May 5, 1931. W. H. D. BROUSE 1,804,200

AUTOMATIC DOCUMENT VENDING MACHINE

Filed June 12, 1926 3 Sheets-Sheet 1

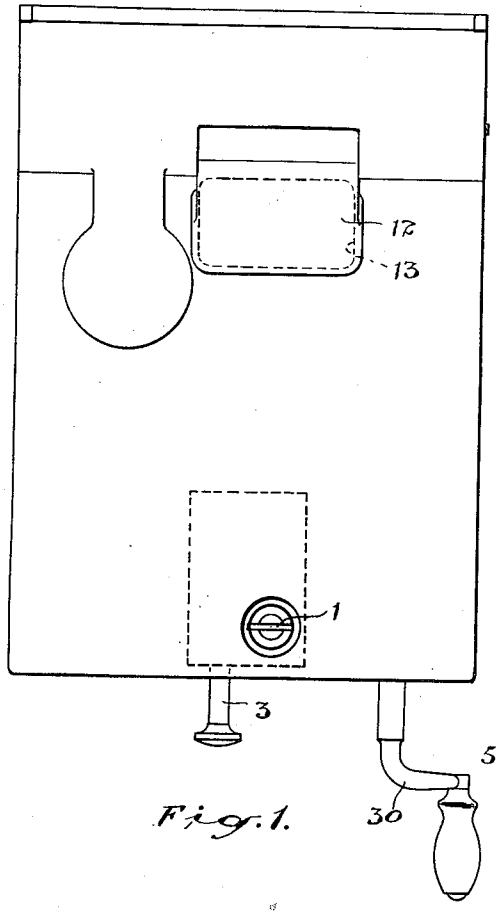

Fig. 1.

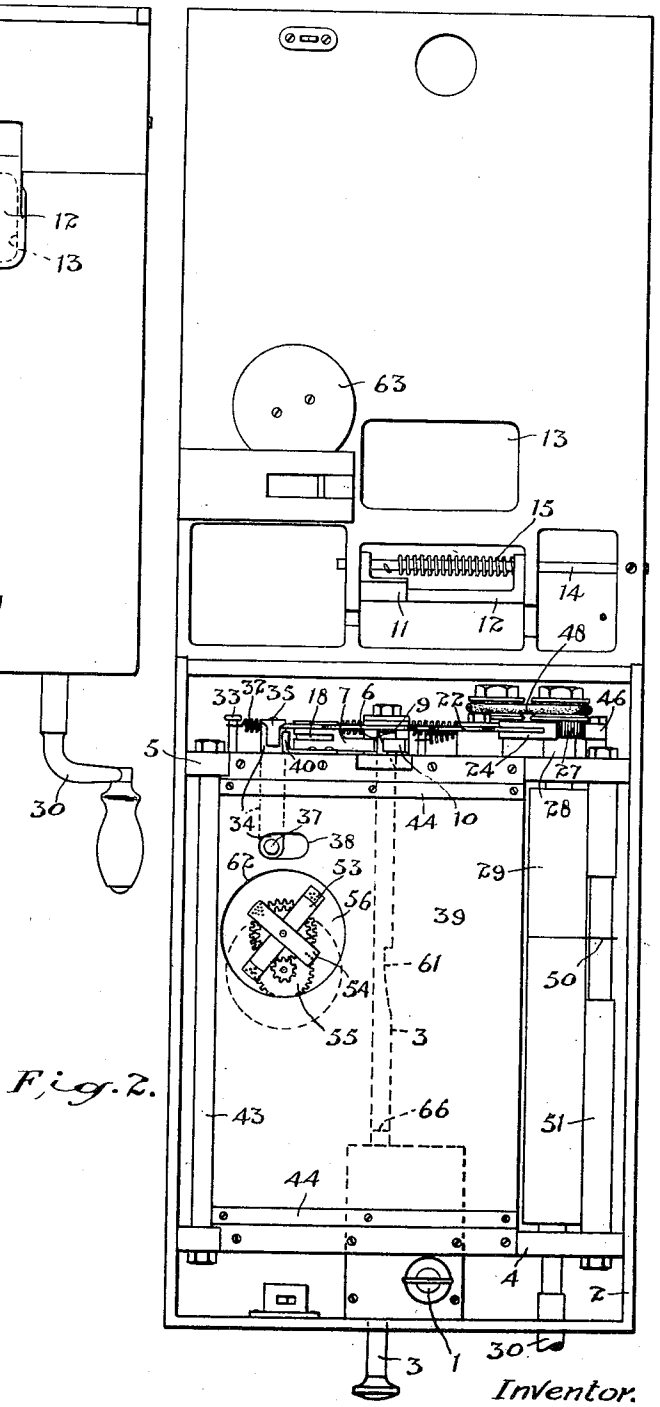

Fig. 2.

Inventor.
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May 5, 1931. W. H. D. BROUSE 1,804,200

AUTOMATIC DOCUMENT VENDING MACHINE

Filed June 12, 1926 3 Sheets-Sheet 2

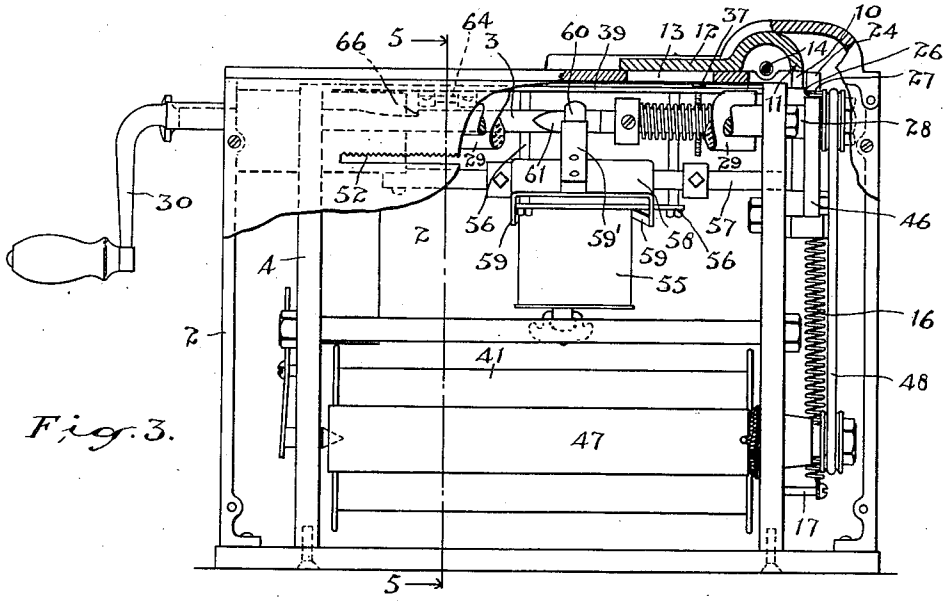

Fig. 3.

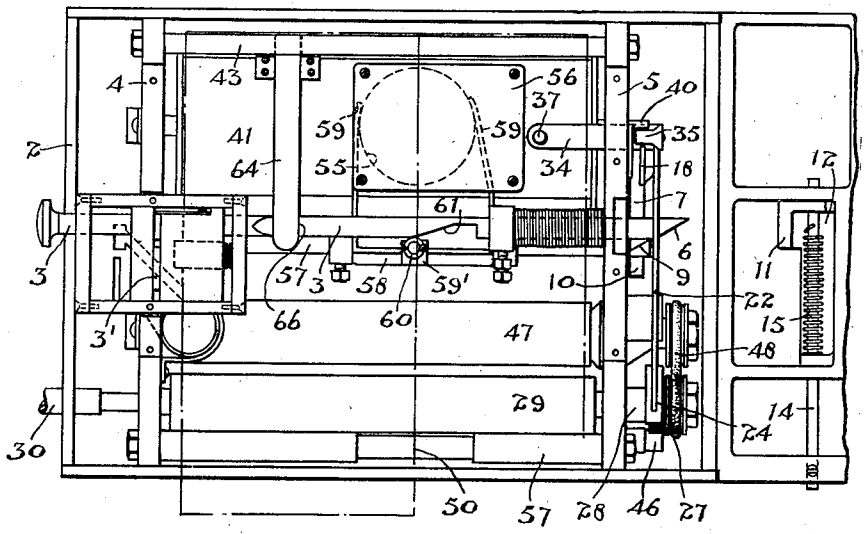

Fig. 4.

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May 5, 1931. W. H. D. BROUSE 1,804,200

AUTOMATIC DOCUMENT VENDING MACHINE

Filed June 12, 1926 3 Sheets-Sheet 3

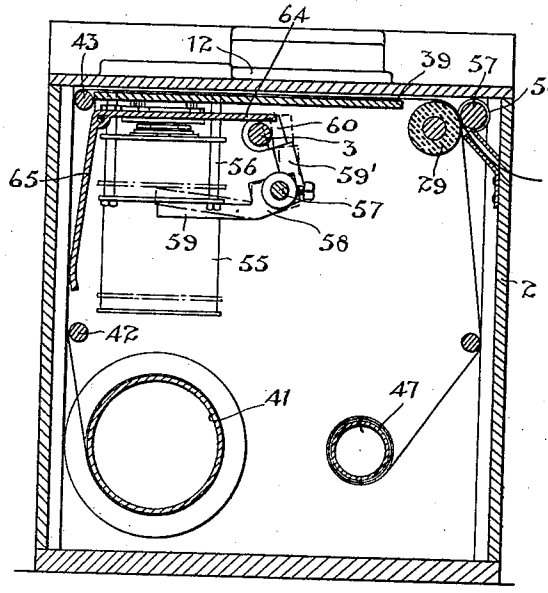

Fig. 5.

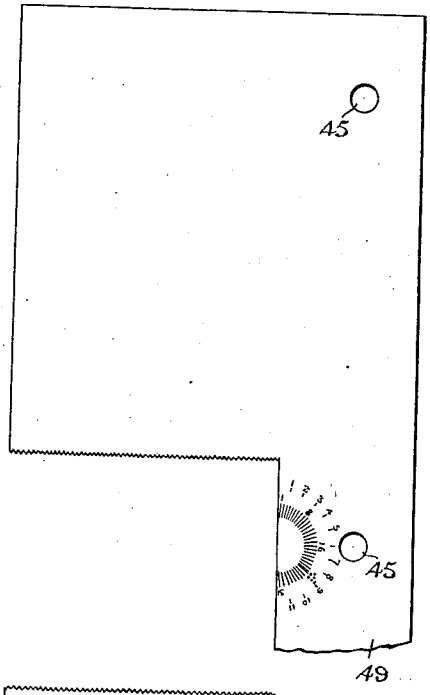

Fig. 7.

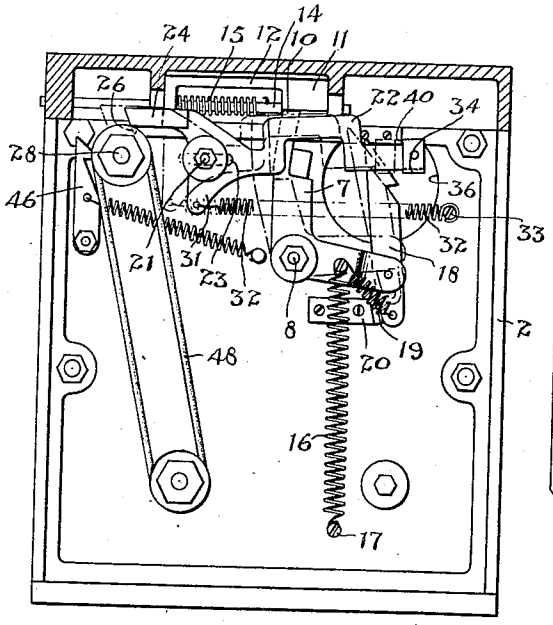

Fig. 6.

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Patented May 5, 1931 1,804,200

UNITED STATES PATENT OFFICE

WILLIAM HENRY DAVENPORT BROUSE, OF TORONTO, ONTARIO, CANADA

AUTOMATIC DOCUMENT VENDING MACHINE

Application filed June 12, 1926. Serial No. 115,605.

The principal objects of the invention are, to facilitate the sale of short form documents which are sold at a standard price, and to devise an apparatus which will be simple to operate and accurate and dependable.

A further object is to provide a machine which will accurately mark the document and retain a record of the time of purchase where such marking and recording is desirable.

The principal feature of the invention consists in the novel manner of delivering the documents accurately whereby the delivery mechanism is controlled by the movement of the document.

A further important feature consists in the novel construction and arrangement of means for marking the document strip with a time indication and then dividing said strip to retain a record of the time indication marked upon the document delivered to the purchaser.

In the drawings, Figure 1 is a plan view of the outer casing of the machine.

Figure 2 is a plan view of the machine showing the top turned back.

Figure 3 is a side elevation and part vertical section through the top of the casing, parts of the interior mechanism being broken away.

Figure 4 is a top plan view of the machine with the cover turned back and the top plate shown in Figure 2 removed.

Figure 5 is a vertical cross sectional view through the line 5—5 of Figure 3.

Figure 6 is an elevational view with the back of the casing removed showing the arrangement of the mechanism for controlling the feeding of the document strip.

Figure 7 is a plan view of a piece of the document strip showing the purchased portion detached therefrom.

There are several forms of short documents which may be sold to the public at standard prices, such as saving certificates and accident insurance policies. Some of these require no record being kept and others require a record of the name and address of the purchaser and the time and date of purchase, and the present device is for the purpose of automatically vending this class of document.

The machine is located in any suitable place where forms are to be dispensed and if it is to be used to deliver forms of value automatically it is provided with a coin receptacle 1 arranged at the forward part of the casing 2.

A plunger 3 is arranged adjacent to the coin receptacle and co-operates with a coin controlled device 3′ to effect the release of the delivering mechanism and the operation of the means for marking and recording of the time of purchase where such is used.

The plunger 3 is slidably supported in the front and rear partitions 4 and 5 arranged within the casing 2 and the innermost end of the plunger is formed with a bevelled surface 6.

A bell crank 7 (see Figures 4 and 6) is pivotally mounted on a pin 8 secured in the partition 5 and is formed with a bevelled surface 9 which, when the plunger 3 is moved inwardly is engaged by the bevelled end 6 of the plunger thus swinging the bell crank on its pin 8. A lug projection 10 extends upwardly above said bevelled surface portion on the bell crank to engage the lug 11 on the hinge cover member 12 which extends over the opening 13 in the top of the casing 2.

The cover 12 is pivotally mounted on a pin 14 and is held under the tension of a coiled spring 15 encircling the pin 14 so that when the bell crank is swung on its pivot the lug projection 10 on the bell crank is removed from engagement with the lug on the hinge cover and the cover is immediately opened by the action of the spring 15 to uncover the opening 13 for purposes to be hereinafter set forth.

A coiled tension spring 16 is secured to the horizontal leg of the bell crank at one end and at the other end to a screw 17 in the partition 5 so that the bell crank 7 is normally held in a position engaging the lug 10 of the cover 12 to prevent the opening of the latter and with its bevelled surface 9 in position to be engaged by the bevelled end of the plunger 3.

A ratchet dog 18 is pivotally mounted on the horizontal end of the bell crank and a tension spring 19 is connected to the lower end thereof and to the screw securing the

spring 16 to the bell crank so that the upper end of the dog is spring held to swing outwardly toward the side of the casing.

A lug 20 rigidly secured to the partition 5 engages the tail end of the dog 18 to limit the outward movement of the upper end.

A pin 21 is rigidly mounted in the partition 5 and a bar 22 formed with a longitudinal slot 23 is slidably and pivotally mounted on said pin.

An arm 24 extends from the upper side of the bar 22 and is provided with a downwardly extending tooth 26 which is adapted to engage with the teeth of a spur gear 27 mounted on a shaft 28 which carries a rubber feed roller 29.

A hand crank 30 is secured to the outer end of the feed roller shaft to rotate the feed roller.

An arm 31 extending downwardly from the slotted end of the bar 22 has secured thereto one end of a coil tension spring 32, the other end of which is secured to a stud 33 secured in the partition 5. This spring maintains a constant tension on the bar 22 to move it away from the gear wheel upon the tooth 26 being released from the gear wheel through the tilting of the bar.

An arm 34 secured to the end of the bar 22 farthest from its pivot extends horizontally inward through an opening 36 in the partition 5 and upon the inner end thereof is secured a stud 37 which extends upwardly through an opening 38 in the top plate 39 arranged immediately below the cover 12 of the casing 2 to cooperate with a form sheet in a manner presently to be described.

A lug 35 formed by the upper end of the arm 34 extends inwardly over the top of the bar 22 and cooperates with a rigid lug 40 secured to the partition 5.

The documents to be vended are arranged in the form of a continuous strip of paper mounted on a roller 41 journalled between the partitions 4 and 5 and this form strip extends upwardly from the roll outside of the guide bars 42 and 43 and over the top plate 39, the edges being guided by the guide strips 44 on said plate. Perforations 45 are arranged at regular intervals in the form strip preferably one perforation in each form in a predetermined relation to the forms and these perforations are adapted to register with the stud 37 so that when the form strip is advanced and one of the perforations comes into alignment therewith the stud 37 will project therethrough thus permitting the spring 32 to swing the bar 22 and hold it in its tilted position on its pivot 21 so that the tooth 26 is forced into mesh with the gear 28 holding it locked so that the crank handle 30 cannot be operated to advance the form strip further. This ensures that each form will be stopped at its proper location in the machine where it remains in readiness to be filled out, marked and dispensed as will be fully set forth hereafter.

The feed roll 29 is provided with a locking ratchet 46 to prevent it being turned backwards.

A roll 47 is provided for winding up the retained record strip in a manner presently to be described and a pulley on the end of the roll 29 is connected with a pulley on the end of the roll 47 by a belt 48 to operate the roll 47.

The paper strip will be suitably printed and the major portion of the width thereof is intended to form the document to be sold but a strip 49 in which the perforations 45 are arranged is intended to be retained as a record. This strip is separated from the main sheet by means of a circular cutter 50 arranged upon the roller 51 which engages the rubber surfaced feed roller 29 so that as the strip is advanced over the rubber surfaced feed roller 29 the circular cutter 50 effectively divides the strip into two portions one of which is retained as a record strip in the machine, it being wound onto the roll 47, while the remaining form portion is dispensed from the machine through a delivery slot 52 which is arranged in the side wall of the casing and the upper edge of the slot is serrated to enable the form sheet being readily separated when it has been dispensed its full distance as determined by the co-operation of the stud 37 with the perforation in the succeeding form as formerly described.

The recording feature of the invention is here shown in the form of a timing mechanism having a pair of arms 53 and 54, the one intended to indicate the day of the month and the other the hour of the day.

A suitable clock mechanism 55 is provided to operate these arms in a proper speed ratio.

The spacing of the indications on the reverse side of the paper sheet is illustrated in Figure 7 as ranging from 1 to 12 and 1 to 31 on each half circle on a median line extending through the axis in the direction of travel of the paper.

The whole clock work and printing mechanism is supported in a frame 56 beneath the top plate 39 and is vertically slidable on rigid supports.

A shaft 57 is rigidly fastened between the end partitions 4 and 5 and supports a pivotal bracket 58 which is provided with a pair of arms 59 extending either side of the timing mechanism and underneath same so that when the pivotal bracket member is swung on its pivot the arms 59 engage the underside of the vertically slidable timing mechanism and move the same upwardly.

In order to effect the swinging of the pivotal bracket member the latter is provided with an upwardly extending arm 59′ rigidly secured thereto which carries a roller 60 on

its upper end, which roller engages a longitudinal cam surface 61 on the plunger 3. Thus when the plunger 3 is moved inwardly as heretofore described, the cam surface 61 thereof engages the roller and swings the arm 59′ thus tilting the bracket 58 so as to effect the upward movement of the timing and printing mechanism where it is adapted to mark the form as will be presently described.

The top plate 39 has a circular opening 62 through which the rotatable arms 53 and 54 of the timer are adapted to project. These arms are preferably provided with needle points which are distinctively arranged the one from the other so that it will be immediately known by seeing which form of perforation is on the retained recording portion of the strip whether the impression has been made in the A. M. or P. M. This arrangement is desirable because only half of a circle for marking on the document sold can be used and likewise only half a circle is available on the recording strip as they are separated on the median line through the axis of the printing device as previously set forth.

A suitable pad 63 of a soft material, such as rubber, is embedded in a recess in the cover plate above the timer so that the needles of the timer arms in perforating the paper form sheet may embed themselves in the soft rubber without injury.

In the use of this device a paper roll suitably printed is placed in the machine and the web is drawn around the rollers over the top plate and the end of the recording strip, which is severed from the main document portion by the cutter blade 50 is secured to the roller 47.

When the mechanism is ready for operation the upper end of the bell crank 7 rests under the lug of the cover 12 and the bar 22 is in the forward position with the tooth portion 26 engaging and locking the gear wheel 28 to prevent the turning of the feed roller on which the gear wheel 28 is mounted. The stud 37 will also at this point prior to the operation of the machine be projecting through one of the perforations 45 in the form sheet so that the machine is locked.

When a coin has been deposited in the coin receptacle 1 the plunger 3 may then be operated. Upon pushing in the plunger the cam 61 lifts the timing mechanism upwardly punching the paper to indicate the time and the day when the action occurs. Concurrently with this operation the bevelled end 6 of the plunger swings the bell crank 7 on its pivot releasing the cover 12 which springs open as previously described and exposes the paper of the recording strip through the opening 13 and the purchaser of the document writes his name and address on the exposed portion of the form sheet.

While the cover 12 is raised to expose the form sheet the feed roll cannot be operated to advance the form sheet since the feed roll is still locked from rotation by engagement of the tooth 26 of the bar 22 with the gear wheel 28 so that it is necessary in order that the purchaser may obtain his document that the cover be first closed. The closing of the cover moves the lug 11 clear of the lug 10 on the bell crank 7 allowing the latter to swing on its pivot under the influence of the spring 16 pulling downwardly on the ratchet dog 18 which engages the arm 34 and tilts the bar 22 on its pivot 21 thereby drawing the stud 37 out of the perforation in the paper sheet into which it had extended in effecting the locking action previously referred to. This tilting of the bar 22 against the action of the spring 32 effects the lifting of the tooth 26 out of engagement with the gear 27.

When the member 34 is thus moved downwardly so that the lug 35 clears the bottom edge of the lug 40 the bar 22 moves longitudinally through the pull of the spring 32 and carries the already retracted stud 37 to one side of the perforation in the paper and the bar 22 tilts upwardly bringing the stud 37 upwardly into contact with the underside of the paper sheet adjacent to the perforation from which it has been withdrawn but out of alignment therewith. The lug 35 is then, by reason of the engagement of the stud 37 with the surface of the form sheet, held in alignment with the outward side of the fixed lug 40 which it engages and the tooth 26 is still out of engagement from the gear 27 due to the tilting action of the bar 22 above referred to. At this point the feed roll may now be turned by the crank 30 so that the feed roll feeds the form sheet out through the delivery slot. As soon as the next perforation 45 in the succeeding form sheet moves into alignment with the stud 37 as the strip is being advanced, the stud on entering the same permits the bar 22 to swing upwardly again to clear the lug 35 from the lug 40 and the tooth 26 on the bar 22 is again brought into mesh with the gear 27 due to the tilting of the bar 22 on its pivot by means of the spring 32. The bar then moves in unison with the paper until the end of the slot 23 engages the pin 21 and the movement of the feed roller is arrested. The form sheet has thus been projected the full length of the document and it is then torn off by the operator and the machine is set for another operation with a new form stopped in its proper relative position to receive its stamp impression and signature.

When the end of the form sheet has been reached it is necessary to lock the machine against further operation and in order to accomplish this result I provide a member 64 pivoted on a horizontal pivot with a depending arm 65 which lightly engages the paper strip at a suitable point in its travel between

the guide bars 42 and 43. While the arm 65 is engaged by the paper strip the horizontal member 64 is held clear of the plunger 3 but when the strip runs off the roll or breaks, the member 64 drops on to the plunger and a notch 66 is cut in the plunger into which the member drops in the return movement of the plunger in its last operation. The notch 66 is so arranged that the plunger will be locked in such a position that another coin cannot be inserted.

The device is extremely simple and will not be liable to get out of order. It will enable the selling of short term insurance policies and like documents automatically so that they may be placed around in railroad stations, ticket offices, etc., and they will perform their functions automatically on the placing of a coin therein by manipulation of the plunger and crank in the manner described. It will be understood that the marking mechanism may be dispensed with when documents not requiring a record are to be sold and when such an arrangement is desired it will merely be necessary to arrange the governing perforations 45 in the documents themselves.

The coin receptacle 1 is not essential to the operation of the device and may be dispensed with entirely if desired so that the plunger 3 may be operated at any time without the insertion of a coin. This may be particularly desirable when the device is being operated by an authorized party rather than by the public.

What I claim as my invention is:—

1. In a form vending machine, means for delivering a form sheet from the machine, means for retaining a record portion of said form sheet in the machine and means controlled by the form sheet for controlling the operation of the delivery means.

2. In a form vending machine, means for delivering a form sheet from the machine, means for retaining a record portion of said form sheet in the machine, and means controlled by the retained portion of the form sheet for controlling the operation of the delivery means.

3. In a vending machine, adapted for use with a form sheet having perforations disposed therein in definite relation to the forms printed thereon, of means for effecting the delivery of the form sheet from the machine, means for retaining the perforated portion of said form sheet in the machine, means cooperating with the perforations in said perforated portion for arresting the movement of the delivery mechanism, and means for releasing said arresting means.

4. A vending machine adapted for use with a form sheet having regularly spaced perforations therein, comprising a casing enclosing said form sheet, progression rolls for moving said form sheet, means for retaining the perforated portion of said form sheet in the machine, means adapted to arrest said progressing rolls, means carried by said arresting means co-operating with the perforations in the perforated portion of the form sheet to control said arresting means, said latter means being adapted to engage the surface of the form sheet, means for withholding said arresting means from operation while the means carried by the arresting means is in contact with the surface of the form sheet, and means for releasing and re-setting said arresting means.

5. A vending machine adapted for use with a form sheet having regularly spaced openings therein, comprising a casing enclosing said form sheet, progression rolls for moving said form sheet, a pivotal member adapted to lock said rolls, a stud on said pivotal member adapted to engage the form sheet and to project through the perforations therein to allow said pivotal member to lock said rolls, means for releasing said locking member and withdrawing the stud thereon from the perforation in the form sheet, and means for resetting said locking means.

6. A vending machine adapted for use with a form sheet, having regularly spaced perforations therein, comprising a casing, a pair of rollers mounted in the casing and adapted to draw the form sheet across the casing, a pivotal latch member adapted to lock said rollers and having an extension provided with a lug, a rigid lug on the casing adapted to engage the lug on said ratchet extension to prevent said ratchet from operating, an extension from said ratchet extension member adapted to extend into the path of movement of the form sheet and to engage the form sheet and to be held by said form sheet to retain said lugs in operating engagement while the form sheet is being moved, said perforations being adapted to allow the extension member of said ratchet lock to pass therethrough and to release the engaging lugs, and means for returning said locking extension to its normal position.

7. A vending machine adapted for use with a form sheet, comprising a casing, a pair of rollers adapted to progress the form sheet through the casing, a gear wheel on one of said rollers, a longitudinally slidable toothed member adapted to engage and lock said gear wheel, spring actuated means for retracting said locking means, a lug rigid on the casing adapted to engage said locking means to hold it in a locked position, a bell crank pivoted on the casing, a latch member pivoted on said casing, and means for operating said bell crank to release and reset said locking member.

8. A vending machine adapted for use with a record sheet, comprising a casing, a roller supporting said record sheet, a pair of

rollers for feeding the record sheet through the casing, one of said rollers having a toothed wheel thereon, a bar slidably and pivotally mounted on the casing having a toothed member adapted to engage the toothed wheel, said bar having a laterally turned lug, a rigid lug on the casing adapted to co-operate with the lug on said moveable bar, a spring pulling against said bar to tilt it upwardly to cause the lug thereon to pass over the rigid lug on the engagement of the toothed end with the toothed wheel, a bell crank pivoted on the casing, a latch member carried by the bell crank adapted to engage the lug end of said horizontally moveable bar to draw it downwardly to effect the disengagement of the toothed end from the toothed wheel, a spring connected with said bell crank, and a plunger adapted to operate said bell crank and the latch carried thereby to operate said pivotal bar from the released position and to effect the resetting thereof.

9. A vending machine adapted for use with a form sheet, comprising a casing, a roller supported in the casing and carrying said form sheet, a plate within the casing over which the form sheet is directed, means for marking the form sheet, an orifice in the top of the casing above said plate giving access to the form sheet, a cover closing said orifice, means for opening said cover and allowing access to the form sheet, means for progressing the sheet, and means controlled by the movement of the sheet for controlling said progression.

10. A vending machine adapted for use with a form sheet having regularly spaced perforations, comprising a casing enclosing said form sheet, progression rolls for moving said form sheet, means for marking the form sheet, means adapted to arrest said progressing rolls, means carried by said arresting means adapted to engage the form sheet, means for withholding said arresting means from operation while the means carried by the arresting means is in contact with the surface of the form sheet, means for releasing and re-setting said arresting means, and means for retaining a record of the marks made on the form sheet.

11. In a vending machine adapted for use with a form sheet, a casing, a roller supported in said casing and carrying said form sheet, a plate extending across the casing below the top thereof and having an opening therein, a marking device supported below said plate and adapted to be extended upwardly through said opening therein, means for moving said marking device upwardly, said form sheet being adapted to be passed over said plate, means for drawing the form sheet over the plate, means for locking said drawing means, and means actuated by the means for moving said marking device upwardly for releasing said locking means.

12. A vending machine adapted for use with a form sheet, comprising a casing enclosing said form sheet, means for moving the form sheet a regulated distance each operation of the machine, means for controlling the movement of said form moving means, a plunger adapted to release said controlling means, a marking device slidably arranged in said casing and adapted to be brought into engagement with the surface of the form sheet, and means supported in the frame and operatively arranged between said plunger and said marking device and adapted to operate said slidable marker, on the operation of said plunger.

13. A vending machine adapted for use with a form sheet, comprising a casing, a roller supported in said casing and carrying said form sheet, means for supporting said form sheet in a position to be marked, means for marking said form sheet, a pair of rollers adapted to engage and draw the form sheet over the marking surface, and a knife on one of said rollers adapted to slit the form sheet to divide the marked space on the form between the marks.

14. In a vending machine for use with a form sheet, means for guiding said form sheet, means for progressing said form sheet, means for controlling said progressing means, a pivotal member extending over said controlling means and having a dependent portion engaging the form sheet, and a notch formed in the controlling means adapted to engage said pivotal member to lock the controlling means on the breaking of the form sheet.

15. In a vending machine for use with a form sheet and a recording strip, a marking device adapted to mark said form sheet and recording strip simultaneously, means for moving said marking device into contact with said form sheet and recording strip, means for moving the form sheet and recording strip, and means controlled by the operation of said marking device for controlling the movement of said form sheet and recording strip.

16. In a vending machine for use with a form sheet and a recording strip, a marking device adapted to mark said form sheet and recording strip simultaneously, means for moving said marking device into contact with said form sheet and recording strip, means for moving the form sheet and recording strip, and means controlled by the operation of said marking device for controlling the operation of said latter moving means.

17. In a vending machine adapted for use with a form sheet, a marking device adapted to mark said form sheet with dual marks, means for moving said marking device to its marking position, means for moving said form sheet, means for dividing the marked

form sheet between the dual markings, and means controlled by the operation of said marking means for controlling the discharge of one of the divided portions of the form sheet.

18. A vending machine adapted for use with a form sheet, comprising a marking device, means for moving said form sheet across said marking device, means for bringing said marking device into marking contact with said form sheet, means for dividing said form sheet along a line intersecting the marked portion of said sheet, and means controlled by the operation of the marking means for controlling the operation of said dividing means.

19. A vending machine adapted for use with a form sheet, comprising a marking device, means for moving said form sheet across said marking device, means for bringing said marking device into marking contact with said form sheet, means operatively connected with said moving means for dividing said form sheet along a line intersecting the marked portion of said sheet, and means controlled by the operation of the marking means for controlling the operation of said moving means.

20. A vending machine adapted for use with a form sheet, comprising a casing, a plunger slidably arranged in said casing, means for progressing the form sheet, means controlled by said plunger for controlling the movement of the form sheet, a bell crank pivoted on the casing and operatively engaging said regulating means, a bevelled surface on said plunger adapted to engage said bell crank to operate the same, and means operated by said plunger for marking the form sheet.

21. In a vending machine for use with a form sheet, means for guiding said form sheet, means for progressing said form sheet, means for retaining a record portion of said form sheet in the machine, means for controlling the progression of the form sheet, and means co-operating with the retained portion of said form sheet for locking said progressing means.

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