June 24, 1958 F. B. DOUD 2,840,214

VENDING MACHINE

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Fig. 1

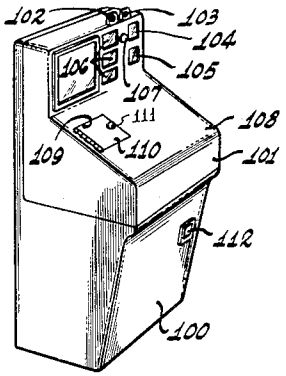


Fig. 3

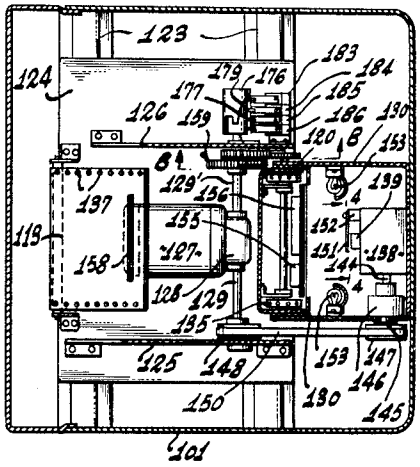


Fig. 2

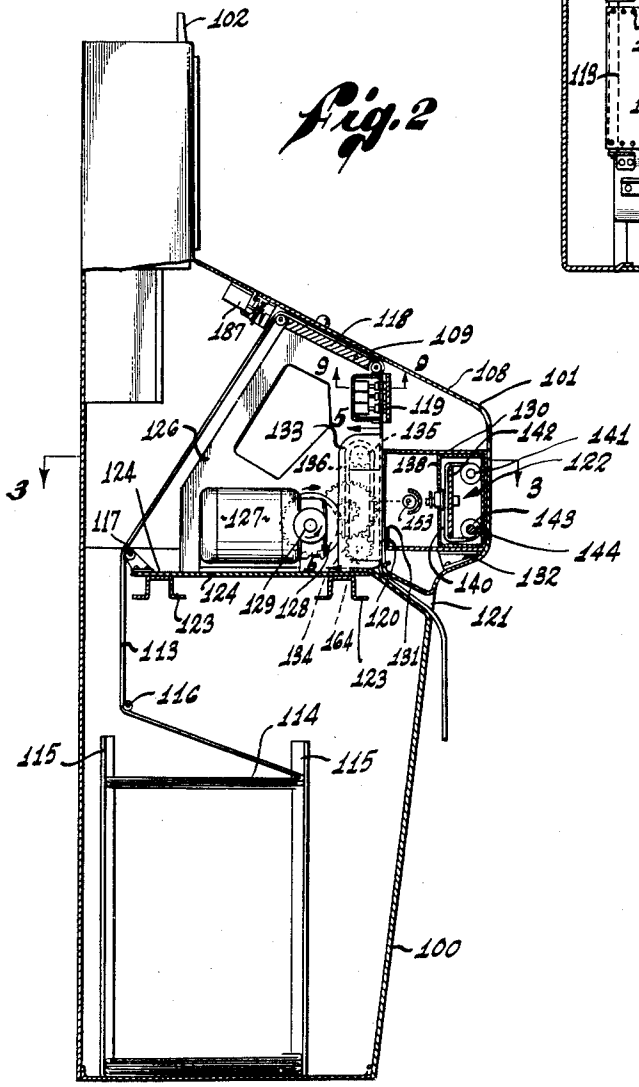
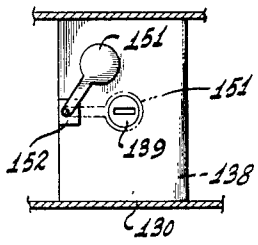


Fig. 4



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VENDING MACHINE

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Fig. 5

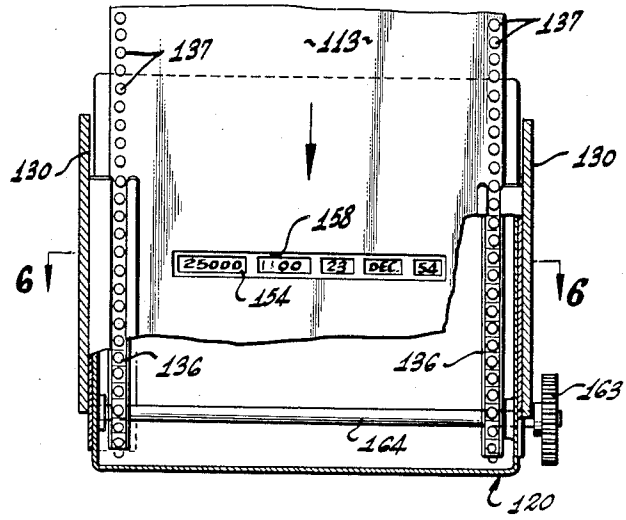
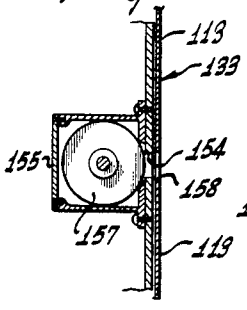


Fig. 7



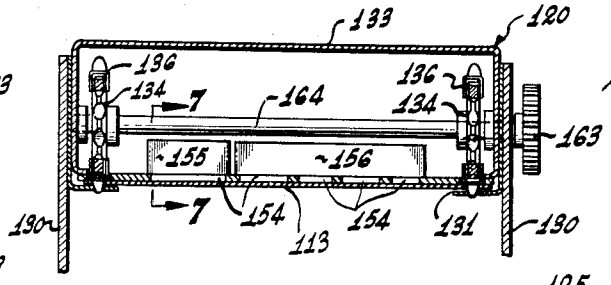
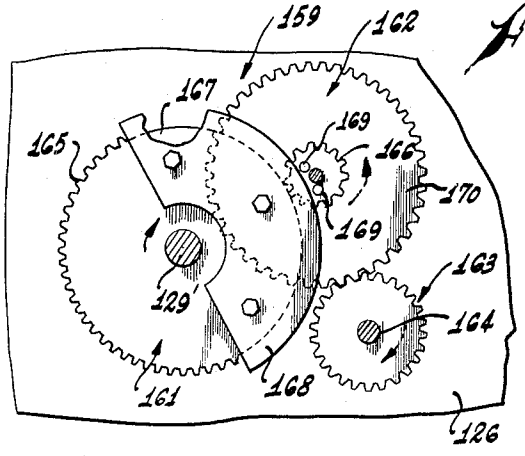


Fig. 6

Fig. 8



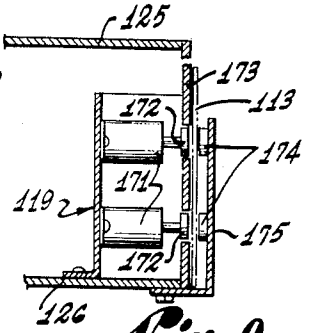


Fig. 9

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Fig. 10

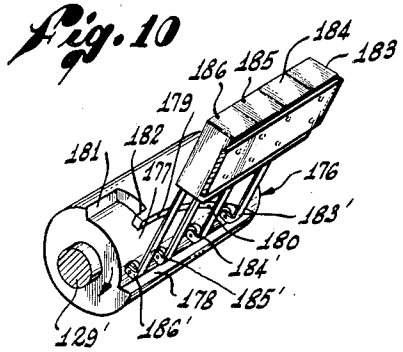


Fig. 11

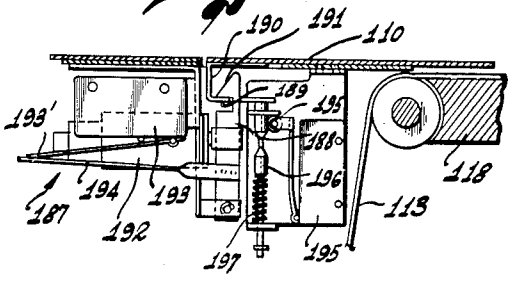
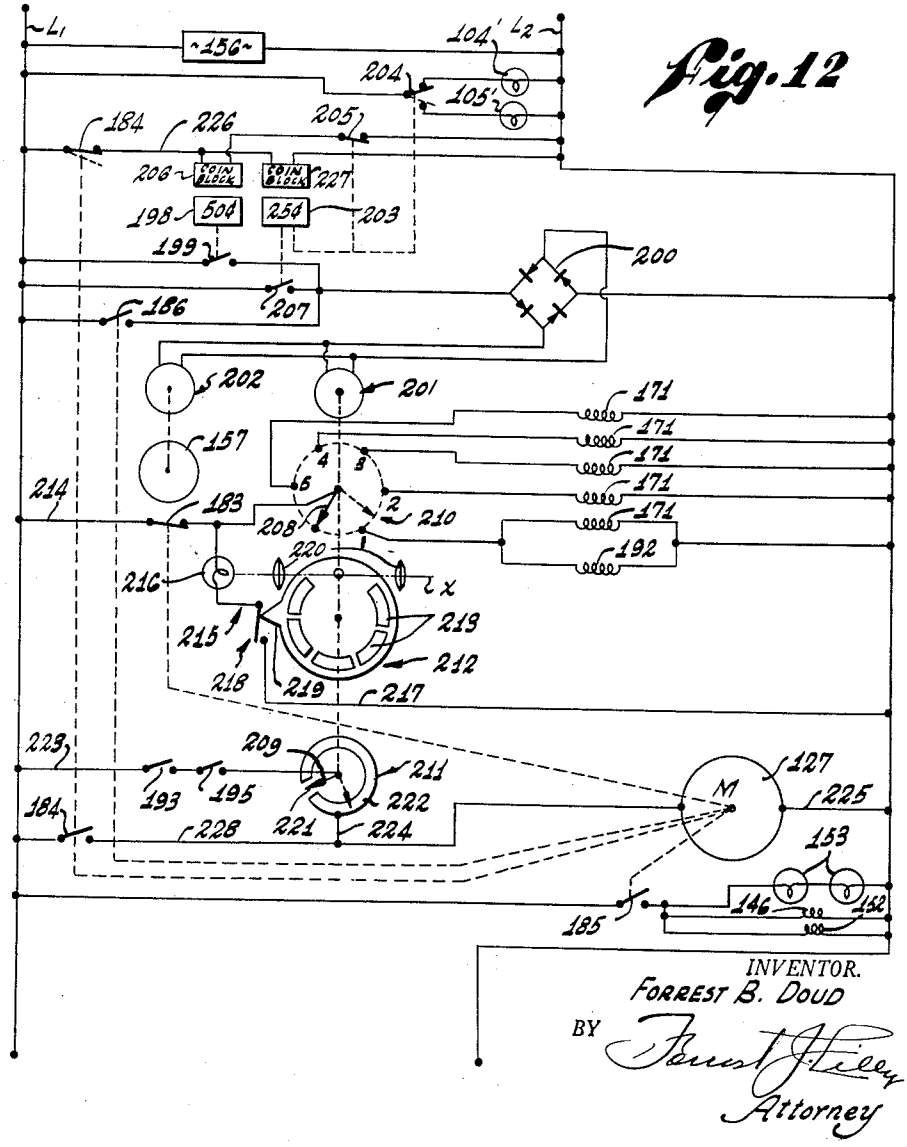


Fig. 12



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United States Patent Office 2,840,214 Patented June 24, 1958

2,840,214

VENDING MACHINE

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Application June 13, 1955, Serial No. 514,845

12 Claims. (Cl. 194—9)

The present invention relates generally to vending machines and more particularly to a vending machine for issuing forms such as insurance policies and the like.

This invention is an improvement on those disclosed in copending applications Serial No. 329,180, filed January 2, 1953, and Serial No. 458,933, filed February 3, 1955, now abandoned, respectively, and each entitled Vending Machine.

Vending machines of the type to which the illustrative embodiment of this invention pertains generally employ a blank original policy form which is fed past an access window in the housing of the machine. This window is normally sealed by a closure, which is automatically opened or conditioned to be manually opened upon the insertion of a predetermined coin or coins into the machine to enable the purchaser to insert on the blank insurance form certain necessary identifying information. Often the original policy forms have indicated thereon, by the operation of suitable mechanism within the machine, the date and time of issuance of the policy.

After the policy has been completely filled in by the purchaser, suitable feed mechanism included in the machine is set into operation by the purchaser to effect delivery of the completed policy and movement of the closure across the window to seal the latter.

It is necessary, for auditing purposes, that a duplicate record be kept of each of the policies vended by the machine. These duplicate records generally contain the identifying information supplied by the purchasers, the amounts of the policies issued, and the dates and times of their issuance.

Existing vending machines often employ original policy forms with carbon backing to effect the transfer of the information placed on the original policy forms to duplicate record paper which is retained in the machine.

Thus, in some prior insurance vending machines, the duplicate record was kept on a web of blank duplicate paper which was fed through the machine with the original policy forms. This web of duplicate paper was wound on a take-up reel or stacked within the machine and was, at periodic intervals, returned to a home office for auditing.

Such existing arangements for making duplicate copies of the insurance policies vended by the machines were excessively complex, costly to manufacture, and required frequent servicing. That is, if the machine was to be of a practical size, the number of blank insurance forms and the amount of duplicate paper which could be retained in the machine was severely restricted owing to the space that such forms and duplicate paper consumed. Moreover, the cost of shipping the duplicate records to the home office was substantial owing to their relatively great weight and bulk. Further, the duplicate feed mechanisms for feeding the original policies and the duplicate record paper through the machine substantially increased the complexity and cost of the vending machine and necessitated frequent periodic maintenance procedures to insure proper functioning thereof.

With the foregoing preliminary discussion in mind, it may be stated as a general object of this invention to provide a form vending machine for issuing insurance policies or the like, which is of simplified construction and which may be operated for long periods of time without servicing owing to the greater supply of forms which may be retained in the machine.

Another object of the invention is the provision of an insurance policy vending machine wherein the duplicate record of the policies vended is kept on reduced scale on photographic film so that the cost of shipment of the duplicate records to the home office is substantially reduced and a greater number of blank policy forms may be stored in the machine.

A further object of the invention is the provision of an insurance policy vending machine, as in the foregoing, wherein the photographic mechanism for making duplicate copies of the policies vended is automatically set into operation by the action of the purchaser to initiate actuation of the policy feed mechanism to deliver the policy after the necessary information has been inserted thereon.

Still a further object of the invention is the provision of a novel arrangement for photographically recording the date and time of issuance of the policy.

Broadly, the present vending machine comprises a housing having a window therein directly beneath which the original blank policies are fed during operation of the machine. This window is normally closed by an access door which is unlatched in response to the insertion of a first coin or coins into the machine to enable a purchaser to open the same and insert the necessary information on the blank policy forms. In accordance with instructions displayed on the machine, the purchaser will, after completion of the policy, close the door. The feed mechanism of the machine is responsive to closing and locking of the door to deliver the policy to the purchaser and simultaneously photographically reproduce on reduced scale the information inserted on the policy by the purchaser as well as the date and time of issuance and the amount of the policy vended. This latter information relating to the amount of the policy vended, is placed on the original policy forms by the operation of suitable printing mechanism in the machine which is responsive to the first and subsequent coins deposited in the machine to indicate on the form the corresponding amount of the policy. Thus, from one to several coins may be inserted in the machine to obtain a policy in an amount determined by the number of coins inserted.

The invention, as well as objects and features not specifically mentioned in the foregoing, will become better understood and more fully appreciated from the following detailed description wherein reference is had to the accompanying drawings, in which:

Fig. 1 is a perspective view of the housing of the present form vending machine;

Fig. 2 is an enlarged side elevation of the mechanism contained within housing of Fig. 1 with parts broken away for the sake of clarity;

Fig. 3 is a section taken substantially along line 3—3 of Fig. 2;

Fig. 4 is an enlarged view looking in the direction indicated by the arrows on line 4—4 of Fig. 3;

Fig. 5 is an enlarged section taken along line 5—5 of Fig. 2;

Fig. 6 is a sectional view taken along line 6—6 of Fig. 5;

Fig. 7 is a section taken along line 7—7 of Fig. 6;

Fig. 8 is an enlarged section taken along line 8—8 of Fig. 3;

Fig. 9 is an enlarged section taken along line 9—9 of Fig. 2;

Fig. 10 is a perspective view of a drum cam and switch arrangement embodied in the machine;

Fig. 11 is a detail view of certain latching mechanism in the machine; and

Fig. 12 is a schematic showing of the electrical circuit embodied in the machine.

Reference is now had to Fig. 1 wherein the housing of the present vending machine is shown as comprising a lower frame casing **100** and an upper frame casing **101**. Upper frame casing **101** is removably locked to lower frame casing **100** so that only authorized personnel may have access to the mechanism within the housing.

An upper horizontal panel on the upper frame casing **101** carries a first coin slot **102**, which, for example, may receive half dollars, and a second coin slot **103**, which may receive quarters. Prior to the insertion of a coin into the machine, a light behind a transparent window **104** will be lit to indicate through the window that either quarters or half dollars may be inserted into the machine.

Upon the insertion of the first or any odd number of quarters into the machine, window **104** will become dark and a light behind transparent window **105** will be lit to indicate through the latter window that a second quarter should be inserted. The numeral **106** designates a series of panels containing instructions, in numbered steps, for effecting operation of the machine. At **107** is shown a transparent window which is normally dark, and which, upon insertion of coins into the machine, will have displayed therein the amount of the policy corresponding to the number of coins that have been inserted.

Upper frame casing **101** is provided with an inclined upper panel **108** in which is formed an access window **109**. Access window **109** is normally closed by a hinged door **110**. Door **110** is, as will presently be seen, normally locked in its closed position by a latch mechanism which is unlocked in response to the first fifty cents inserted into the machine. The purchaser may then open the door by grasping a handle **111** on the door to uncover the access window **109**. As will be seen, blank policy forms are fed directly beneath the window **109** so that the purchaser may insert certain necessary information on such forms. Upon closing and locking of the door, operation of feed mechanism within the housing is automatically initiated to deliver the completed policy to the purchaser.

The front of the housing is provided with an over-hanging portion, as shown, and the completed policy is delivered to the purchaser through a slot, not shown in Fig. 1, at the underside of this over-hanging portion.

The front panel of the lower frame casing **100** is provided with a coin return slot **112**.

Referring now to Figs. 2 and 3, the numeral **113** designates the blank insurance policy forms which are printed in a continuous strip or web, as shown, with the portions of the web between adjacent policies being perforated to facilitate the separation of one policy from the adjacent policy.

This web **113** of original policy forms is folded in accordion fashion along the perforated portions thereof to form a supply or stack of such forms as at **114**. Vertical guides **115**, in the form of L-shaped channel members rising from the bottom panel of the lower frame casing **100**, embrace the four corners of the stack **114** to retain the latter in position in the housing.

During operation of the machine, the web **113** of original policies is fed around a pair of guide rollers **116** and **117**, over a backing plate **118** disposed directly beneath window **109** in upper panel **108**, through a printing mechanism **119**, over a chain feed mechanism **120**, and thence through a slot **121** in the front panel of the housing to the exterior of the machine. As will be described, portions of the completed policy form are photographically reproduced on reduced scale by a photographic device generally indicated at **122** to provide a duplicate record of the policies vended.

As shown in Fig. 2, backing plate **118** is disposed in slightly spaced, parallel relationship to the upper inclined panel **108** of the upper frame casing **101** and is, as previously mentioned, positioned directly beneath window **109** so as to form a firm backing for the original policy forms to permit the purchaser to insert certain necessary identifying information on the forms.

Fixed at opposite ends to the side panels of the lower frame casing section **100** are a pair of horizontal channel support members **123** on which is mounted a horizontal support plate **124**. Rising from and fixed to plate **124** are a pair of spaced, vertical supporting walls **125** and **126** each having an inclined upper edge parallel to upper panel **108**. Backing plate **118** is fixed at opposite ends to walls **125** and **126** adjacent these inclined edges.

Fixed to supporting plate **124**, intermediate side walls **125** and **126**, is an electric drive motor **127** including a speed reduction unit **128**. A pair of main drive shafts **129** and **129'** are driven in opposite directions of rotation from the speed reduction unit **128** and are journaled, adjacent their free ends, in suitable bearings provided in the supporting walls **125** and **126**, as shown in Fig. 3.

Photographic recording mechanism **122** comprises an enclosure in the form of a hollow rectangular box **130** having an opening **131** at one end thereof. Box **130** is secured in any suitable manner to the bottom panel **132** of the aforementioned over-hanging portion of the housing as shown in Fig. 2. The opposite vertical side walls of box **130** extend beyond the open end of the box, as illustrated in Fig. 3, and fixed between these extending side wall portions is the chain feed mechanism **120**.

Chain feed mechanism **120** comprises an elongated hollow housing **133** journalling at each of its opposite ends a pair of spaced sprockets **134** and **135** around which are trained a pair of sprocket chains **136** having lugs (Figs. 5 and 6) adapted to pass through perforations **137** along each longitudinal edge of the original policy web **113**. For a description of one form of sprocket chain especially suited for use in the present vending machine, reference may be had to aforementioned copending application Serial No. 329,180.

The front runs of the sprocket chains **136** are parallel to and slightly spaced from the plane of the opening **131** in box **130** of the photographic recording device so that during operation of the machine the completed policy forms will be fed past this opening.

Disposed within box **130** is a photographic recorder **138** (Figs. 2, 3 and 4) which may include a horizontal slit type lens **139** for focusing onto a film strip **140**, behind the lens, a slit image of the original policy forms **113**. Film strip **140** may be fed from a supply reel **141**, over a supporting plate **142** positioned behind lens **139**, to a take-up reel **143**. Take-up reel **143** is driven from a shaft **144** which, as shown in Fig. 3, projects to the exterior of the photographic recorder **138** and is adapted to be drivably connected to a shaft **145** journaled in the wall of box **130**, as shown, by energization of a magnetic clutch device **146**. The outer end of shaft **145** has mounted thereon a pulley **147** which is drivably connected with a pulley **148** on the main drive shaft **129** by a belt drive **150**. It will be apparent that shaft **145** is driven whenever motor **127** is driving, but that shaft **144** is driven, and hence film **140** is fed past the lens **139**, only when magnetic clutch **146** is energized.

Normally disposed in front of lens **139**, so as to cut off the flow of light therethrough to the film is a pivoted shutter element **151** operated by a rotary solenoid **152**. Upon energization of rotary solenoid **152** shutter **151** will move from its normal position, shown in dotted lines in Fig. 4, in front of lens **139** to a retracted position shown in solid lines in Fig. 4 wherein light may pass through lens **139** to film **140**. Suitable rearwardly shielded lights may be mounted on the walls of enclosure **130**,

as shown at **153**, for illuminating the insurance policies as they are fed past the opening **131**.

To provide for photographically recording the amount of a policy issued as well as the date and time of issuance, an intermediate portion of the front panel of housing **133** of the chain feed mechanism **120** is slotted as at **154** in Figs. 5–7. Positioned behind slots **154** are a policy amount indicator **155** and a time and date indicator **156**. Indicators **155** and **156** may be secured to the front panel of feed mechanism housing **133** as shown more clearly in Fig. 7.

Policy amount indicator **155** may, for example, comprise a rotary drum **157**, or the like, bearing on its peripheral surface a series of numerals (Fig. 5) corresponding to the amounts of the insurance policies which the machine will vend. Drum **157** is indexed to its various positions, wherein a given one of the numerals on the periphery of the drum are visible through the slot **154**, by a stepping switch, or the like, embodied in the indicator **155**, as will be presently described.

Indicator **156** may comprise a conventional time and date indicating mechanism embodying drums bearing on their peripheries various times and dates as indicated in Fig. 5. These drums would be operated by an electric clock mechanism (not shown) contained within the indicator **156** to present through slot **154** the correct time and date.

Each of the policy forms in the policy web **113** is formed with a slit **158**. During inoperative periods of the machine, the slit in the policy next to be vended will be alined with slot **154** in the feed mechanism housing, as shown in Fig. 5, so that the time, date, and policy amount displayed through slot **154** will be visible to recorder unit **138**.

During operation of the vending machine, chain feed mechanism **120** is driven from the main drive shaft **129'** through a gear drive **159** (Fig. 3), hereinafter more fully described, to feed the policy web **113** in the direction indicated by the arrow in Fig. 5. The ratio of the gear train **159** and the relative sizes of pulleys **147** and **148** are such that film **140** will be moved past slit lens **139** at the same rate as the policy web **113** is fed past the opening **131**. Thus, desired portions of the policy may be recorded on the film **140** without the necessity of providing an intermittently actuated shutter.

Referring now to Figs. 3 and 8, gear train **159** comprises a first gear element **161** mounted on the main drive shaft **129'**, a second gear element **162** journaled in side wall **126**, and a third gear element **163** mounted on the shaft **164** (Fig. 2) of the lower sprockets **134** of the feed mechanism **120**.

Gear element **161** comprises a toothed segment **165**, adapted to mesh with a gear **166** on gear element **162**, and a smooth segment **167** of such a radius that it will clear the teeth on gear **166**. Formed on or fixed to gear element **161** at the smooth segment **167** thereof, is a generally sector shaped plate **168** whose peripheral surface is adapted to be engaged by a pair of pins **169** carried by gear **166**. Gear element **162** further comprises an enlarged gear **170** which meshes with gear **163**.

When the machine is inoperative, the gear elements will be disposed as shown in Fig. 8, with the pins **169** engaging the peripheral surface of sector plate **168**. This engagement between the pins **169** and sector plate **168** prevents pulling of the policy web **113** through the machine. Upon energization of the drive motor **127**, main drive shaft **129'** is driven to rotate the toothed segment of gear element **165** into meshing engagement with gear **166** so as to drive gear **170**, and hence the policy feed mechanism **120**, through gear **163**. The length of the toothed segment **165** and the ratio of the gears are such that one rotation of main drive shaft **129'** will cause the policy web **113** to be fed a distance equal to the length of one policy.

To provide for the printing on the policy of the amount thereof, there is provided a stamping mechanism generally indicated at **119** in Fig. 2, which mechanism may be similar to that described and illustrated in aforementioned copending application Serial No. 458,933. As shown in Fig. 9, printing mechanism **119** comprises a plurality of solenoid actuated stampers **171** whose plungers **172** are movable through openings in a supporting plate **173**, over which the policy web **113** moves, to force the latter against dies **174** carried on the underside of a plate **175** fixed to the supporting wall **126** in slightly spaced relationship with the supporting plate **173**, as shown. The policies may be in the form of a pair of folded sheets with carbon backing on the first sheet, that is, the sheet nearest the dies **174**.

Upon selective energization of the solenoids **171**, the adjacent policy is forced against the dies **174** whereby there will be imprinted on the second sheet of the policy the indicia formed on the die associated with the energized solenoid. The indicia on the dies may comprise numerals corresponding to the various amounts of the insurance policies which may be vended by the machine. As will be presently more fully appreciated, solenoids **171** are sequentially energized in response to the insertion of the first and each additional predetermined unit of money inserted in the machine.

To provide for the proper sequential phasing of the various machine components, there is provided on main drive shaft **129'** outboard of the supporting wall **126**, a drum cam **176**, having, as shown more clearly in Fig. 10, an open portion **177** formed in its peripheral surface. Opening **177** is bounded by a trailing edge **178** and a leading edge **179** of the cam surface.

Trailing edge **178** extends parallel to the axis of rotation of the drum cam, as shown, while leading edge **179** includes a portion **180** inclined to said axis.

Another portion **181** of leading edge **179** is angularly spaced from portion **180**, as shown. A small tab **182** is disposed, as shown, to form a continuation of leading edge portion **180** and is for a purpose to be presently seen.

Operably associated with drum cam **176** are four microswitches **183**, **184**, **185** and **186** mounted on support wall **126**. These switches include actuating elements identified, respectively, as **183'**, **184'**, **185'** and **186'**. During inoperative periods of the machine, these switch actuating elements will be disposed in opening **177** in the drum cam surface.

During operation of the policy feed mechanism of the machine, drum cam **176** will be rotated in the direction indicated, and microswitches **183** through **186** will be sequentially actuated by engagement of leading edge **179** with the switch actuating elements **183'** through **186'**.

Actuating elements **183'** and **184'** of switches **183** and **184** are so disposed as to engage leading edge portion **180** and, due to the inclination of edge portion **180**, the switches will be sequentially actuated in the order listed.

Actuating element **185'** of switch **185** is disposed to first engage the leading edge portion formed on tab **182** and subsequently engage the angularly displaced leading edge portion **181**. It will be seen, therefore, that switch **185** will be momentarily actuated by engagement of its actuating element **185'** with tab **182** and subsequently actuated by engagement of its actuating element with leading edge portion **181**.

The fourth microswitch **186** will be actuated by engagement of its actuating element **186'** with leading edge portion **181**.

A further description of the operation of these switches will be given in the hereinafter described operation of the machine.

Access door **110** is adapted to be locked in its closed position by a releasable latch means generally indicated in Fig. 2 by the numeral **187**. One latch construction especially suited to use in the present vending machine is disclosed in aforementioned copending application Serial

No. 458,933 and shown in Fig. 11 of the present drawing.

This latch comprises generally a solenoid actuated, pivoted latch member **188** having a notch **189** for receiving a cooperating latch member **190** fixed to door **110** and projecting through an opening in inclined panel **108** when the door is in its closed position.

During closing of the door, pivoted latch member **188** is cammed to its released position, shown in phantom lines, by engagement of latch member **190** with an inclined cam surface **191** formed on the upper end of the pivoted latch member **188**.

This latter latch member is operated to its released position by a solenoid **192** and is biased to its latching position (shown in solid lines) by a spring (not shown) within solenoid **192**.

Pivoting of latch member **188** to its released position, operates to open a normally closed microswitch **193** by engagement of an arm **194**, carried by the pivoted latch member, with the actuating element **193'** of switch **193**. Movement of door **110** to its closed position also acts to close a normally open microswitch **195** by engagement of latch member **190** with an axially movable cam rod **196**, the latter engaging the actuating element **195'** of switch **195**. Downward axial movement of cam rod **196**, resulting from engagement of latch **190** with the cam rod upon closing of door **110**, acts to cam actuating element **195'** of switch **195** in a direction to close the latter, normally open, switch. Rod **196** is biased, by a spring **197**, in a direction to slightly open door **110**, when solenoid **192** is momentarily energized to move latch member **188** to its released position.

As will be seen, switches **193** and **195** are connected in electrical series so that an electrical circuit through these switches will not be completed until door **110** is closed and locked.

A cycle of operation of the present vending machine will now be described by reference to Fig. 12 of the drawing.

Designated at L1 and L2 are a pair of leads for connection to a source of A. C. electrical power (not shown) for operating the machine. The date time indicator **156** is connected directly across these leads so as to be continuously energized.

Upon the insertion of a half dollar into the fifty cents coin slot **192**, a conventional coin switch mechanism **198**, associated with that slot, becomes operative to momentarily close a switch **199** to connecting a rectifier **200** across the leads L1 and L2. The resulting pulse of D. C. current from rectifier **200** is applied to a pair of stepping selector switches generally indicated at **201** and **202** for stepping the latter in a manner to be presently seen. These selector switches may be any type of conventional resettable stepping selector switches.

If the first coin deposited is a quarter, a conventional coin counting switch mechanism **203** becomes operative to actuate a switch **204** from its solid line position, wherein a light **104'** behind window **104** (Fig. 1) is energized to illuminate that window and indicate that either quarters or half dollars may be inserted in the machine, to its dotted line position wherein light **104'** is de-energized and a light **105'**, behind window **105** is energized to illuminate the latter window and indicate therethrough that an additional quarter should be inserted in the machine.

Simultaneously with the above actuation of switch **204**, a switch **205**, in the energizing circuit of a conventional fifty cent coin block **206**, is opened to de-energize that coin block and return to the purchaser any coins inserted in the fifty cent coin slot **102** before the second quarter is inserted in the machine.

Coin counting switch mechanism **203** becomes operative, upon the insertion of a second quarter into coin slot **103**, to return switch **204** to its solid line position and reclose switch **205**. Simultaneously, a switch **207** is momentarily closed by the action of the coin counting mechanism **203** to connect rectifier **200** across the terminals L1 and L2. The resulting pulse of D. C. current fed to the selector switches **201** and **202** will, as in the case of the insertion of a half dollar in the machine, cause stepping of the selector switches.

Drum **157**, embodied in policy amount indicator **155**, is mechanically connected to selector switch **202** whereby said drum will be stepped upon stepping of that selector. Selector switch **201** is mechanically connected to the rotary contact arms **208** and **209** of a pair of rotary switch devices **210** and **211**, respectively, and to a disk **212** formed about its periphery with a plurality of transparent windows **213** bearing thereon numerals indicative of the various policy amounts vended. Stepping of selector switch **201** will, therefore, cause stepping of rotary contact arms **208** and **209** and disk **212** as will now be described.

Upon the insertion of the first half dollar or two quarters in the machine, selector switch **201** will be energized to step rotary contact arm **208** of rotary switch **210** from its solid line "off" position to its dotted line position. During this stepping movement, contact arm **208** moves over a first contact button, indicated as #1, in rotary switch **210** to momentarily complete a circuit from left hand power lead L1, through a lead **214**, including the left cam actuated switch **183** (Fig. 10), rotary contact arm **208**, contact button #1, through one of the solenoids **171** of the printing mechanism **119** (Fig. 9) to the right hand power lead L2. The energized one of the solenoids will be that one associated with the one of the dies **174** which bears thereon an indication of the policy amount corresponding to a fifty cents purchase price.

The plunger of the energized solenoid will urge the policy blank against the die, as previously described, so that there will be imprinted on the second page of the policy **113**, an indication of such policy amount.

Solenoid **192** (Fig. 11), incorporated in the door latch mechanism **187**, is connected in parallel with the first actuated printing solenoid **171**, as shown, so that access door **110** will be unlocked upon the insertion of the first fifty cents into the machine to permit the door to be opened by the purchaser.

Simultaneously, disk **212** will be stepped to a position wherein a first one of the transparent windows **213**, bearing therein indicia indicative of a policy amount corresponding to a fifty cents purchase price, is disposed on the optical axis X of a projection system generally indicated at **215**.

Projection system **215** comprises a lamp **216** which is adapted to be energized through lead **214** and a lead **217** including a normally closed switch **218**. This latter switch is retained in its open position, when disk **212** is in its reset position illustrated, by a cam projection **219**, or the like, on disk **212**. Thus, when the disk is stepped from its reset position, upon the insertion of a half dollar or two quarters in the machine, switch **218** will close to energize lamp **216**.

The projection system **215** also includes a suitable optical system **220** for focusing an image of the indicia in window **213** of disk **212** onto window **107** (Fig. 1) to indicate to the purchaser the amount of the policy.

Simultaneously with the stepping of rotary contact arm **208** and disk **212**, rotary contact arm **209** of rotary switch **211** will be stepped from an insulating segment **221** onto an annular conducting segment **222** embodied in rotary switch **211**. Upon movement of rotary contact arm **209** onto conducting segment **222**, a circuit is completed from left hand power lead L1, through a lead **223**, having switches **193** and **195**, embodied in the door latch mechanism, serially connected therein, rotary contact arm **209**, conducting segment **222**, to a lead **224** connected to one terminal of drive motor **127**. The other terminal of the drive motor is connected to the right hand power lead L2 through a lead **225**.

Selector switch **202** will be stepped simultaneously

with the above described stepping of selector switch **201** to rotate drum **157** to a position wherein the amount of the policy, corresponding to a fifty cent purchase price, is displayed through slot **154** in the feed mechanism housing and slit **158** in the adjacent policy form.

If a policy of a greater amount is to be purchased, additional coins are inserted in the machine. For each additional half dollar or two quarters inserted, up to the total number of coins corresponding to the maximum policy amount which may be purchased, selector switches **201** and **202** will be stepped to step rotary contact arms **208** and **209**, disk **212** and drum **157**. Stepping of rotary contact arm **208** will operate to sequentially energize stamper solenoids **171** so as to imprint on the policy an amount corresponding to the number of coins which have been inserted. Disk **212** will be stepped in a manner to aline the proper one of the windows **213** with the optical axis X of projection system **215** so as to indicate to the purchaser, through window **107**, the amount of the policy corresponding to coins which he has inserted. Finally, drum **157** will be stepped to indicate through slot **154** in the feed mechanism housing **133** and slit **157** in the adjacent policy form **113** said corresponding amount of the policy.

After the purchaser has deposited the desired number of coins in the machine and inserted the necessary information on the policy through window **109**, he will, in accordance with the instructions **106**, close the door **110**. This door was, as described above, unlocked upon the insertion of the first fifty cents in the machine to permit opening thereof by the purchaser. Closing and locking of the door results in the closing of the series connected switches **193** and **195**, as was described with reference to the door latch mechanism. Motor **127** will thereby be energized through lead **223**, contact arm **209** of rotary switch **211**, conducting segment **222**, and lead **224**.

Upon operation of motor **127**, drum cam **176** will, as previously described, be rotated to sequentially actuate micro switches **183**, **184**, **185**, and **186** (Fig. 10) in the manner now to be described.

First actuated microswitch **183** is normally closed and is, as seen in Fig. 12, serially connected in the energizing circuits for printing solenoids **171**, door latch solenoid **192**, and projection lamp **216**. Upon rotation of drum cam **176**, switch **183** is actuated to its open position so as to prevent "pinballing" of the stamper solenoids, opening of the door, and to darken transparent window **107** during resetting of the selector switches **201** and **202** to their off positions, as hereinafter described.

Secondly actuated microswitch **184** has a normally closed side serially connected in a lead **226** connecting one terminal of the fifty cent coin block **206** and a twenty-five cent coin block **227** to the left hand power lead **L1**, and a normally open side serially connected in a lead **228** connecting left hand power lead **L1** to motor **127**. Thus, upon rotation of the drum cam **176**, the normally closed side of the switch **184** will be opened to de-energize the coin blocks **206** and **227** and return any subsequently inserted coins to the purchaser. Simultaneously, normally open side of switch **184** in lead **228** is closed with the result that motor **127** will continue to drive until the actuating element **184'** of switch **184** rides into the open portion **177** of the drum cam **176**. The portion of the switch **184** in lead **228** will then be reopened to de-energize motor **127** and the portion of the switch **184** in lead **226** will be reclosed to re-energize the coin blocks **206** and **207** and condition the latter for the next purchase.

The third microswitch **185**, which is normally open, is serially connected in the energizing circuits for magnetic clutch assembly **146**, lights **153** of the photographic unit **122**, and shutter solenoids **152**. Thus, when switch **185** is closed, film **140** willl be fed past slit lens **139** at the same rate that the policy **113** is fed past the opening **131** in the recorder unit, lights **153** of the recorder will be illuminated, and shutter **151** will be actuated to its dotted line position shown in Fig. 4.

Switch **185** will be first momentarily closed, by engagement of its actuating element **185'** with tab **182** on the drum cam **176**. During this momentary energizing of the recorder unit, the policy amount displayed by policy amount indicator **155** and the time and date displayed by indicator **156** through slot **154** in the policy feed mechanism housing **133** and slit **158** in the adjacent policy will be photographically recorded. This momentary energization of the recorder unit occurs before the toothed segment **165** (Fig. 8) of gear **161** is driven into meshing engagement with gear **166** so that slot **158** (Fig. 5) in the policy form will be alined with windows **104**.

Subsequent engagement of actuating element **185'** of switch **185** with angularly displaced leading edge portion **181** of the drum cam **176** will cause re-energization of the recorder unit when that portion of the policy, containing the information inserted by the purchaser, is being fed past opening **131** of the recorder unit.

Since the policy **113** is fed at the same rate as film **140** is fed past slit lens **139**, a latent image of the contents of the policy will be recorded on the film.

Fourth drum cam actuated microswitch **186** is connected in a parallel energizing circuit for rectifier **200** and serves as a resetting switch for selector switches **201** and **202**. Thus, upon rotation of drum cam **176** to bring leading edge portion **181** into engagement with actuating element **186'** of microswitch **186**, the latter will be closed and the selector switches **201** and **202** will be reset to their off positions in response to the D. C. current fed thereto from the rectifier.

This resetting operation is relatively rapid and will be accomplished before the drive motor **127** has driven the drum cam **176** to a position wherein the side of switch **184** in lead **228** has been reopened. Thus, rotary contact arm **209** of rotary switch **211** will be positioned in the insulated segment **221** and the motor will be de-energized when the drum cam has made one revolution.

The ratio of the gearing driving the policy feed mechanism from shaft **129** is made such that during one revolution of the drum cam, the web **113** of the policy forms will be driven a distance equal to a length of a single policy. The completed policy will be delivered to the purchaser through the slot **121** (Fig. 2) in the front panel of the machine. When the machine is stopped upon the drum cam being driven through a single revolution, the actuating elements **183'**, **184'**, **185'** and **186'** of microswitches **183**, **184**, **185**, and **186** will again be disposed in the open portion **177** of the drum cam **176** so that the machine will be conditioned for the next purchase.

It is to be understood that the apparatus hereinbefore described and illustrated is for illustrative purposes only, and that numerous modifications in design and arrangement of parts may be made without departing from the spirit and scope of the following claims.

I claim:

1. In a coin actuated machine for vending forms or the like, a supply of forms, photographic means past which said forms are adapted to be fed, said photographic means having one of said forms alined therewith when the machine is inoperative, each of said forms having a slit therein, means responsive to the insertion of coins into the machine for displaying to the photographic means through the slit in said one form indicia indicative of the amount of the coins inserted, means for feeding the forms in succession through the machine, and means responsive to operation of said feeding means to cause said photographic means to photograph said indicia and predetermined portions of said forms as they are fed past the photographic means.

2. In a coin actuated machine for vending forms or the like, a housing having an access window therein, photographic means and a supply of forms within the housing, means for feeding said forms in succession from said

supply, past the access window and photographic means to the exterior of the housing through a slot in the latter, a first one of said forms being so disposed, when the machine is inoperative, that a leading portion thereof is alined with said photographic means and a trailing portion thereof is alined with said window, each of said forms having a slit in the leading portion thereof, indicator means for displaying to the photographic means through the slit in said first form indicia indicative of the coins inserted in the machine, means for initiating operaton of said feeding means, and means responsive to operation of said feeding means to cause said photographic means to first photograph said indicia and subsequently photograph said trailing portion of said first form.

3. In a machine according to claim 2 and closure means movable across said window, and means for releasably locking said closure means in its closed position, said locking means being released in response to the insertion of a coin in the machine, said means for initiating operation of the feeding means being actuated in response to closing and locking of said closure means.

4. In a machine according to claim 3 wherein said forms are insurance policy forms, said access window permitting the insertion of information on said one form by the purchaser, and said photographic means comprises a slit lens for forming an image of a narrow transverse portion of said web, a continuous strip of film, and means for feeding said film past the slit lens at a constant speed and in the same direction as said forms are fed.

5. In a machine according to claim 4 wherein said indicator means also displays the time and date through the slit in said one form.

6. In a machine for vending forms or the like, a housing having an access window and an exit slot, means for supporting a form to be vended in an initial position with at least a portion thereof underlying said window, selectively operable feed means for feeding the form to be vended along a given path from said initial position to a final position of extension through said exit slot, camera means located along said path between said access window and exit slot and arranged to photograph at least a portion of a form located in said path between the access window and exit slot, and camera actuating means responsive to predetermined feeding operation of said feed means for operating said camera means in response to feeding of the form to be vended along said path from said initial position to an intermediate position wherein a preselected portion of the form is positioned to be photographed by said camera means.

7. The subject matter of claim 6 wherein said camera means comprises mechanism operative to photograph said preselected portion of the form to be vended as the latter moves along said path toward said exit slot.

8. The subject matter of claim 7 wherein said mechanism includes a light sensitive film strip in the camera means, an aperture plate having a slit type aperture through which the image of an object to be photographed passes to the film strip, and film drive means for feeding the film strip past said aperture at a fixed speed simultaneously with movement of said preselected portion of the form past the camera means.

9. The subject matter of claim 8 wherein said film drive means comprises a driving connection between said form feed means and said camera means for feeding of the film by the feed means, said driving connection including normally disengaged clutch means, and means for engaging said clutch means to cause feeding of the film strip in response to feeding of the form to be vended to said intermediate position.

10. The subject matter of claim 6 wherein said camera actuating means comprises cam control means including a rotary cam driven by said feed means, and camera control means engageable by said cam in a given angular position of the latter for causing operation of the camera means.

11. In a machine for vending forms and the like, a housing having an access window and an exit slot, a supply of forms in the housing, selectively operable feed means for feeding forms in succession along a given path from said supply, past said window, to said exit slot, a first one of said forms occupying an initial position with a portion thereof underlying the window in the normal inoperative condition of the machine, said feed means being operable in response to each operation thereof to feed said first form along said path from said initial position to a final position of extension through the exit slot and to advance the next following form to said initial position, camera means located along said path between said window and exit slot, said camera means including mechanism operative to photograph at least a portion of a form as it is fed along said path from said initial position to said final position, and camera actuating means for operating said camera means in response to each operation of said feed means to feed a form from said initial position to an intermediate position wherein a preselected portion of the form is located to be photographed by said camera means.

12. The subject matter of claim 11 wherein said camera actuating means comprises a rotary cam driven by said feed means, said cam occupying a normal position when the machine is inoperative and being rotated through one revolution during each operation of said feed means, and camera control means engageable with said cam for causing operation of said camera means upon predetermined angular movement of the cam from its normal position.

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