actually sold or used, and at any time the number issued may be instantly known by inspection of the register.

For certain uses, it is desirable to print 55 the date upon the ticket, which is otherwise just the same at all times. This may be accomplished by the insertion of exchangeable type Z in the type-form G'.

What I claim as my invention is:

60 1. A ticket printing machine, comprising a frame, a holder for a roll or paper strip thereon, a rotary printing cylinder and a rotary platen journaled in said frame, a horizontally arranged guide for directing the 65 opposite edges of said paper strip between

said cylinder and platen, a rotary feed roll having a segment for advancing the paper strip along said guide, and a knife and co-operating bearing carried the one by said platen and the other by said rotary cylinder. 70

2. A ticket printing machine comprising a rotary printing cylinder and a rotary platen, a guide for directing a paper strip therebetween, a feed roll for advancing the paper strip along said guide, a type form 75 upon a segment of said cylinder, a knife for severing the paper strip at the end of said segment, and means for guiding the end of the severed strip into engagement with the opposite end of said type form, for the purpose described. 80

3. A ticket printing machine, comprising a rotary printing cylinder and a rotary platen, a type-form upon said cylinder and projecting beyond the periphery thereof, 85 means for guiding a paper strip between said cylinder and platen, a knife and co-operating bearing carried the one by the platen and the other by the printing cylinder, and arranged to register at one end of 90 said type-form segment, and a feed roll for said paper strip having a projecting segment corresponding in length to the type segment on said cylinder.

4. A ticket printing machine, comprising 95 a rotary printing cylinder and a rotary platen, a type-form upon said cylinder and projecting beyond the periphery thereof, a knife and co-operating bearing, carried the one by the platen and the other by the printing 100 cylinder, and arranged to register at one end of said type-form segment, a feed roll for said paper strip lying in the same horizontal plane as said printing cylinder, having a projecting segment corresponding in 105 length to the type segment on said cylinder, and a horizontal table for guiding said strip between said feed roll and said printing cylinder.

5. A ticket printing machine, comprising 110 a rotary printing cylinder and a rotary platen, a type-form upon said cylinder and projecting beyond the periphery thereof, a knife and co-operating bearing, carried the one by the platen and the other by the printing 115 cylinder, and arranged to register at one end of said type-form segment, a feed roll for said paper strip lying in the same horizontal plane as said printing cylinder, having a projecting segment on said cylinder, 120 a horizontal table for guiding said strip between said feed roll and said printing cylinder, and a second feed roll positioned below said table, extending upward there-through and co-operating with the segment 12 on said first-mentioned feed roll.

6. In a ticket printing machine, a rotary printing cylinder and a rotary platen, a type-form upon a segment of said cylinder, and means carried by said cylinder for hold- 13

ing the end of the strip fed to said printing cylinder out of engagement with said segment.

7. In a ticket printing machine, a rotary printing cylinder and a rotary platen, a type-form upon a segment of said cylinder and means carried by said printing cylinder positioned adjacent to one end of said segment, for holding the incoming end of the strip fed to the printing cylinder out of engagement with said segment.

8. A ticket printing machine comprising a base, a continuously operating electric motor mounted thereon, an upright frame upon said base, a rotary printing cylinder, a rotary platen and a segmental rotary feed roll journaled respectively upon shafts on said upright frame, a train of gears for driving said cylinder, platen and roll, in timed relation to each other, a clutch between said motor and driven mechanism normally connecting the same, a tripping device for automatically disconnecting the motor and driven mechanism after each cycle of the operation, and means for manually holding said tripping device in non-operative position for maintaining the motor and printing mechanism in drive, substantially as described.

9. In a ticket printing machine, a rotary printing cylinder and a rotary platen, a type-form upon a segment of said cylinder, a segmental feed-roll for advancing a paper strip toward the rotary printing cylinder an amount equal to the length of the ticket, said rotary printing cylinder, rotary platen and segmental feed-roll being driven in timed relation by means of gearing, means for severing the strip adjacent the inner end of the segment, and a finger for holding the end of the strip out of engagement with said segment.

10. In a ticket printing machine, a rotary printing cylinder and a rotary platen, a type-form upon a segment of said cylinder, means for feeding a paper strip to said printing cylinder, means carried by said cylinder for holding the end of the strip fed to said printing cylinder out of engagement

with said segment, a continuously operating electric motor and a clutch for driving said rotary printing cylinder and rotary platen, normally connecting the same with the motor, a tripping device for automatically disconnecting the motor and driven mechanism after each cycle of the operation, and means for manually holding said tripping device in non-operative position for maintaining the motor and printing mechanism in drive, substantially as described.

11. A ticket printing machine, comprising a rotary printing cylinder and a rotary platen, a type-form upon said cylinder and projecting beyond the periphery thereof, a knife and cooperating bearing carried, the one by the platen and the other by the printing cylinder, and arranged to register at one end of said type-form segment, a feed roll for said paper strip having a projecting segment on said roll, a table for guiding said strip between said feed roll and said printing cylinder, and a second feed roll positioned to co-act with the segment on the first mentioned feed roll, substantially as described.

12. In a ticket printing machine, a rotary printing cylinder and a rotary platen, a type-form upon a segment of said cylinder and projecting beyond the periphery thereof, means for guiding a paper strip between said cylinder and platen, a feed roll for said paper strip having a projecting segment corresponding in length to the type segment on said cylinder, a continuously operating electric motor and a clutch for transmitting rotation to the rotary printing cylinder and feed roll, automatic means for disengaging said clutch, and manually operative means for throwing said automatic means into non-operative position for continuously driving said mechanism, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS M. VAUGHAN.

Witnesses:

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