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[54] **TICKET ISSUING AND LIKE MACHINES**

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[30] **Foreign Application Priority Data**

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[52] **U.S. Cl.** **101/66,** 101/90, 194/2, 101/368

[51] **Int. Cl.**.....**B41l 1/12,** B41l 5/14

[58] **Field of Search**.....101/90, 93 R, 66, 368; 194/2, 194/10, 22, 55; 35/26; 40/27.5

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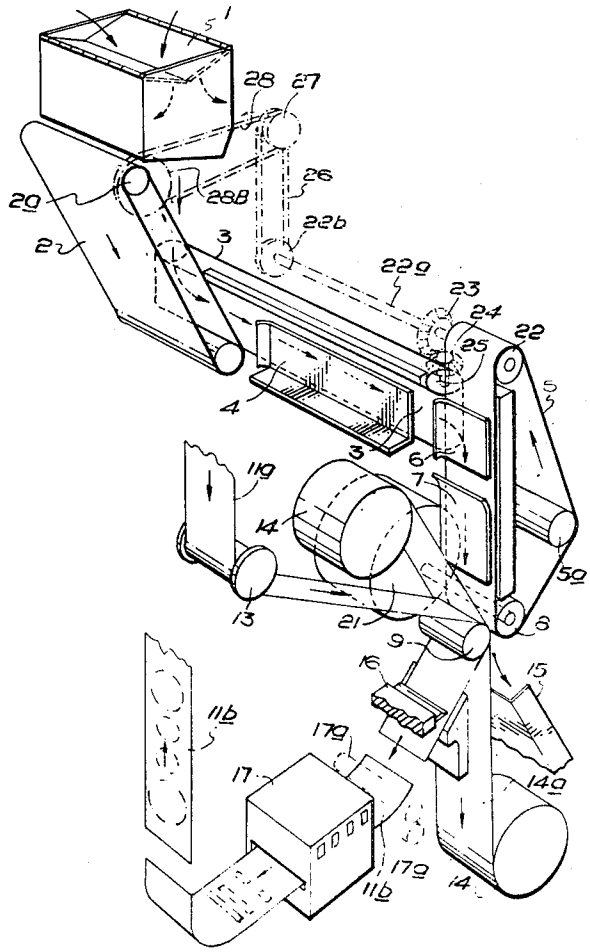
Publication – "The Magic Eye" dated 1948.

Primary Examiner—William B. Penn
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[57] **ABSTRACT**

A ticket and receipt issuing machine in which coins of any denomination to give the required total are inserted into a hopper in the machine casing and passed through means for reproducing an image of the coins on a ticket paper and means for delivering the ticket from the machine.

8 Claims, 5 Drawing Figures



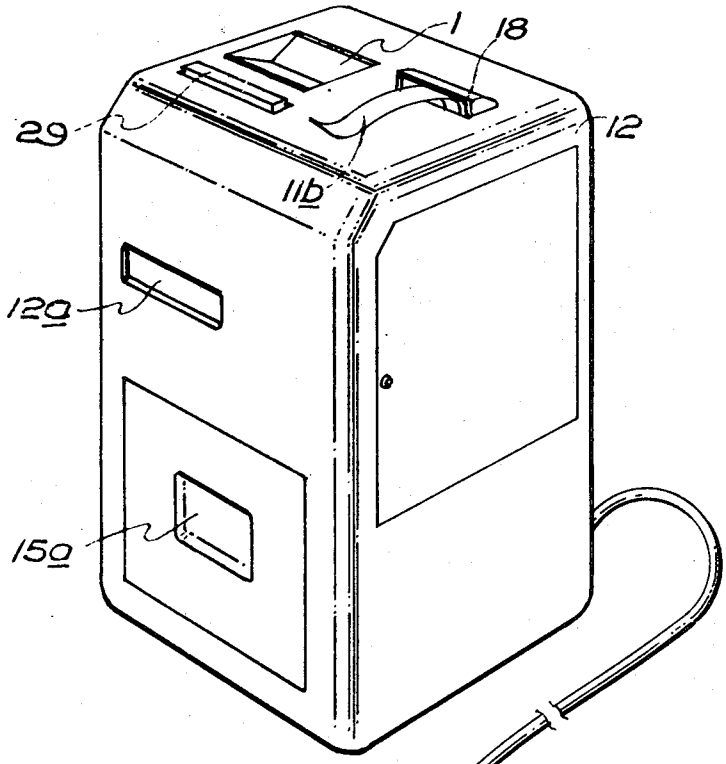


FIG 1

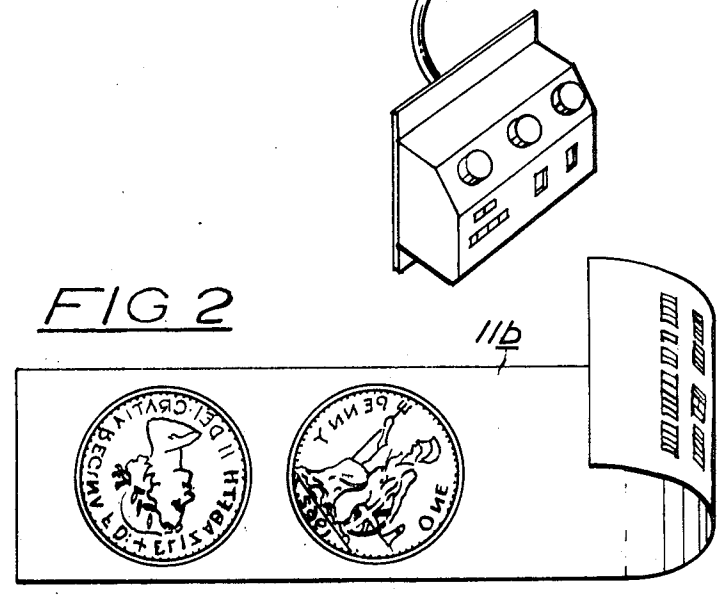


FIG 2

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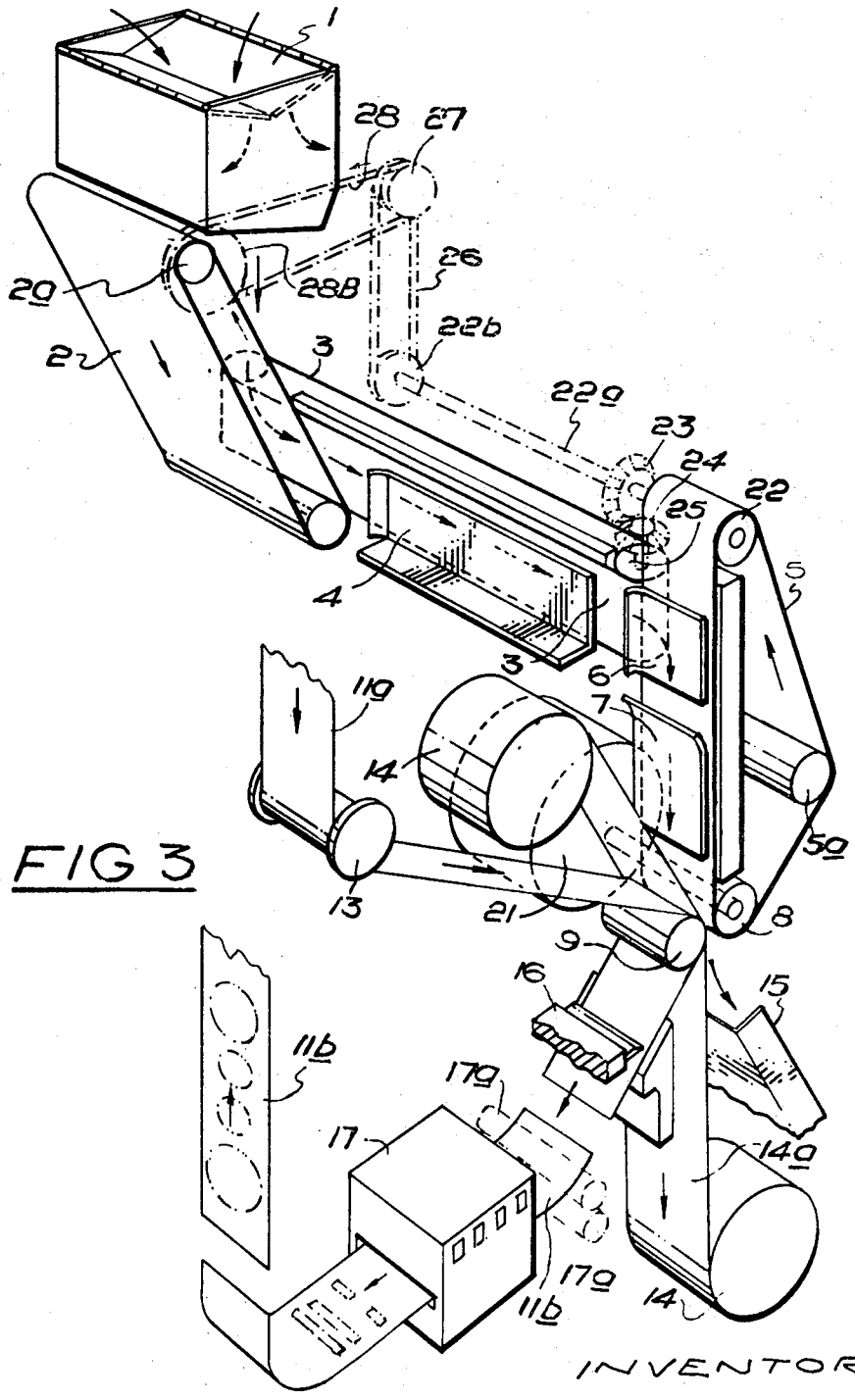


FIG 3

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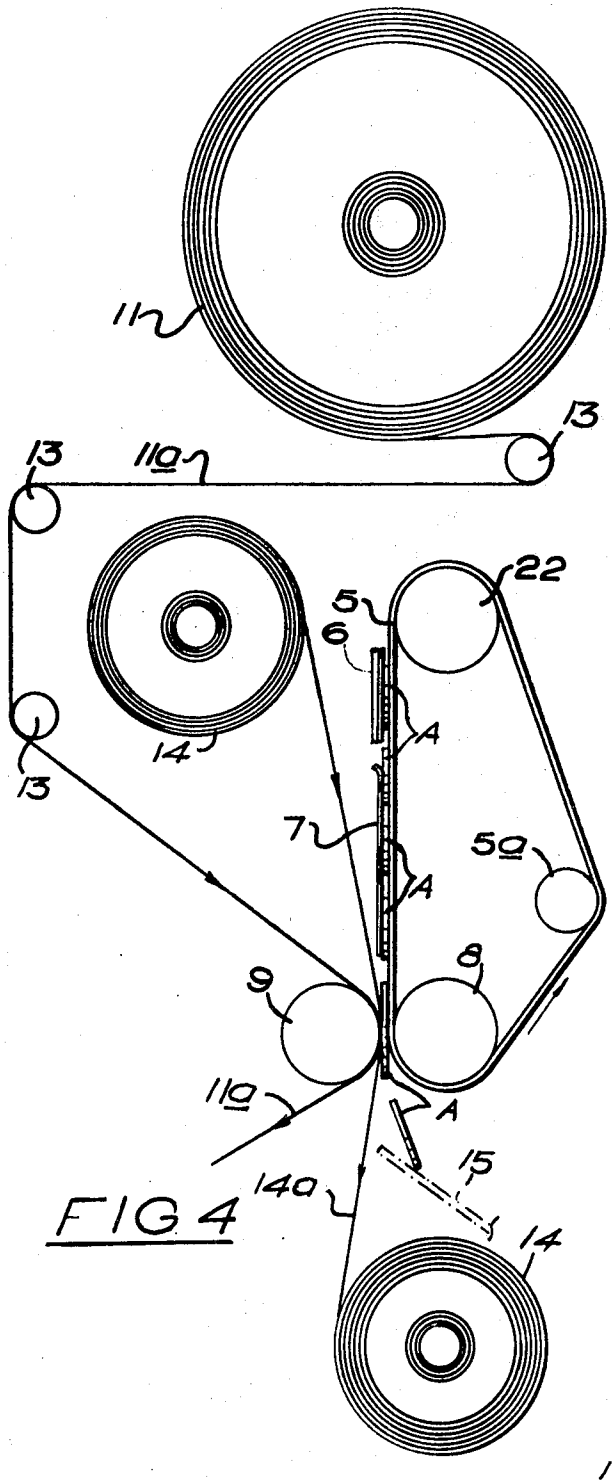


FIG 4

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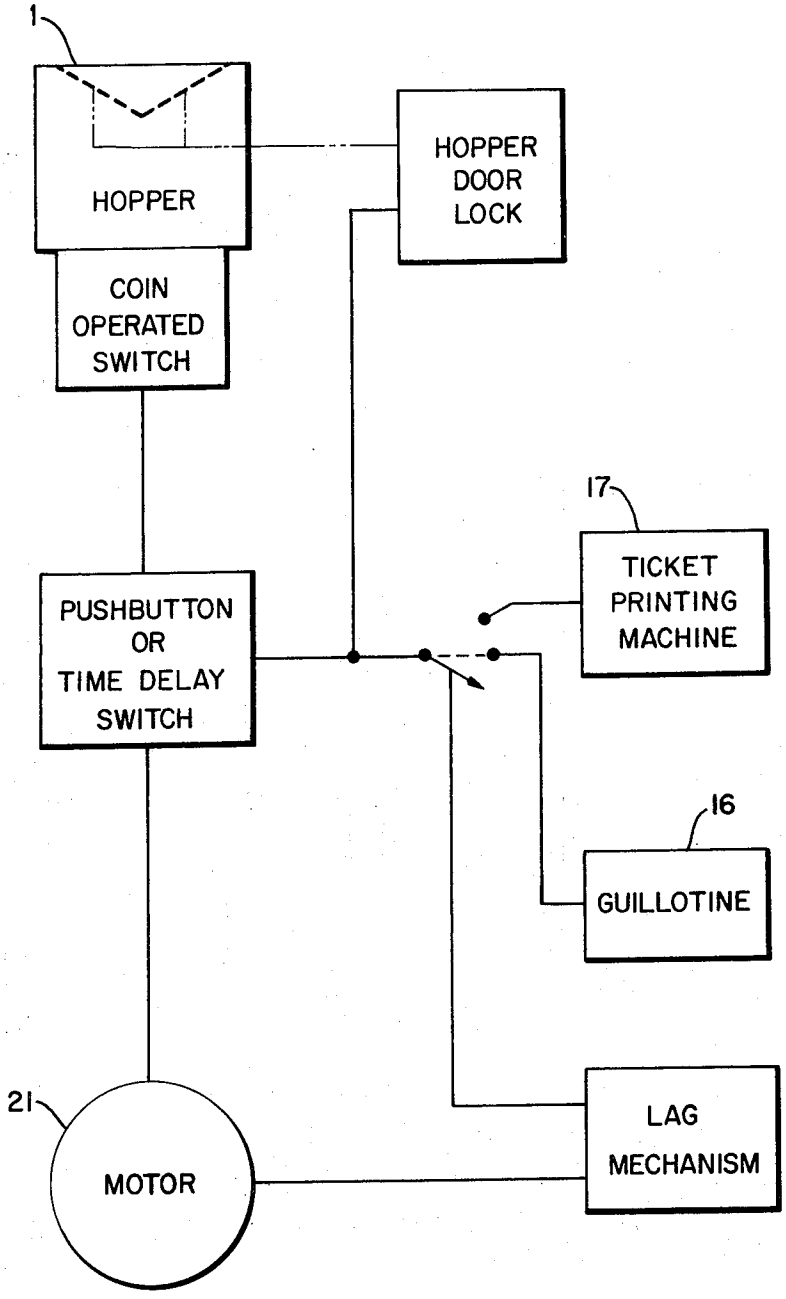

1
HOPPER
HOPPER DOOR LOCK
COIN OPERATED SWITCH
17
TICKET PRINTING MACHINE
PUSHBUTTON OR TIME DELAY SWITCH
16
GUILLOTINE
21
MOTOR
LAG MECHANISM

FIG. 5

TICKET ISSUING AND LIKE MACHINES

This invention relates to ticket and receipt issuing machines and is particularly applicable to the issuing of tickets automatically on vehicles or in stores.

Tickets issuing machines have been proposed in which coins of predetermined denominations are inserted into different slots to operate mechanism for the issuing of a ticket of the required value.

The object of the invention is to provide a compact form of machine into which coins of any denomination to give the required total are fed and passed through means for reproducing an image of the coins presented on the issued ticket.

According to the invention the machine comprises a casing, housing a coin receiving hopper, belts or a chute along which the coins pass from the hopper, means for feeding a strip ticket from a roll into contact with the coin(s), means for transferring an impression or image of the coin or coins onto the ticket strip and means for issuing the ticket from the casing.

The invention will be described with reference to the accompanying drawings.

FIG. 1 is a perspective view of the outside of a ticket issuing machine.

FIG. 2 is a perspective view of a ticket showing a mirror image of the coins presented thereon.

FIG. 3 is a perspective view of the coin feed and ticket issuing mechanism.

FIG. 4 is a diagrammatic end elevation of the ticket printing mechanism.

FIG. 5 is a block diagram showing conventional operative controls incorporated in the ticket issuing machine.

The ticket issuing mechanism comprises a coin hopper 1 into which coins of any denomination are fed to a total value of the ticket required. The coins A travel down an inclined endless belt 2 preferably travelling upwards to prevent the coins from bunching. The inclined belt 2 pivots about an upper roller 2*a* to permit the lower end to separate from a belt 3 to allow bulky articles inserted into the hopper to pass to a reject slot 12*a* in a casing 12.

The lower end of the inclined belt 2 meets the substantially horizontal endless belt 3 at an acute angle the coins being transferred in turn and taken along by the horizontal belt 3 on edge between the belt and a friction fence 4. On reaching the end of the belt 3 the coins pass between the vertical face of an endless belt 5 and a pressure shoe 6. The coins travel in turn between the belt 5 and pressure shoe 6 and pass between the belt and a second or differential pressure shoe 7. The belt 5 is tensioned by a jockey roller 5*a* and travels faster than the belt 3 to space the coins on the belt 5.

The coins pass from between the belt 5 and shoe 7 to the nip of a driven roller 8 and a roller 9. The fence 4, and pressure shoes 6,7 have a limited longitudinal movement as the coin travels along with the belts,3, 5 and may be connected.

A roll of paper 11 (FIG. 4) is mounted in the casing 12 housing the coin feed hopper and mechanism. The paper 11*a* from the roll passes over guide rollers 13 and through the nip of the rollers 8,9. A film 14*a* from a roll of carbon film 14 is drawn through the nip of the rollers 8,9 between the paper 11*a* and the coins A. The rollers 8, 9 are spaced apart substantially the thickness of the thinest coin available and the roller 9 is resiliently mounted to open the gap and apply pressure as a coin passes through the nip. The rollers 8,9 press the coin onto the carbon film and the paper 11*a* which are drawn through the rollers at the same speed as the coin and an impression of the coin is transferred to the paper 11*a* as a mirror image of the face of the coin in contact with the carbon film. From the rollers 8,9 the ticket passes through rollers 17*a* to a printing machine 17 which applies the number of the ticket thereon and when used on a fare paying vehicle, the date and stage. Immediately before printing the ticket is severed from the paper roll by a guillotine 16. From the printing machine the ticket 11*b* passes to a delivery slot 18 in the casing 12 for delivery to the passenger.

The coins on emerging from the rollers 8,9 fall into a chute 15 for transfer to a coin receptacle 15*a* in the casing and the carbon film 14*a* is re-wound onto the receiving spool 14 after re-passing through the rollers for re-use. The carbon film is not fully re-wound onto the supply spool by some 0.002 inch or other length in order that on a succeeding passage the carbon film will have been advanced by this amount.

The roller 8 is mounted on a spindle driven by a motor 21, the roller 8 transferring a drive to the conveyor 5. The conveyor 5 passes over a top roller 22 mounted on a spindle 22*a* carrying a bevel pinion 23 and a belt pinion 22*b*.

The bevel pinion 23 engages a second bevel pinion 24 driving a roller 25 over which the belt 3 passes.

The inclined belt 2 is driven by a belt 26 from a belt pulley 27 driven by a second belt 28 passing over the pulley 22*b* and driving the upper roller 2*a* of the inclined belt 2. The gearing is arranged so that the belt 5 is driven somewhat faster than the belt 3 to space the coins A in order that the impressions on the paper may be spaced apart as shown in FIG. 4.

On the insertion of coins into the hopper I an electrical contact is closed to start the motor 21 which drives the spindle of the roller 8 and initiates the starting of the belts. The motor runs until all the coins have been inserted and a push button 29 is pressed, or with a time delay of say a period of 10 seconds if the button is not pressed, to stop the motor and deliver the ticket 11*b*. The passage of the last coin from the hopper, or the time lag, energizes mechanism to prevent the hopper from re-opening until after the last coin has passed the shoe 6 after which the hopper doors are released to allow further coins to pass for a succeeding ticket. These rather conventional mechanisms are illustrated in block diagram format in FIG. 5. The coin operated switch in hopper 1 starts motor 21 to feed the coin or coins through the machine. When the pushbutton 29 (FIG. 1) is actuated after insertion of the last coin into hopper 1, or when the time delay has expired, the hopper door lock is activated to prevent further insertion of coins, and a time lag mechanism is activated to continue operation of motor 21 until the last coin passes shoe 6 (FIG. 3). Immediately thereafter, guillotine 16 is actuated to form an individual ticket 116 (FIGS. 2, 3) and the ticket printer is actuated to print a number and other identifying indicia thereon as explained above, and eject the completed ticket from the machine.

As hereinbefore described the ticket **11***b* after severing from the roll **11** passes to the delivery slot **18** in the casing **12**.

The cycle of operations is repeated for each ticket issued.

Alternatively the impression of the coin may be obtained on the ticket:

1. Chemically for example by substituting a sensitized paper for the paper **11***a* and coating the coin with an inter-acting solution so that when the coin is brought into contact with the sensitized surface an impression of the coin will be produced thereon. The paper may be sensitized with potassium iodide and the coin coated with starch.

II. Electrically by the employment of "volt sensitive" paper for the ticket with the impression of the coin being obtained by passing current through the coin and thus obtaining an impression on the paper of all areas of the coin which are in contact with the paper at the moment at which the current is passed.

III. By the use of a ticket paper sensitive to ultraviolet light the image of the coin being transferred to the paper by the reflection of ultraviolet light from the coin to the paper.

IV. Electrostatically by the use of an electrostatic copy process such as one in which a beam of light scans the coin and mirrors reflect an image onto a selenium coated surface of a drum to cause certain areas to the selenium layer to become electrostatically charged and passing the ticket paper coated with a resin power which adheres by electrostatic attraction to give an impression of the coin, the surplus power being removed and the image permanently set by passing the ticket through a heater.

The invention is not limited to ticket for use on vehicles but may be employed in stores or for other purposes where a receipt for money is automatically required.

What I claim is:

1. A ticket issuing machine adapted to feed a predetermined number of coins representing a predetermined value through the machine, imprint an image of the respective coins onto a portion of a continuous length of ticket strip material, sever the imprinted portion into an individual ticket and issue the individual ticket from the machine comprising: a casing; a coin receiving hopper therein; means closing said hopper after a predetermined number of coins have been inserted thereinto and for reopening said hopper after a predetermined elapsed period of time; means for successively conveying said predetermined number of coins through the casing from the hopper; a supply of continuous length of ticket strip material; means for receiving the predetermined number of coins from the conveying means and for sequentially feeding the coins into face contact with the leading portion of the ticket strip material; means for transferring an image of each coin onto the leading portion of the ticket strip material as each coin is in face contact therewith; means for severing the leading portion of the ticket strip material into an individual ticket after the images of the predetermined number of coins have been applied thereto and for feeding a succeeding leading portion of the strip to said image transferring means; and means for issuing the individual ticket from the machine after the leading portion of the ticket strip material has been severed into an individual ticket.

2. The ticket issuing machine as set forth in claim 1 wherein said means for conveying successive coins through the casing comprise an inclined endless belt onto which the coins are fed from the hopper; a substantially horizontal second endless belt and a fence between which the coins travel on edge; and a substantially vertical endless belt and a pressure plate between which the coins pass from the second belt to said means feeding the coins into face contact with the ticket strip material.

3. The ticket issuing machine as set forth in claim 1 wherein said means for receiving coins from the conveying means and for feeding the coins into face contact with the ticket strip material comprise a pair of pressure rollers between the nip of which the coins and the ticket strip material pass in pressure contact relationship.

4. The ticket issuing machine as set forth in claim 3 wherein said means for transferring an image of each coin onto the ticket strip comprise transfer film fed through the nip of said rollers between a coin and the ticket strip material.

5. The ticket issuing machine as set forth in claim 1 wherein said means for severing the ticket strip material into an individual ticket comprise a guillotine located between said means feeding the coins into face contact with the strip material and said individual ticket issuing means.

6. The ticket issuing machine as set forth in claim 1 wherein said individual ticket issuing means comprise means for imprinting a number and other identifying indicia on the individual ticket on a side thereof opposite the side bearing a coin image.

7. The ticket issuing machine as set forth in claim 1 wherein a single motor is provided to drive said successive coins conveying means, said means for feeding coins into face contact with the ticket strip material, and said image transferring means.

8. The ticket issuing machine as set forth in claim 7 wherein control means are provided for stopping said motor after insertion of coins into the hopper.

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