To all whom it may concern:

Be it known that we, ROBERT B. CRAIG and ALBERT COFFMAN, citizens of the United States, and residents of Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Printing Mechanism for Vending-Machines, of which the following is a specification.

10 The present invention relates to printing mechanisms for vending machines of the coin controlled type and is designed with especial reference to an insurance policy vending machine such as that disclosed in our co-pending application bearing Serial No. 465,182, and dated Nov. 30, 1908.

The purpose of the invention is in providing a machine of the character in question which, when actuated, cause certain indications of time to be printed on a passing strip of paper and which is designed to operate in such manner that the printing impression is given instantaneously, thus avoiding the likelihood of blurring or otherwise wise marring the characters made.

A still further purpose of the present invention is in providing the printing mechanism with means whereby the strip of paper on which the impressions are made is fed by and cooperatively with the actuation of said printing mechanism; and the actuating mechanism, which in the present instance is manually operated, is such that it may be actuated at any time but without affecting either the printing operation or the feeding of the paper unless a coin of the prescribed character shall have first been inserted into the machine.

With these advantages the machine is described in full detail in the course of the following description and the points of novelty thereof set forth in the appended claims.

The invention is shown in its preferred structure in the accompanying drawings, wherein:

- Figure 1 illustrates a top plan view of a vending machine fitted with the printing and paper feeding mechanism, Fig. 2 is a detail view, partly in section, of the actuating means, Fig. 3 is a side elevation, partly in section, of the printing mechanism, Fig. 4 is a sectional view of the mechanism taken across the machine, and Fig. 5 illustrates the coin release detent.

Referring to the several figures more in detail and wherein like reference characters indicate corresponding parts in the different views shown, 55 designates a shaft suitably journaled within the machine frame and which on its outer end is provided with manually operable mechanism through means of which the operation of the several parts of the machine is effected, and which operating mechanism will be fully described hereinafter. The shaft 55 is provided with a pair of disks 57 and 58 keyed thereto and adjacently disposed (see Fig. 1), said disks having on their inner faces oppositely projecting pins 59 and 60, the former of which is disposed slightly in advance of the latter in the direction of rotation of the disks. Upon a suitable support 63 of the machine frame is a plunger 62 adapted to have vertical reciprocating movement there in and which on one side is provided with a shoulder 61 projecting into the path of rotation of the pins 59 and 60 and adapted to be engaged and depressed thereby, successively, as said shaft 55 rotates.

The plunger 62 comprises a substantially two-part cylindrical shell in the upper recessed portion of which is fitted a cushioning block or platen 69 and in whose lower recess fits the post 64. Said plunger 62 is independent of and is adapted to move freely on the post 64. Mounted upon said post is an impelling and retracting spring 65 which actuates the plunger. The spring 65 has a fixed connection with a collar 66 carried by the post 64 and at its opposite end, said spring is fixed to a bar 67 forming part of the machine frame. The plunger 62 has a laterally extending arm 68 bifurcated to receive the guiding post 66 whose function is to guide the plunger in its true path of operation. Each time the plunger 62 is depressed by a pin 59 or 60 and thereafter released by said pin passing out of the path of the shoulder 61, the spring 65 throws the plunger upwardly with force sufficient to effect upon the strip of paper 74 such characters as have been brought into the proper position by the series of time recording disks 44, and for a more amplified description thereof reference may...
be had to applicant's co-pending application above referred to.

Inasmuch as there are two pins 50a and 60a which successively engage the shoulder 61a and depress the plunger during a single revolution of the shaft 55a two impressions are made during each revolution of said shaft. This is of special advantage in the present mechanism by reason of the character of the machine to which it is purposely constructed, since the passing strip requires that two parts have identical markings such as the date and the time to be placed upon the insurance policy whereby one of the parts may serve as a positive identification means for the other. And since both impressions are made substantially at the same time and through the same means it is obvious that the impressions will be uniform. Moreover, the spring 65a reduces duration of contact between the paper and ribbon that the feed of the paper is practically infinitesimal at that instant, thus removing any tendency to blur.

The operating mechanism comprises the hand crank 55a mounted upon a sleeve 101 which carries a disk 101a, which members are free to rotate upon the shaft 55a. The means for effecting a frictional connection between the hand crank 55a and the shaft 55a whereby the latter may be rotated comprises a friction shoe 103 that is carried by an arcurate arm 104 pivoted to the disk 101a at 105. The friction shoe is held normally in contact with a smaller disk 106 fixed to the shaft 55a by a spring 106a, one end of which spring is fixed to a pin 106b carried on the inner face of the larger disk 101a.

The frictional connection between the disk 106 and the shoe 103 is such that there may be relative movement between them; i.e., the shoe 103 may smoothly override the periphery of the disk without causing the latter to have any movement. The means by which the shoe 103 and the disk 106 may positively engage in order to rotate the shaft 55a is effected when the shaft 55a is released through the medium of the coin controlled detent mechanism by a coin de-

posed in the coin chute. The coin controlled detent comprises a cam disk 11a fixed upon the shaft 55a, and which is provided with a shoulder 11a. A lever 117 fulcrumed at 118 carries a pin 119 that normally lies between the shoulder 115 and the stop 116. A spring 117a anchored to the machine frame normally tends to keep the pin 119 in contact with the periphery of the cam 11a. The stop 116 is recessed on its under side 128 so that when the pin 119 is depressed, it may pass through the recess 128 and permit the cam disk 11a and the shaft 55a to rotate. The opposite end of the lever 117 is indicated by a detent 124 pivoted at 125 and normally held in engage-

ment with said lever by the spring 121 that has one end anchored to the machine frame. An arm 126 extending from the detent 124 on the opposite side of its fulcrum 125 projects into the path of a coin in the coin chute 127, and in which position it is adapted to be struck by a coin deposited in the chute and cause the detent 124 to release its engagement with the lever 117, whereupon the latter is caused to disengage from the cam disk 11a and permit the shaft 55a to be rotated through the mechanism and in the manner above described. At all other times, the shaft 55a is held against movement, but the shaft operating means is free to be turned without in the least affecting said shaft 55a. It will, therefore, be clear that by reason of its peculiar manner of effecting the operation of the machine by a hand crank that is permanently exposed will serve in the capacity of a safe-guard against the likelihood of the machine mechanism being rendered inoperative through any tampering of the hand lever, which tampering must necessarily be reckoned with in machines of the type mentioned, especially when the same are stationed in places remote from the observance of an overseer.

The strip of paper 74a is fed from a reel 95 suitably supported upon the machine, and passes over the bed-plate 71 until it receives its impression in substantially that manner above described. The bed-plate 71 is provided on its opposite side edges with co-ex-
tensive grooves 77, the purpose whereof being to admit spurs 79 of the two endless chains 78, which spurs projecting through said grooves penetrate the marginal side edges of the sheet and feed the same at a rate commensurate with the printing operations as described. The chains 75 are mounted upon a pair of idle sprockets 80 on a shaft 81 and driving sprockets 82 on a shaft 83, which shaft is geared through pinions 84 and 85 to the crank operating shaft 55b. By thus feeding the paper by the same means that actuates the recording mechanism, it will be obvious that blank forms on the passing strip will always be presented in the proper relation to receive the distinguishing imprint following which said printed blanks are severed and ejected from the machine.

Having thus described our invention, what we claim as new therein and desire to secure by Letters Patent, is:

1. In a recording apparatus, the combination of a character carrying element, a printing platen cooperating therewith, comprising a tubular member having a shoulder, a support on which the tubular member is mounted and has movement a collar mov-

able on the support, a guide for the tubular member, an impelling and retracting spring
mounted on said support and having one end fixed thereto, and the other end thereof, connected with the collar of the support, and a rotary member having two parts adapted to successively engage with the shoulder of, and depress the platen whereby to tension the spring and cause it to effect the printing stroke of the platen.

2. In a recording apparatus, the combination of a character carrying element, a printing platen cooperating therewith comprising a tubular member having a shoulder, a support, a vertically disposed bar on said support and having mounted thereon the tubular member, a collar moveable on the vertical bar, an impelling and retracting spring mounted on said bar and having one end secured to the support and the other end thereof connected with the movable collar, and a rotary member having two parts adapted to successively engage with the shoulder and depress the platen whereby to tension the spring and cause it to effect the printing stroke.

The foregoing specification signed at Dayton, Ohio, this 10 day of July, 1909.

ROBERT B. CRAIG.
ALBERT COFFMAN.

In presence of two witnesses—
H. M. WALSH,
I. A. BRAUM.