

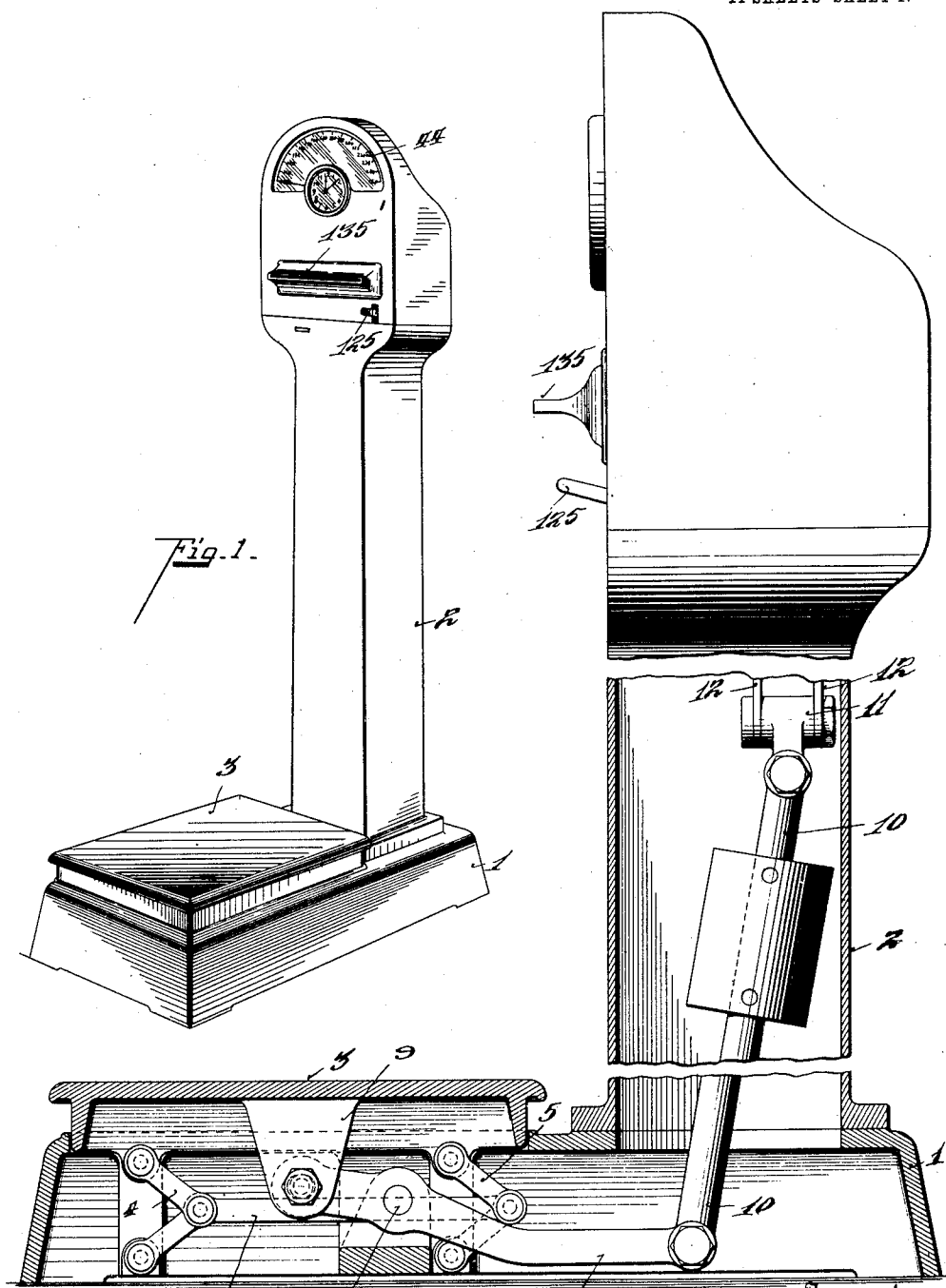
E. S. CHURCH.
VENDING MACHINE.

APPLICATION FILED SEPT. 30, 1909.

Patented Dec. 12, 1911.

11 SHEETS—SHEET 1.

1,011,319.



Witnesses

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Fig. 2.

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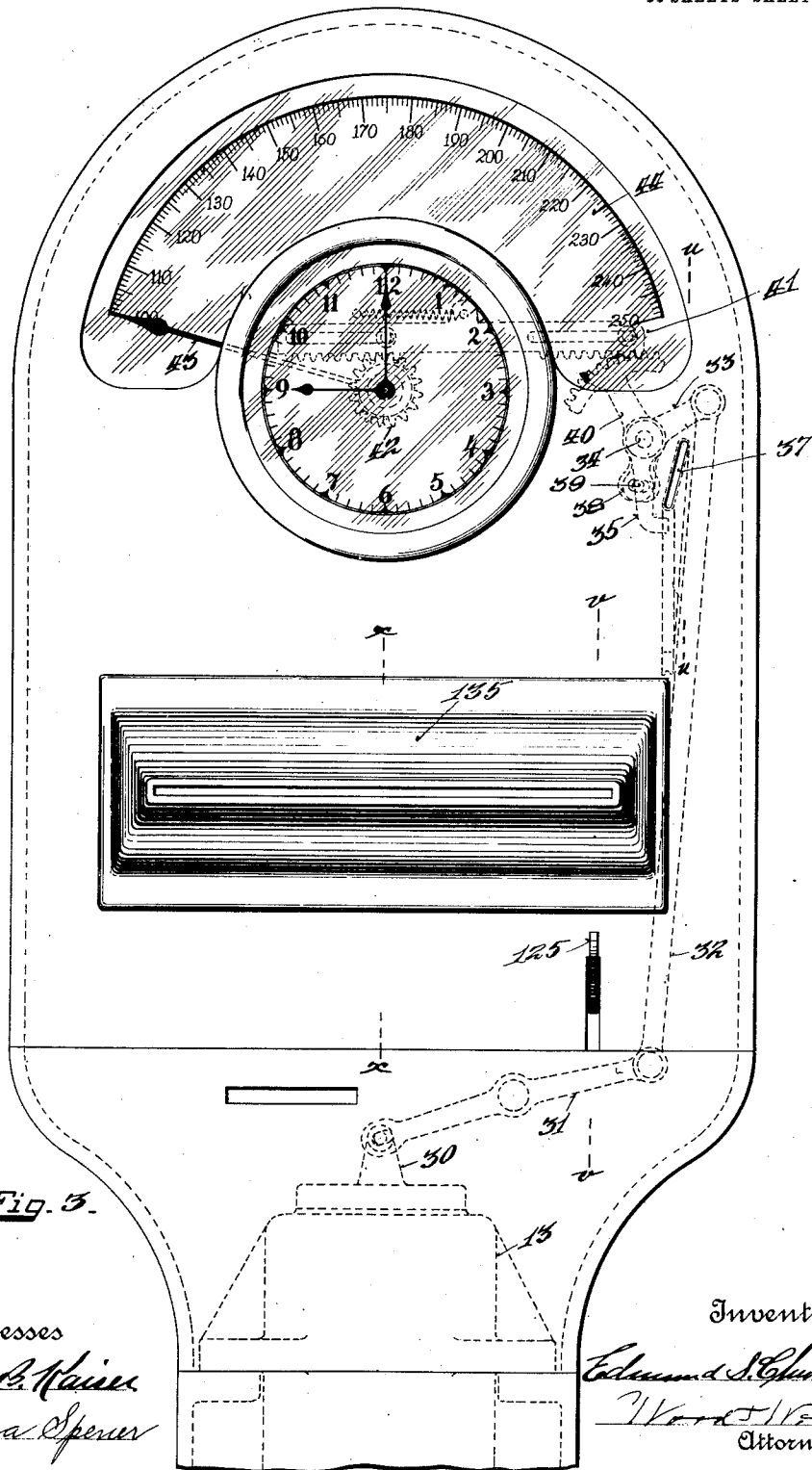


Fig. 3.

Witnesses

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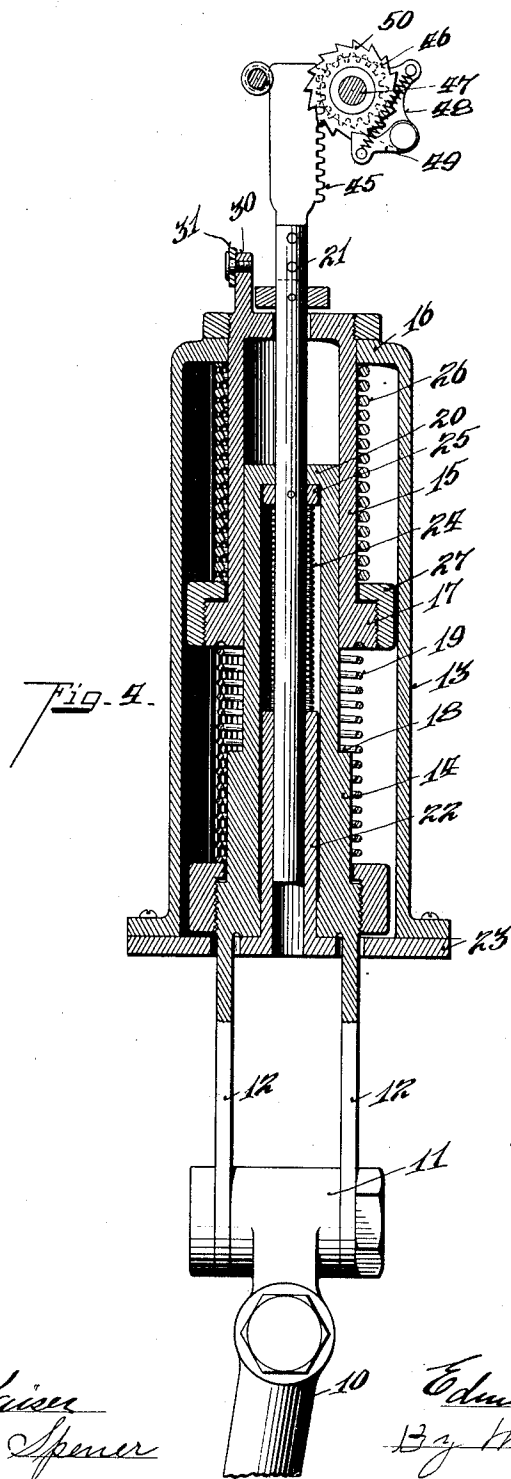
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11 SHEETS—SHEET 3.



Witnesses

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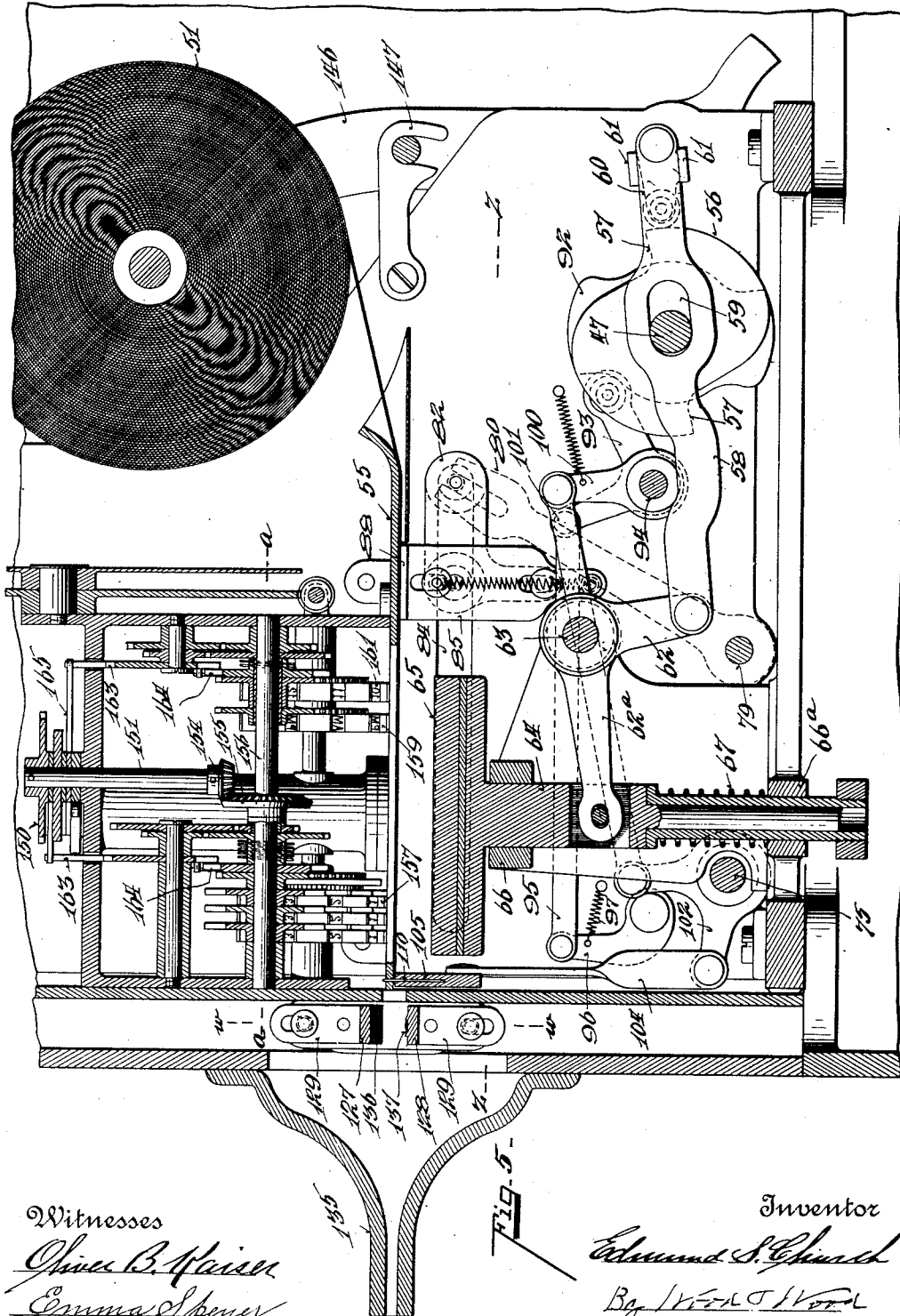
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Witnesses

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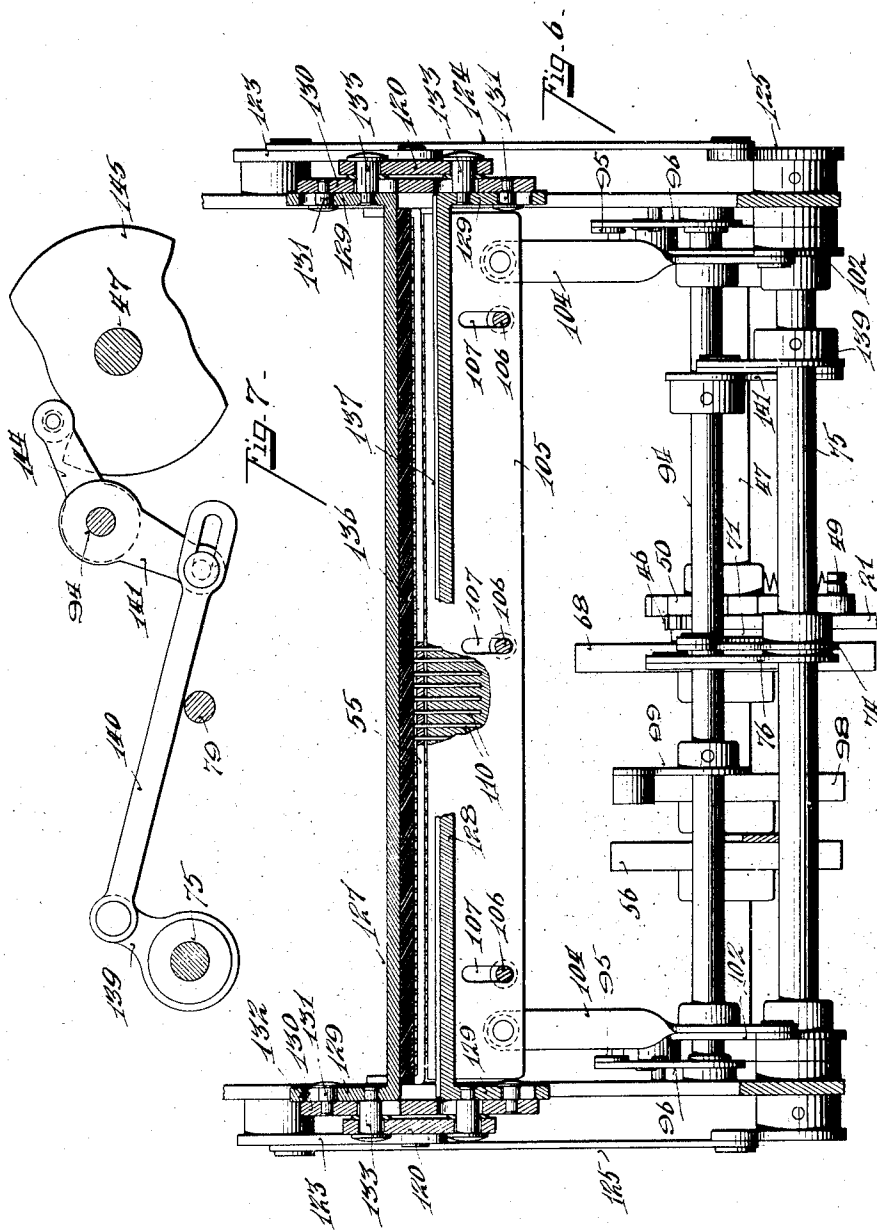
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11 SHEETS-SHEET 5.



Witnesses

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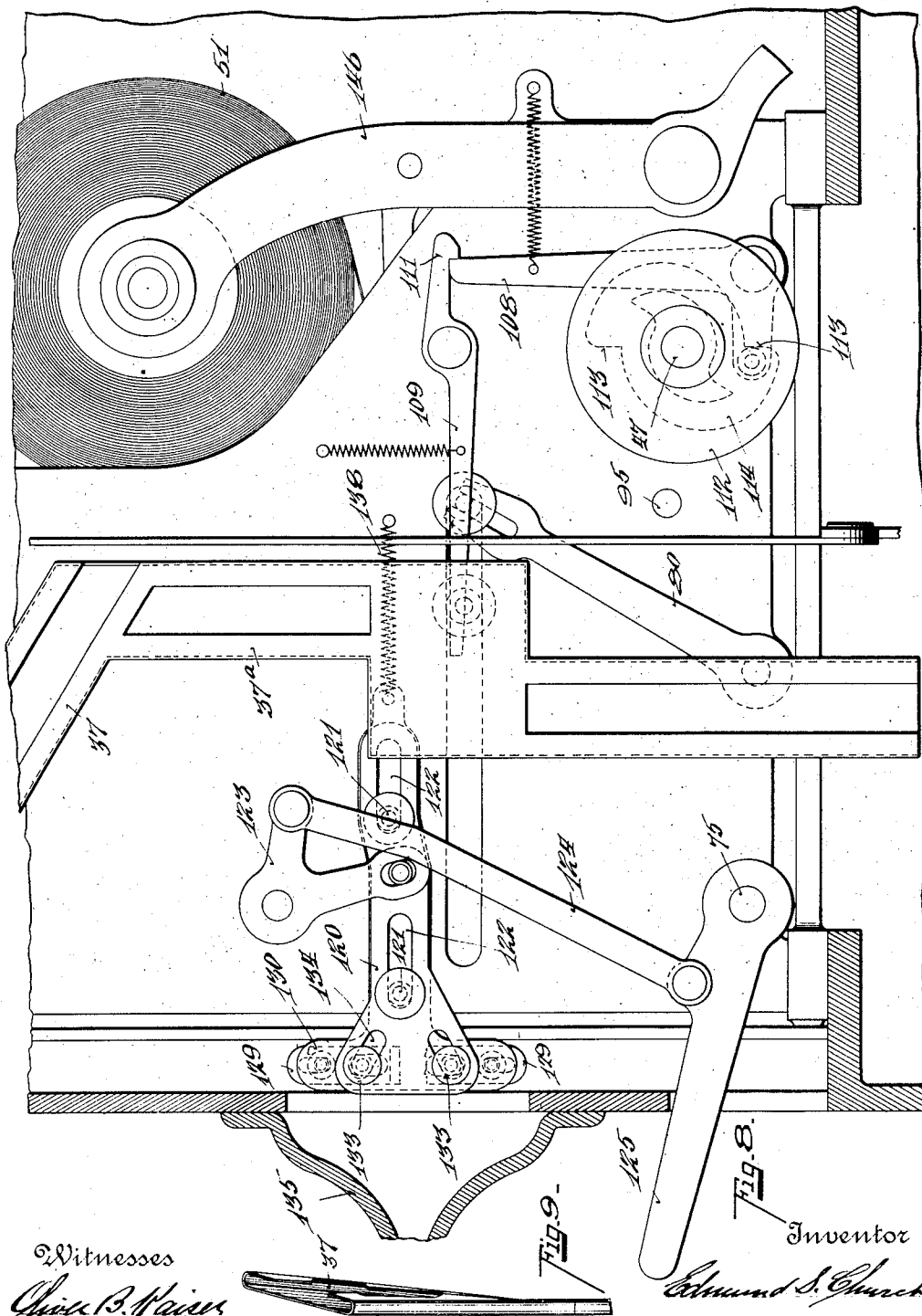
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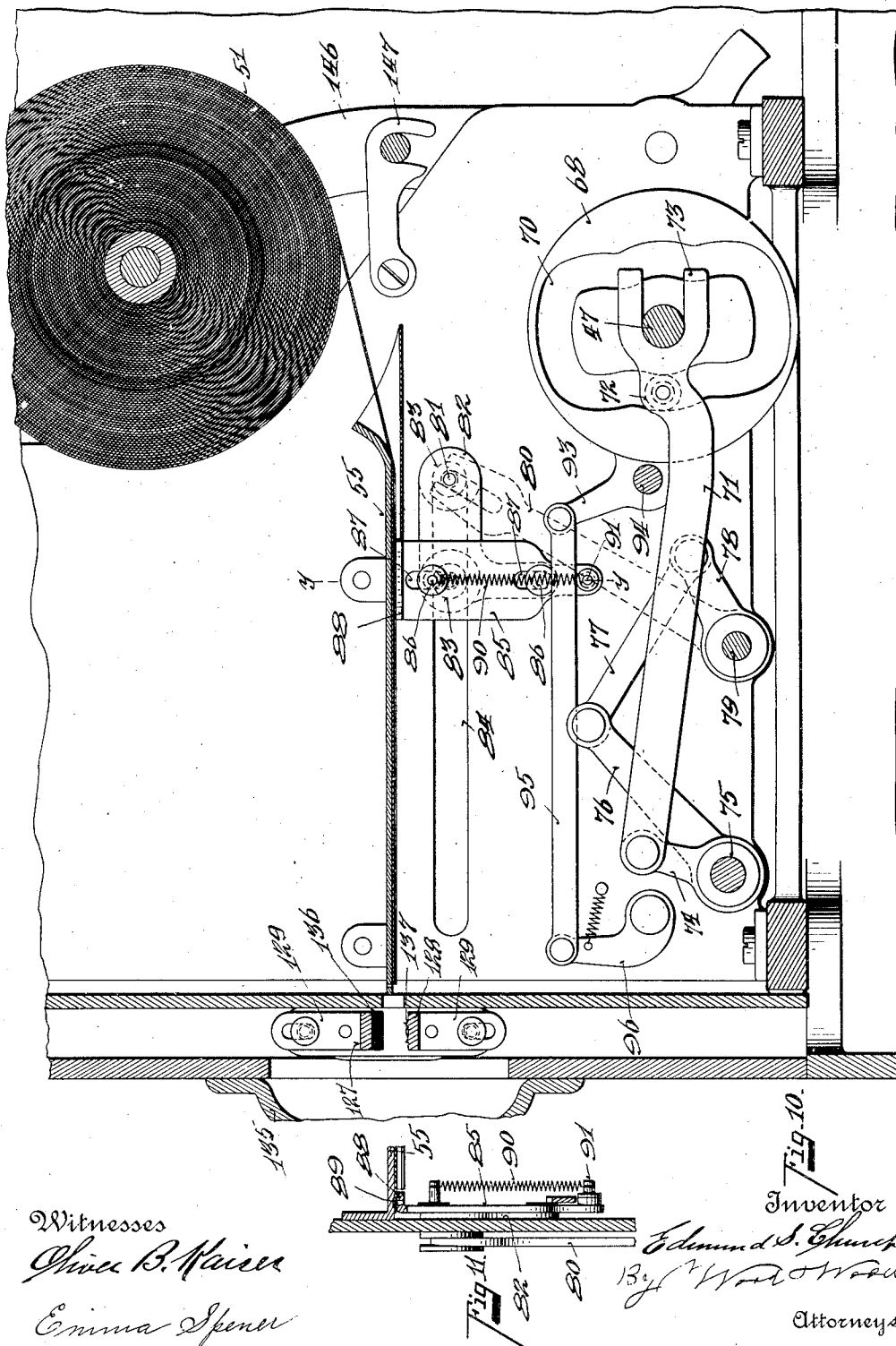
Witnesses
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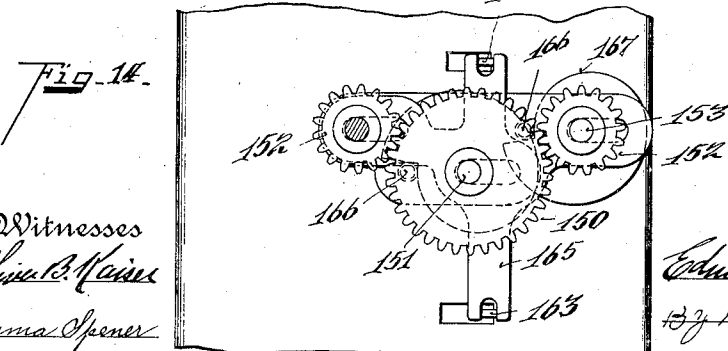
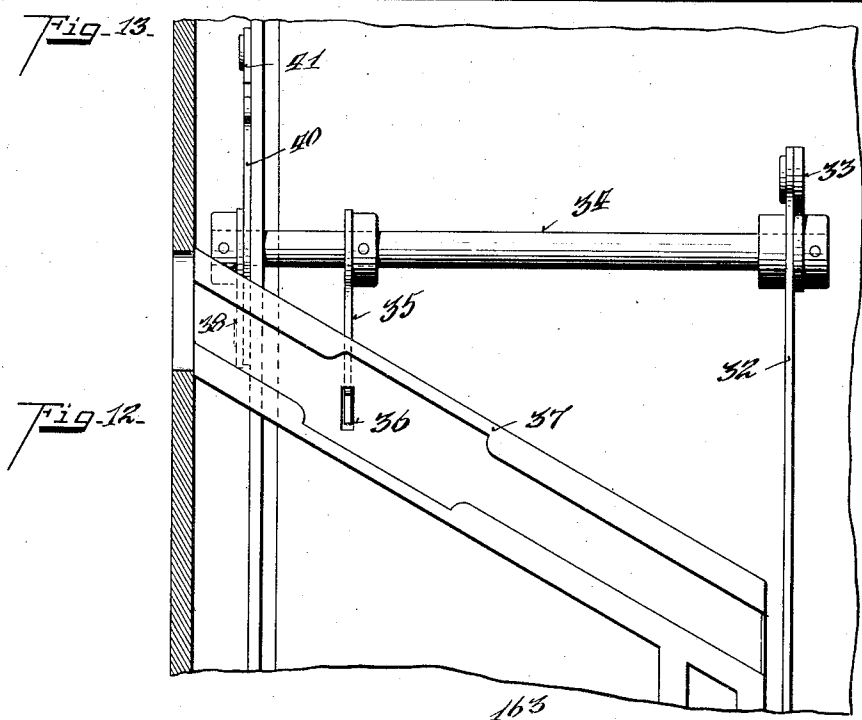
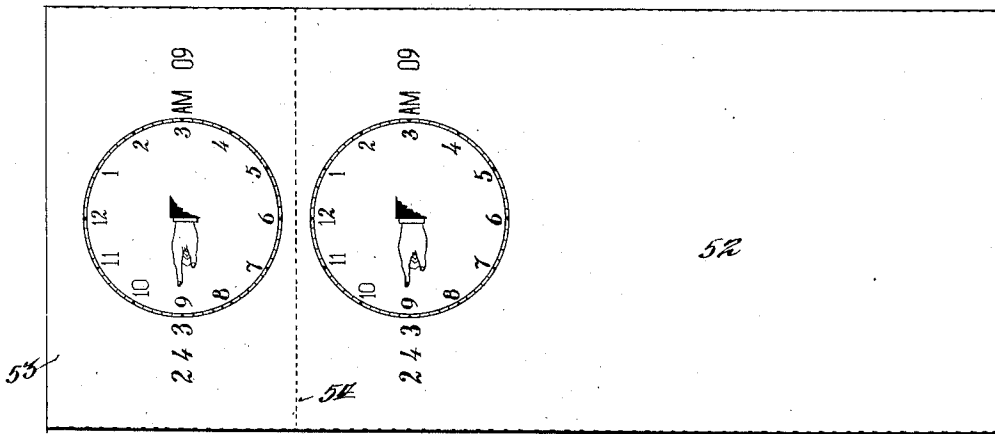
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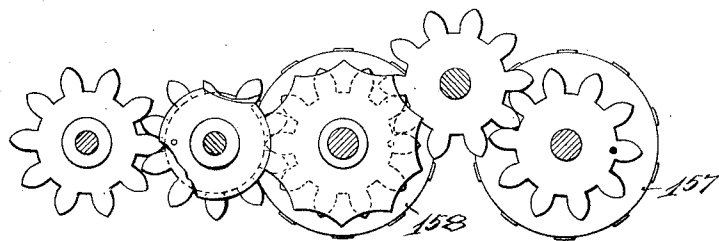
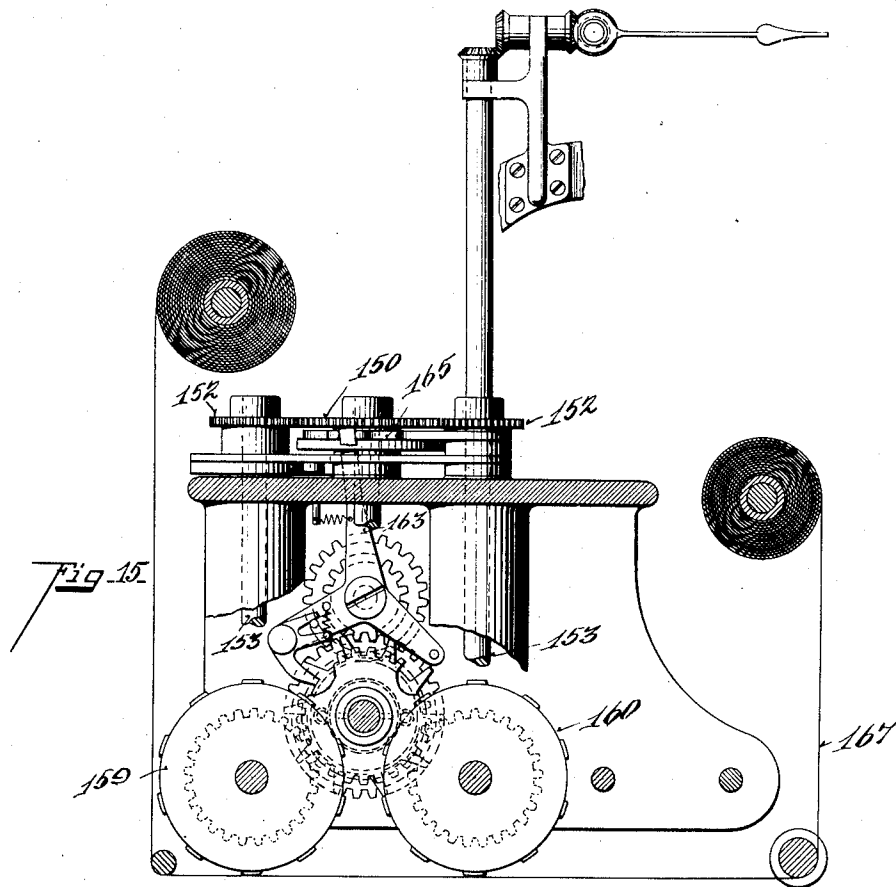
Patented Dec. 12, 1911.
11 SHEETS—SHEET 7.





Witnesses
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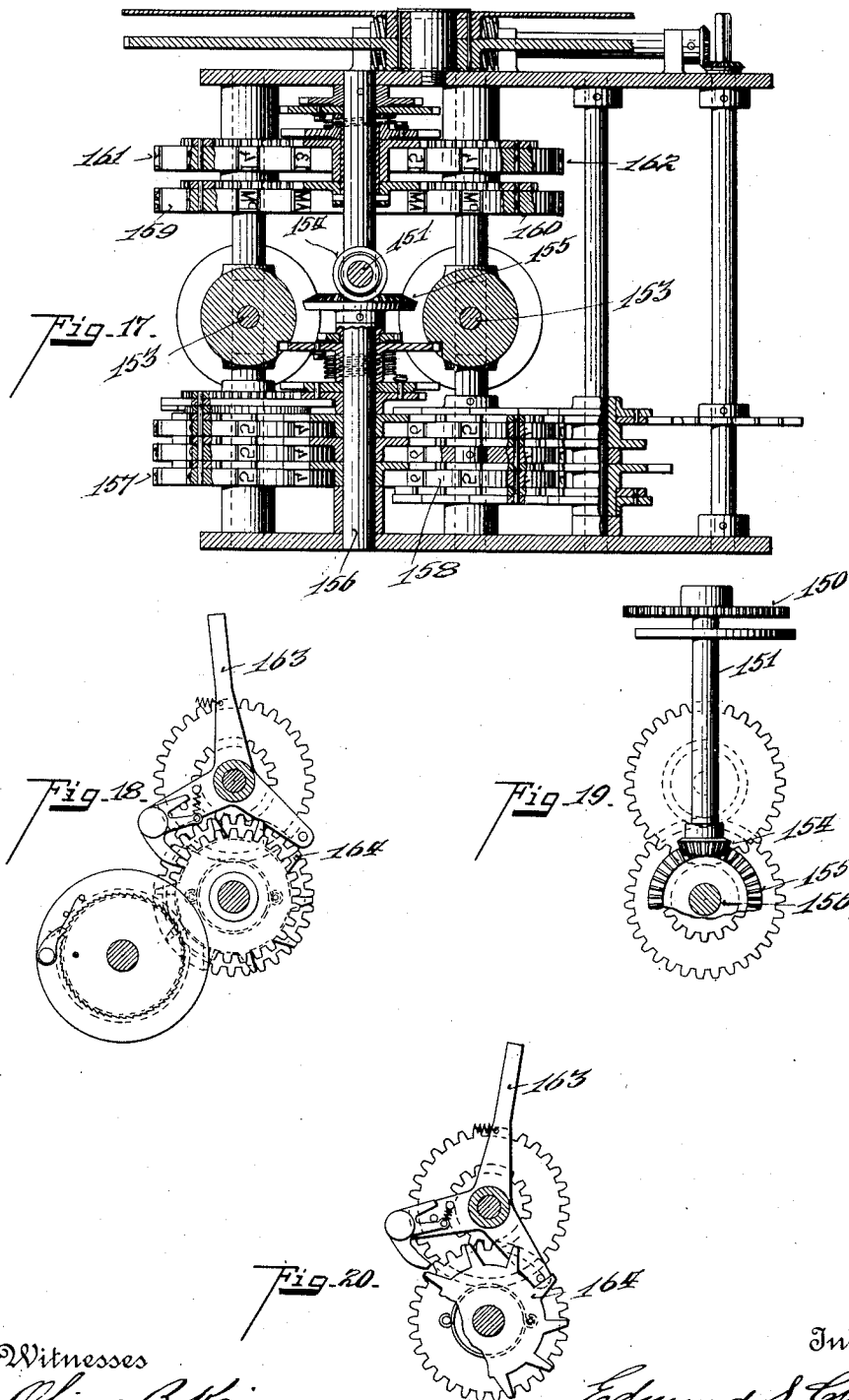
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11 SHEETS—SHEET 10.



Witnesses

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E. S. CHURCH.
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11 SHEETS—SHEET 11.

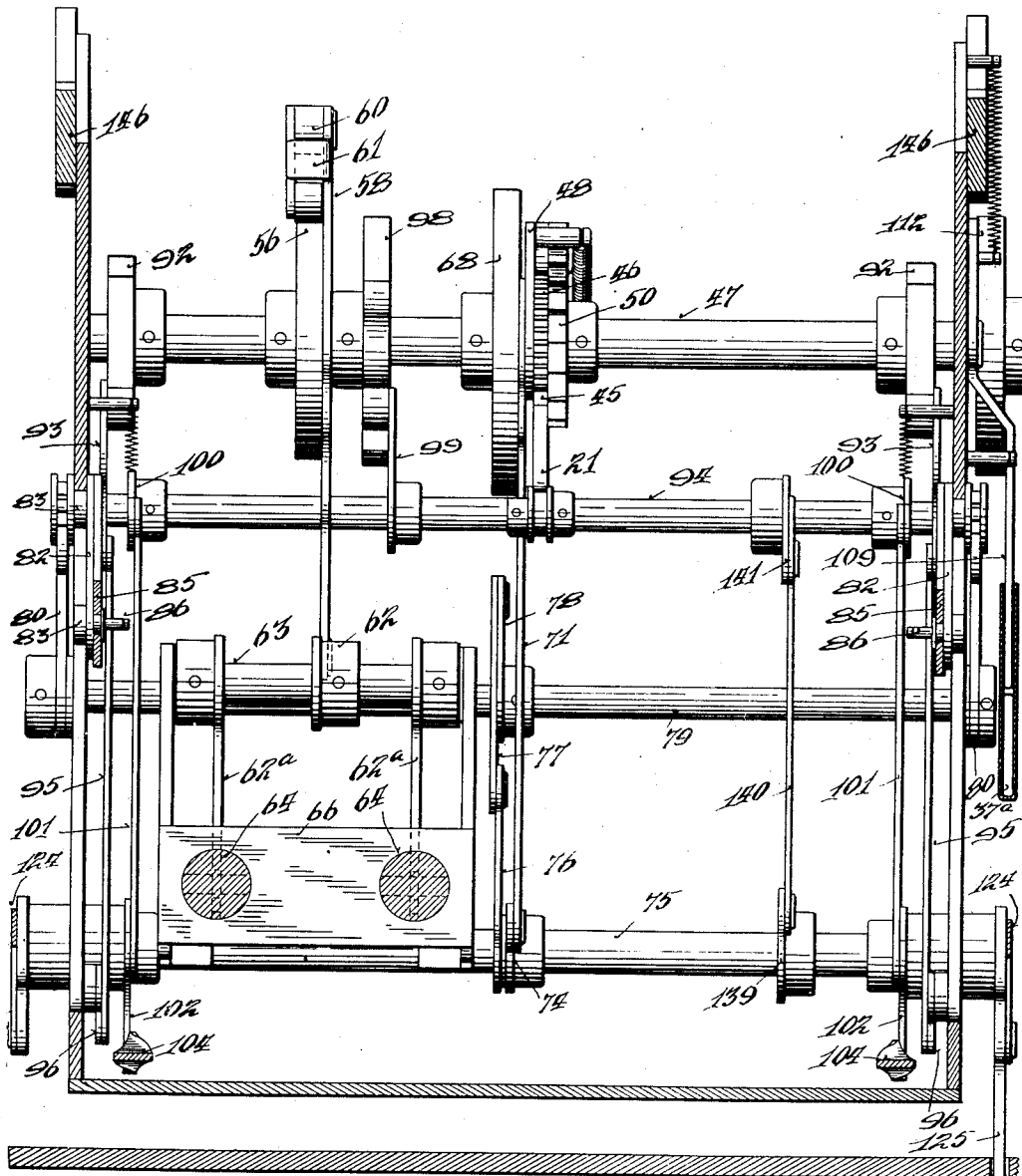


Fig. 21.

Witnesses

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UNITED STATES PATENT OFFICE.

EDMUND S. CHURCH, OF DAYTON, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE TRAVELERS INSURANCE MACHINE COMPANY, OF LOUISVILLE, KENTUCKY, A CORPORATION OF ARIZONA TERRITORY.

VENDING-MACHINE.

1,011,319.

Specification of Letters Patent.

Patented Dec. 12, 1911.

Application filed September 30, 1909. Serial No. 520,385.

To all whom it may concern:

Be it known that I, EDMUND S. CHURCH, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Vending-Machines, of which the following is a specification.

My invention relates to an improvement in vending machines, primarily adapted to issue a ticket or coupon in the nature of an accident insurance policy, containing the date and time of issue.

One of the objects of my invention is to provide a vending machine, with means whereby a coupon is discharged from the machine, with the actuating mechanism therefor controlled by the weight of the vendee and after the deposit of the coin.

Another object of my invention is to provide a vending machine, with a platform for supporting the vendee, and indicating mechanism for indicating his weight, with means for locking the mechanism against operation unless the vendee is over a predetermined weight.

Another object of my invention is to provide a vending machine, with means whereby both the weight of the operator and the deposit of the coin are required to control the operation of various devices, for printing or issuing the article to be vended.

Another object of my invention is to provide means, whereby a predetermined weight must be applied to move the main actuating mechanism partially in the direction of its movement prior to releasing the mechanism.

Another object of my invention is to provide a vending machine primarily in the form of a weight indicating device, with means actuated by weight and the deposit of a coin for releasing the actuating mechanism for issuing and printing a coupon or coupons.

Another object of my invention is to provide a vending machine primarily with means for printing and advancing a coupon or coupons to a point for discharge, controlled by the weight of the vendee, with means for withdrawing the coupon after a given operation has taken place.

Another object of my invention is to provide a machine governed by an applied weight, with means for providing a given

stroke or movement to the actuating mechanism in its operation and upon its release, irrespective of the amount of weight applied.

Another object of my invention is to provide a machine, adapted to be actuated by weight, with means for imparting a predetermined idle movement for storing energy to operate the actuating mechanism.

Another object of my invention is to provide a vending machine, with means for requiring the application of a given amount of weight or pressure, to permit the coin to effect a release of the actuating mechanism to accomplish a vending operation.

Another object of my invention is to provide a vending machine, with means for feeding a coupon and delivering the same to a point of discharge controlled by the weight of the vendee and the deposit of a coin, in combination with printing means operated by clock movement, for denoting the date and time upon the coupon at each operation thereof.

Another object is to provide a machine, having a main operating member and a secondary operator, and operating elements for said primary and secondary operating members compressed by a predetermined idle movement of the main operating member, with means for providing a fixed movement of the secondary operating means.

The features of my invention are more fully set forth in the description of the accompanying drawings, forming a part of this specification, in which:—

Figure 1 is a perspective view of my vending machine. Fig. 2 is a central vertical section through the base portion of the machine, with the head portion shown in elevation. Fig. 3 is a front elevation of the head portion of the machine. Fig. 4 is a vertical section through the power mechanism supported in the body of the machine. Fig. 5 is a section on line *x, x*, Fig. 3. Fig. 6 is a section on line *w, w*, Fig. 5. Fig. 7 is a detailed view of the lever and cam mechanism for locking the manually controlled discharging and severing mechanism during the idle period of the machine. Fig. 8 is a section on line *v, v*, Fig. 3. Fig. 9 is a detailed perspective view of a portion of the coin chute. Fig. 10 is a section through the head, illustrating the levers and cam mechanism in its operation and upon its release, irrespective of the amount of weight applied.

nism for feeding the paper strips. Fig. 11 is a section on line *y, y*, Fig. 10. Fig. 12 is a section on line *u, u*, Fig. 3. Fig. 13 is a view illustrating the form of coupon issued with the day of the year and time of issue. Fig. 14 is a top plan view of the setting mechanism for the type wheels. Fig. 15 is a detailed view of the type-wheel setting mechanism denoting the day of the year. Fig. 16 is a detailed view of the transmitting gearing and mechanism, for operating the ante and post-meridian type-wheel disks. Fig. 17 is a section on line *a, a*, Fig. 5, of the time controlled printing mechanism. Figs. 18, 19, and 20 are detailed views, illustrating the transmitting element for setting the type-wheels. Fig. 21 is a section on line *z, z*, Fig. 5.

This vending machine is adapted to issue a coupon or coupons primarily actuated by the weight of the vendee and the deposit of a coin, in which one or more coupons are printed with the day of the year and time. The coupon or coupons represent preferably an accident insurance policy, and as illustrated, the machine will issue a coupon and stub, both simultaneously stamped with the date and time. The vendee, after the discharge of the coupon from the machine retains the coupon and deposits the stub within the machine, as a record for the vendor, and in this instance, the vendee is required to sign the stub for identification of the vendee. This latter feature, however, is a function which has nothing to do with the operation of the machine, it being merely a subsidiary requirement when the machine is used to vend an accident insurance policy. It is necessary to the operation of the machine that the vendee be equal to or above a given weight before it is possible for him to operate the machine, which is necessary to impart a given idle movement to the actuating mechanism, in order that a fixed actuating movement can be imparted to the various mechanisms embodied in the machine, irrespective of the weight of the vendee beyond the amount required for operating the machine. The machine also indicates upon its face the weight of the vendee, thereby serving as a scale as well as a vending machine.

1 represents the base of the machine, supporting the vertical column 2.

3 represents a platform, projecting through an opening in the base 1, and movably mounted in order that the weight of the vendee will depress the platform to actuate the mechanism contained in the machine.

4, 5, represent toggle links pivotally connected to ears formed on the platform 3, and to the base 1.

6 represents a connecting link, connecting said toggle links intermediately. This connection between the base and platform forms

equalizing means in the downward movement of the platform to prevent a tilting of the platform, and a binding effect or uneven movement of the platform relative to the base. 7 represents a lever pivoted at 8 to brackets within the base of the machine, one end of which is pivotally connected to a lug 9, projected from the platform 3, while the opposite ends of said lever 7, are pivotally connected to a weighted connecting rod 10, projected upwardly into the hollow column. The opposite end of said connecting rod 10, is pivotally connected to a knuckle 11, which in turn, is pivotally connected to the arms 12 of the power mechanism, see Fig. 3.

As the initial requisites for the operation of the machine are the weight of the vendee and the deposit of a coin to effect an operation, eliminating manual manipulation in actuating the various parts, except in so far as the complete withdrawal of the finished coupon and stub, and as a given movement is required to perform the various operations, I have accomplished the same by utilizing a given weight as the primary actuating mechanism, which is adapted to govern the condition of automatic means, which I term, power mechanism, to furnish the power upon its release, necessary for actuating the various parts.

In the preferred form, illustrated in Fig. 4, the power mechanism comprises the following instrumentalities:—13 represents a cylinder suitably mounted within the body of the machine or column 2. 14 represents a sleeve, carrying the arms 12, heretofore described, said sleeve having a telescopical engagement with the sleeve 15, movably mounted and projected through the head 16, of the cylinder 13. The sleeve 15 at one end is provided with a flange 17, against which the shoulder 18, engages, after the sleeve 14, by the weight of the vendee, has been moved upwardly against the tension of the spring 19. 20 represents an inturned flange or head of the sleeve 14, through which the main actuating rod 21 projects, said rod 21 being further supported in a sleeve projection 22, formed integral with the support 23, in the form of a cross-plate secured to the column 2. 24 represents a coil spring, encircling the rod 21, one end of which bears against the sleeve projection 22, with the opposite end against a collar 25, fixed to the rod 21, said collar in a normal condition engaging with the head 20, of the sleeve 14. In the position shown in Fig. 4, spring 24 is under tension and serving as stored up energy or power, for operating the various parts of the machine upon the release of the rod 21. The preliminary movement of the sleeve 14, caused by the weight of the operator, which must be equal to or above a fixed amount, moves the sleeve

14 upward against the tension of the spring 19, until the shoulder 18, engages with the flange 17 of the sleeve 15, which movement is sufficient to release the required energy, for operating the parts upon their release, allowing the collar 25 and rod 21 to move upward after their release by the expansion of spring 24. Additional weight, beyond the compressive pressure of spring 19, will cause a continued movement of sleeves 14 and 15 against the spring 26, one end of said spring bearing against an adjusting collar 27, screw threaded upon the flange 17, of the sleeve 15, while the opposite end of the spring engages against the inner surface of the head 16, of the cylinder 13, thus forming a resistance against the weight of the vendee, permitting a scale indicating movement of the sleeve 15, for operating an index finger, indicating upon a dial the weight of the vendee, serving the same purpose as the common spring balanced weighing machine. If the weight upon the platform is removed after a vending operation, the sleeve 14, through the weighted connecting rod, will cause the spring 24 to be compressed, and the rod 21 restored to normal position for a second operation. It is quite obvious, however, that the machine can be operated by any weight above that required to compress the spring 24, by eliminating spring 19. This spring is employed for the purpose of requiring the vendee to be equal to or above a predetermined weight, a qualification imposed by the insurer or vendee in vending accident insurance. It is obvious, however, that power mechanism may be employed between the weighing mechanism and vending mechanism, automatic in its action after the deposit of a coin and an applied weight brought upon the weighing mechanism, without departing from the features of my invention, and I do not wish to be limited to the form of power mechanism illustrated, except as specifically mentioned in the claims.

It is impossible, under the construction of the machine, to trip the mechanism for a vending operation, unless the vendee is of the weight required or above the same, before the coin will be released or free to travel in the chute to trip the catch which locks the power mechanism. This is accomplished by the following instrumentalities, see Figs. 2, 4 and 11. The sleeve 15 is provided with an ear 30, to which is pivotally connected a lever 31, said lever in turn being fulcrumed within the column of the machine. The opposite end of the lever 31, is pivotally connected to a connecting link 32, extended upward and pivotally connected to an arm 33, fixed upon the rock shaft 34, for actuating the same, said rock shaft being suitably supported in the bearings formed in the head of the machine. 35 represents an arm fixed to

the rock shaft 34, L-shaped at one end and projected into the slot 36, formed in the coin-chute 37, when the machine is in normal position, a given weight upon the platform being sufficient to move the sleeve 14 upward, so as to bring the shoulder 18, into engagement or contact with the sleeve 15, moving the same upward to actuate the lever 31, drawing the connecting link 32 downward, and swinging the L-shaped arm 35, so as to withdraw the same from the path within the coin-chute, which permits the coin to descend within the chute, and in its travel engage or strike a tripping lever, releasing the power mechanism. The weight indicating finger is also actuated by the movement of the rock-shaft 34, as follows:— 38 represents an arm fixed to the rock shaft, provided with a pin 39, adapted to engage into a slot formed into one arm of a sector lever 40, loosely supported upon the rock-shaft 34. This slotted engagement between the arm 38, and the sector lever arm, being for the purpose of permitting the rock shaft to have idle movement to free the coin chute prior to operating sector lever 40, actuating weight indicating mechanism. The sector lever 40 is provided with rack teeth, adapted to engage with teeth formed upon a rack bar 41, slidably mounted upon the front frame of the machine. The opposite end of said rack bar is provided with rack teeth, adapted to engage with the rack pinion 42, suitably journaled and carrying the index finger 43. 44 represents a weight indicating dial in the arc of finger travel. A continued upper movement of the sleeve 15, against the expansive strain of spring 26, actuates the lever 31, link 32, arm 33, rock shaft 34, and connections between rock shaft and rack bar 41, moving the index finger 43 to such a degree, as the weight of the vendee will move the sleeve 15 against the strain of the spring 26, to properly indicate the weight of the vendee. The spring 26 is adjusted in its tension by the collar 27, for setting the scale indicating mechanism for accurate indication of the finger 43, with the dial equal to the applied weight on the platform 3.

The printing and feeding of the coupon, is accomplished by the following instrumentalities, see Figs. 4 and 21. The free end of the actuating rod 21 is provided with rack teeth 45, in mesh with a rack gear 46, loose upon shaft 47, suitably journaled in bearings in the head of the machine, said rack gear 46 is fixed to a pawl plate 48, carrying a spring actuated pawl 49, engaging with the ratchet wheel 50, fixed to the shaft 47, for imparting motion to said shaft upon upward movement of the actuating rod 21, and remaining stationary upon the return movement of the actuating rod, which permits the forward rotation of shaft 47. As constructed, various cams are mounted upon

this shaft, and in which a complete revolution of the shaft performs two vending operations as a two to one ratio is employed between the rack 44, and the rack gear 45. Of course, it is obvious that this ratio may be modified, without departing from the features of my invention. 51 represents a roll of paper preprinted in a series of coupon insurance policies, preferably each containing an attached stub, and in which the coupon and its stub contain an imprinted dial for denoting the time of issuing the policy, as illustrated in Fig. 13, upon which the day of the year, time and year are imprinted thereon by the machine. 52 represents the insurance policy, (see Fig. 13), in the form of a coupon, and 53 represents a stub, adapted to be separated along a scored line 54, from the main coupon, to be signed and deposited within the machine as a record for the insurer or vendee. This form of coupon and stub illustrates the preferred manner of issuing the vended article, but it is obvious that various methods may be employed to issue an insurance policy for the vendee, and a record thereof for the vendor, either in the nature of a single strip with a series of independent imprinted policies contained thereon, and a record strip or stub, with the date and time stamped thereon at each issue, or the same could be in the nature of one or more continuous strips fed forward and issued in a prescribed manner, without departing from the features of my invention, and the method herein shown relates only so far as the printing and feeding of a coupon or coupons from a printing position to a point of discharge or issuance. Further, as illustrated, one coupon and its stub are separated from the second by a transverse line of perforations, serving as guides for properly aligning the same relatively to the printing mechanism. This likewise is the preferred method. The strip of paper containing the imprinted policy and stub is fed from the roll 51, between a guideway 55, (see Fig. 5), beneath the time controlled type disk and time indicator die or dies.

The printing is accomplished by the following instrumentalities, see Figs. 5, 6, and 21. 56 represents a cam wheel provided with the offset portions 57. 58 represents a slide-bar, slidably mounted upon the shaft 47, said shaft projecting through the oblong slot 59, serving as a bearing for the slide-bar 58. 60 represents a pawl pivotally mounted upon the slide-bar 58, and between the guides 61, the free end of said pawl 60, is provided with an antifriction roller, bearing upon the periphery of the cam 56. The pawl 60 has a slight idle movement between the guides 61 forming a provision for quickly tripping the slide-bar 58, when the roller 60 reaches an offset portion 57, of the

cam 56, to permit of a sudden movement of the slide-bar 58 to a released position for the actuation of the printing plunger. The slide-bar 58 is pivotally connected to one arm 62, fixed to the work shaft 63. 62^a represents arms fixed to the work shaft 63, each connected to a plunger 64, by means of a slot and pin connection, to permit a free arc movement of the levers or arms 62^a, upon the vertical movement of the plungers 64. Two plungers are employed, one for coupon and the second for stub. The plungers 64 are each provided with a platen 65, preferably of cushion formation, adapted in its printing action to strike against the strip of paper, pressing the same against relative type disks and printing dies. Each plunger 64 is slidably supported within the bearings 66, 66^a, and automatically in one direction of its movement through the tension of the spring 67, one end of which bears against the shoulder formed on the plunger 64, while the opposite end bears against the lower bearing 66^a. As illustrated, the plunger 64 has an automatic upward stroke and the lower mechanism and cam provided for returning the plungers to normal position against the tension of their respective springs 67, tripping the same when the cam 56 moves to a position of offset alignment with the pawl 60. As duplicate printing upon coupon and stub is desired, it is preferable to employ two sets of platen plungers and actuating mechanism, and therefore a description of the one will suffice for the other, the mechanism of the one being a duplicate of the other.

After the strip of paper has been printed it is fed forward, to present a second coupon to printing position with the first removed to a point for discharge from the machine. This feeding of the strip is accomplished by the following instrumentalities, see Figs. 10 and 11. 68 represents a cam wheel fixed upon the main shaft 47, provided with a cam groove 70, of peculiar formation, to move the actuating bar 71 horizontally upon rotation of the cam wheel 68. Said actuating bar is provided with an anti-friction roller 72, projected into the cam groove for transmitting motion to said actuating bar 71. One end of said actuating bar is provided with a yoke end 73, straddling the main shaft 47, for supporting said actuating bar. The opposite end of the bar is pivotally connected to a lever arm 74, loose upon an actuating rod 75. 76 represents a lever arm, loose on said actuating rod 75, and fixed to the lever arm 74, and 77 represents a link pivotally connected to the arm 76, at one end, its opposite end pivotally connected to the lever 78, which in turn is fixed to a rock shaft 79. Said rock shaft, at each end thereof, is provided with a lever 80, fixed thereto, their free ends being yoked to en-

gage the anti-friction roller journaled upon a pin 81, fixed to the gripper carrier plate 82, a gripper being provided for each edge of the strip of paper, each gripper being of duplicate construction as that of the other, and operated in the same manner.

Each gripper is preferably constructed, as follows, see Figs. 4, 9 and 10:—82 represents a carrier plate provided with rollers 83, adapted to travel within the horizontal groove 84, suitably formed in a frame of the machine. Each carrier plate 82 is preferably provided with a pair of antifriction rollers engaging into said groove 84, so as to freely guide and support the plate in its horizontal movement. 85 represents a gripping plate slidably mounted upon its carrier plate 82, by means of pins 86, provided with anti-friction rollers, projecting through oblong slots 87, formed in the gripping plate 85, for permitting of a vertical movement to said gripping plate upon the carrier plate, for gripping and releasing the paper in a vertical movement, thereby preventing any slippage of the paper in any direction which would tend to destroy the alinement of the preprinted dials upon the strip of paper with the type disks and printing dies. Each gripping plate is provided with a right angled flange 88, see Fig. 11, provided with serrations or pins 89, adapted to prick the edges of the strip of paper and press the same into a groove formed in the guide plate 55, for securely gripping the paper to effect a forward feed without slippage. 90 represents a spring, one end engaging one of the pins 86, while the opposite end engages a pin 91, fixed to the gripper plate 85, for maintaining the flange 88 under tension against the guide plate 55.

The gripping plates 85 are released from their gripping position by the following elements, see Figs. 5 and 10:—92 represents a cam fixed to the shaft 47, with its periphery of peculiar outline, and 93 represents a bell crank lever which is supported on the rock shaft 94, one arm of said bell crank lever being provided with an anti-friction roller traveling along the periphery of the cam 92, the opposite arm of said bell crank lever being pivotally connected to a link 95, with the opposite end of said link pivotally connected to a pivoted lever 96. Such mounting of the link 95, maintains the same in a horizontal plane in its actuation. Said link 95 has an anti-friction engagement with the gripping plate 85 for moving the same vertically to disengage the same from its grip on the paper in a vertical path and permit a like engagement upon its release, the same being controlled in proper time movements through the position and formation of the cam 92 in its rotation. 97 represents a spring connected to the lever 96, for maintaining the bell crank lever 93 under ten-

sional contact with its cam. The link 95 is of elongated form of a length equal to the travel of the gripper feed mechanism, in order to enable a proper feeding of the strip the required distance and maintain the engagement between link and gripper, that the same may be released from the strip of paper in one position of its travel and engaged at the reverse limit of travel, and maintained in such position during its entire forward feed, to prevent slippage of the strip of paper. The grippers are presented against and released therefrom in a plane parallel with the paper and guide plate 55. Lever and cam mechanism is provided for each gripping mechanism of duplicate construction, actuated by the main shaft 47, as the preferred form of construction, and the description of one will answer for that of the other. The grippers are actuated in time movements, that is, they are moved along in a horizontal plane against the guide plate in feeding the paper, whence, through the formation of the cam, the grippers are released in a movement parallel with the surface of the paper, whence they are moved to normal position in a horizontal plane and in a released position parallel with the surface of the paper, returned into gripping position and under pressure by means of the springs 90. The grippers in their action traveling in a rectangular path enables the successful feeding of a thin strip of paper for quite a length without in any way displacing the alinement.

As the coupons are formed in a continuous strip, means are required to sever an issuing coupon from the remainder of the strip, with means for preventing the displacement or destroying the alinement of the successive coupons. This, I have accomplished by the following instrumentalities:—As before described, the coupons are separated from each other by a transverse line of perforations which form convenient means for severing the coupon, and also means for arresting the motion of the successive coupons during the severing strain in discharging the vended coupon. 98 represents a cam fixed upon the shaft 47, and 99 represents a lever engaging said cam and fixed to the rock shaft 94, for actuating the same. (See Figs. 5, 6, and 21). 100 represents a lever fixed to the rock shaft 94, and 101 represents a link, one end of which is pivotally connected to the lever 100, while the opposite end is pivotally connected to the bell crank lever 102, pivotally supported upon the rod 75. 104 represents a link pivotally connected at one end to the opposite arm of the bell crank lever 102, the other end of said lever is fixed to a cross plate 105, slidably mounted in a vertical path upon the frame of the machine, see Figs. 5 and 6, preferably by means of pins 106, pro-

jecting through oblong slots 107, formed in the cross plate 105, said cross plate is provided with a series of pins 110, equal in number substantially to the number of perforations formed on the strip, separating one coupon from the other. These pins are preferably smaller in diameter than the diameter of the perforations, in order to permit a registering of the pins with the perforations even should a slippage of the paper occur. This cross plate is actuated in time movements with the gripping and feeding mechanism, occupying a position with the pins beneath the surface line of the paper, as the same is being fed forward and moved upwardly, with the pins protruding through the transverse coupon perforations and through aligned perforations in the guide 55, after the proper feeding operation, and with the cross plate 105, clamping the paper against the under surface of the guide 55, forming a double lock against displacement of the paper in severing the coupon. While the construction for arresting further movement of the strip of paper in severing a coupon, shown in the preferred form, and I do not wish to be limited to such means, further than is specifically mentioned in the claims.

The actuating mechanism is operated automatically upon the release of the stored up energy, the release of which is accomplished by the deposit of a coin, and the vendee positioned on the platform and over the prescribed weight required, will release the coin in the inclined chute 37, permitting the same to travel therein and drop down the vertical chute-way 37^a, striking against the spring controlled trip lever 109, releasing the spring controlled bell crank lever 108, which in normal position engages the hooked portion 111, of the trip lever 109, while the right angled arm of the bell crank lever 108, is provided with an anti-friction roller projected into a cam groove of the wheel 112, said groove being provided with the shoulders 113, one of which engages against the roller, locking the main shaft 47 against rotation until the bell crank lever is released.

As before described, a complete rotation of the shaft 47 performs two vending operations. It will be seen from Fig. 8, that when the roller of bell crank lever 108 is released from the shoulder 113, it will travel in the groove 114, for one-half revolution of the wheel 112, during which period the coin has dropped past the engaging end of the trip lever 109, permitting an automatic restoration of said tripping lever 109, and the arc of the groove 114 being eccentric with shaft 47, will cause the bell crank lever 108 to be swung back to normal position and locked in such position by the tripping lever 109, which position will arrest further ro-

tation of the grooved wheel 112, by reason of the roller traveling in the groove 114, engaging the second shoulder 113.

It is desirable to sever and discharge the coupon by manually controlled means, and in which the coupon and its stub are severed and fed forward through a spout and within the grasp of the operator in such a manner that it is impossible for the operator to in any wise interfere with the automatic operation of the machine or withdraw a coupon, or tamper with the same. This is accomplished preferably by the following instrumentalities:—(See Figs. 5, 6, and 8). 120 represents a carrier plate, slidably mounted and supported, by means of pins 121, fixed to the frame of the machine, said pins projecting through slots 122, formed in the carrier plate 120, forming guides therefor and limiting the movement of said carrier plate. 123 represents a bell crank lever pivotally supported to the frame of the machine, one arm of said lever being connected to the carrier plate 120, the opposite arm of said lever 123, being pivotally connected to a link 124, while the opposite end of said link is pivotally connected to the hand lever 125, said lever in turn being fixed to the rock shaft 75, for operating duplicate mechanism, just described, upon the opposite side of the machine for equalizing the operation of paper gripping means for feeding and severing the finished coupon from the strip. 127, 128, represent grippers extended the width of the coupon and stub, each provided with a right handed flange 129, upon each end thereof, for supporting the same upon a movable supporting plate 130, traveling with the carrier 120, in the forward feed thereof after the grippers are moved toward each other to gripping position with the paper between them. This vertical movement of the grippers 127, 128, is obtained by supporting the same to the supporting slide plate 130, by means of pins 131, projecting through a slot 132, formed in each flange of the grippers. 133 represent pins fixed to the flange 129, projecting through angular slots 134, formed in the carrier plate 120. 135 represents a funnel-shaped spout fixed to the outer frame through which the coupon and its stub is fed in discharging the same from the machine. The operation of the manual severing and discharge of the coupon, after the same has been printed and fed forward through the automatic operation of the machine, is fed between the gripping surfaces 136, 137, of the vertically movable grippers 127, 128. The gripping surface 136 is in form of an elastic pad, while that of 137 is provided with burs, or the like, adapted to be impressed into the elastic gripping surface 136, for firmly gripping the paper its entire width. Moving the hand lever

125 downward will cause a horizontal movement between the carrier plate 120, by the link and lever connections between the carrier and hand lever, which action will cause the grippers 127, 128, to be moved toward each other through the action of the inclined slots 134, upon the pins 133, after which movement the grippers are fed forward by a further advance movement of the carriers 120, actuating therewith the gripper supporting plates 130, which maintains the grippers in their gripping relation with each other during the forward manual feed, this forward feed will sever the coupon from the remainder portion of the strip which is arrested against movement by the arresting cross plate 105 and pins. The manual feeding mechanism upon its release by the operator is automatically returned to normal position by means of the spring 138, fixed to the frame of the machine, and gripper supporting plate 130. The reverse action releasing the grippers, the same moving vertically away from each other through their engagement with the inclined slots 134, of the carrier plate 120.

It is desirable to lock the hand lever 125 against actuation when the machine is idle, and which is accomplished as follows, (see Figs. 6, 7 and 21). Fixed to the rock shaft 75, is an arm 139, carrying a link 140, having a loose connection with the arm 141, fixed to the rock shaft 94, said loose connection comprising a pin 142, fixed to the arm 141, and projected through an oblong slot formed in the link 140. 144 represents an arm fixed to the rock shaft 94, its free end provided with a roller, adapted to engage the periphery of the cam wheel 145, fixed to the shaft 47. As shown in Fig. 6, the locking mechanism is in such position as to permit the hand lever 125, to be swung down through the slotted connection of link 140, with arm 141, moving to the opposite end of the slot 143, from that shown in Fig. 6, the rotation of the cam moving the arm 141, toward the cam in idle position of the cam wheel, is such as to maintain the arm in that position. The cam is formed to permit the operation after a proper time movement of the automatic feed of the coupon. The roll of paper 51 is preferably mounted upon a spindle supported in the swinging arms 146, said arms being pivoted to the inner frame of the machine and adapted to swing rearward for reloading the same conveniently by releasing the catch 147, from engagement with the arm 146.

The time controlled printing mechanism is fully illustrated in Figs. 14, 15, 16, 17, 18, 19 and 20, in which two sets are employed, each operated from a single clock movement for simultaneously printing the coupon and its stub with the year, day and time of issuance. This time printing mechanism may be

of any well-known form of construction, and preferably of such form in which the type wheels are operated in step movements, so as to always present a given character on the type-wheel in a proper printing position. The days of the year being denoted numerically by consecutively operated type disks, with the ante-meridian and post-meridian being denoted by a type disk operated in its proper time movements, as well as the year. The time of day being denoted by an index finger moving in an arc around the dial, which is always in position for a printing operation at any point of movement, the operation of the machine being so fast that no substantial interference is had with the movement of the clock.

The time operated printing mechanism, illustrated in the drawings, I will herewith describe generally, avoiding minute details. 150, (see Figs. 15 and 19), represents a gear fixed to the shaft 151, suitably journaled, said gear being in mesh with a suitable clock mechanism, not shown, for maintaining said gears in constant rotation, and of a speed to impart the proper movement to the various trains of gearing driven thereby for proper time printing. As illustrated in the drawings, the time printing is in duplicate for correspondingly printing the coupon and its stub at each operation.

152 represent gears in mesh with the main driving gear 150, and fixed to their respective shafts 153, for rotating the same. Said shafts are provided with an index finger for denoting the hours or fraction thereof by revolving within the circular dial preprinted upon the coupon and stub, containing the proper hour characters.

154 represents a beveled gear fixed to the shaft 151, in mesh with a beveled gear 155, fixed to a shaft 156, for transmitting motion to the various systems of gearing for operating type disks in proper time movements, and in which, 157, 158, represent duplicate type disks denoting the day of the year simultaneously operated, and 159, 160, represent duplicate type disks simultaneously operated with the post and ante-meridian characters, while 161, 162, represent duplicate type disks simultaneously operated for denoting the year.

In order to prevent the type disk, in any instance, to partially present a given character to printing position, retarding mechanism is provided to hold the type disks against rotation until the proper time for shifting the characters, and in which instance, they are instantaneously shifted by escapement mechanism, comprising for each set of type disk a pivoted pawl lever 163, in engagement with a toothed escapement wheel 164. The levers 143, engaging with an actuating plate 165, (see Fig. 14), are provided with pins 166, adapted to travel on

the periphery of a cam 167, fixed to one of the shafts 153, for actuating the said escapement levers 143, to release the escapement wheel 164, of each set of type disks, for quickly shifting the same, such quick shifting being accomplished by the recoil of the spring, released upon the release of an escapement wheel, and rewound during the position of rest of the type disk, through gearing in train with the transverse shaft 156.

Mode of operation: The vendee steps on the platform 3, deposits a coin in the coin-chute, and if he is of the required weight, or above, the cylinder 14 will move and engage the cylinder 15, compressing springs 19, 26, and continue in its movement until a counterbalance is struck between the weight of the vendee and the tension of the spring 26. A slight movement of sleeve 15 will actuate the coin releasing and weight indicating mechanism, permitting the coin to descend in the chute and strike trip lever 109, releasing lever 108, which in turn releases the main actuating shaft 47, rotated one-half revolution through the actuation of the rod 21, moved upward through the released tension of spring 24. Such half rotation of the main actuating shaft, will, in proper time movements, through the peculiar shaped cam, actuate the mechanism controlling the printing platen 65, for printing the proper matter upon the coupon and its stub, feeding a coupon forward and actuating the arresting mechanism, comprising the pin bar, placing the coupon and stub in position to be gripped by the hand operated discharging mechanism, after which the parts are in condition for a second operation. A suitable inking ribbon or ribbons 167 are automatically fed beneath the type disks and dial fingers, illustrated in Fig. 15. By depositing a series of coins, one after another, performing a series of successive vending operations, without manipulating the hand lever 125, a series of connected coupons may be discharged from the machine for issuing insurance in excess of the amount of a single coupon, manipulating the hand lever for the last operation.

Various features, illustrated in this application, as for instance, the time controlled printing mechanism, not claimed herein, will be made the subject-matter of separate applications.

Having described my invention, I claim:—

1. In a machine of the class described, a weighing mechanism, a vending mechanism, power mechanism connected between said weighing and vending mechanism, with means for storing up energy in said power mechanism in normal position and released for operating the vending mechanism upon applying a predetermined weight upon said weighing mechanism.

2. In a machine of the class described, weighing mechanism, vending mechanism, power mechanism in operative connection between said weighing and vending mechanism, means for storing power in said power mechanism, in one direction of movement of said weighing mechanism, and means for releasing said power in the opposite movement of said weighing mechanism.

3. In a machine of the class described, power mechanism, means for storing energy in one direction of movement of said power mechanism, and means for releasing said energy after a predetermined idle movement in an opposite direction of said power mechanism effective by the application thereto of a predetermined weight above a minimum.

4. In a machine of the class described, vending mechanism and power mechanism therefor, adapted to store the energy generated by the application of a predetermined weight for utilization in actuating the vending mechanism, and means compensative of said stored energy for releasing said stored energy.

5. In a machine of the class described, a ticket vending mechanism, a power mechanism controlled by the weight of the vendee for operating the vending mechanism, means for automatically locking the vending mechanism against operation, and means under the control of the vendee for releasing the vending mechanism.

6. In a machine of the class described, a ticket vending mechanism, a power mechanism controlled by the weight of the vendee for operating the vending mechanism, means for locking the power mechanism against operation, means under the control of the vendee for releasing the vending mechanism, and means requiring a predetermined pressure to be overcome by the vendee before the machine element will function.

7. In a machine of the class described, a ticket vending mechanism, a power mechanism controlled by the weight of the vendee for operating the vending mechanism, and means requiring a given weight to be overcome by the weight of the vendee before the machine elements will function.

8. In a machine of the class described, vending mechanism, actuating mechanism therefor, power mechanism for energizing the actuating mechanism, means whereby the application of a weight in excess of a minimum will operate said storage mechanism, and mechanism to uniformly operate said storage mechanism irrespective of the variations in the excess of applied weight.

9. In a machine of the class described, vending mechanism, power storage mechanism for operating the vending mechanism, means functioning said storage mechanism

on the application of a weight in excess of a minimum, and compensating mechanism for uniformly operating the storage mechanism.

10. In a machine of the class described, 5
vending mechanism, weighing mechanism and power mechanism interposed between said vending and weighing mechanism, with means for storing energy to said power mechanism upon application of a weight 10
above a minimum to said weighing mechanism, and means for limiting the storage commensurate for a vending operation.

11. In a machine of the class described, vending mechanism, weighing mechanism, 15
means interposed between said vending and weighing mechanism for storing energy commensurate for a vending operation upon the application of a weight above a minimum to said weighing mechanism, and 20
means in connection therewith counter-balancing said applied weight, for weight indication.

12. In a machine of the class described, vending mechanism, power storage mechanism for operating the same, weighing mechanism, means enabling a partial movement of the weighing mechanism to energize the storage mechanism, and means enabling a given unit of the energy generated by the 30
operation of the weighing mechanism to be uniformly expended in operating the storage mechanism irrespective of variations in the applied weight.

13. In a machine of the class described, 35
vending mechanism, power storage spring controlled mechanism adapted to operate said vending mechanism in recoiling, weighing mechanism, and means enabling a constant unit of the energy generated by the 40
operation of the weighing mechanism to energize the storage mechanism irrespective of variations in the applied weight.

14. In a machine of the class described, vending mechanism, power storage mechanism for actuating the vending mechanism, weighing mechanism functional only when a weight above a minimum is applied, and means whereby the operation of the weighing mechanism automatically operates the 50
power storage mechanism irrespective of the variations of applied weight in excess of said minimum.

15. In a machine of the class described, vending mechanism, weighing mechanism, 55
power mechanism interposed between said vending and weighing mechanisms, operative for energy storage by the application of a weight upon said weighing mechanism, means for relieving said power mechanism of energy storage above a maximum by excess 60
weight applied, and means for releasing said power storage after such relief.

16. In a machine of the class described, vending mechanism, weighing mechanism, 65
and means interposed between the same for

creating a power of constant maximum for operating said vending mechanism upon release thereof and counter-balancing said weighing mechanism upon the application of a weight to said weighing mechanism beyond the minimum required for energy storage. 70

17. In a machine of the class described, vending mechanism, weighing mechanism, 75
combined power and weight counter-balancing means interposed between said vending and weighing mechanisms whereby in the initial operation of the weighing mechanism energy storage of maximum power is effective to operate said vending mechanism upon release and irrespective of a counter-balancing weighing movement. 80

18. In a machine of the class described, vending mechanism, weighing mechanism, 85
relatively movable independent connections interposed between said vending and weighing mechanisms, power storage means for operating the vending mechanism under the control and actuated by said intermediate connections for storing energy by an applied 90
weight to said weighing mechanism, and means for counter-balancing and relieving said power mechanism upon the application of excess weight above a minimum required for the storage of energy, whereby the intermediate connections move independently 95
upon release, the one to transmit power to the vending mechanism, the second to counter-balance the weighing mechanism, thereby providing a constant maximum 100
power for each vending operation.

19. In a machine of the class described, vending mechanism, power storage mechanism comprising a relatively light spring for operating the vending mechanism, weighing 105
mechanism comprising a relatively heavy spring for determining weights, and means enabling a movement of the heavy spring to effect a light spring movement for energizing said storage mechanism. 110

20. In a machine of the class described, vending mechanism, power mechanism for operating the same, and weighing mechanism, said power mechanism comprising a series of members movable upon each other, 115
simultaneously in one direction, and independently in an opposite direction, tension means for each of said members controlled by the application of a weight applied to said weighing mechanism, whereby energy 120
is stored, which, upon release will operate the vending mechanism, and defining the amount of weight necessary to be applied to effect an energy storage and vending operation. 125

21. In a machine of the class described, power mechanism, for operating mechanism subsidiary thereto, said power mechanism comprising a stationary frame, a movable member supported therein, tension means in- 130

terposed between said stationary member and movable member, for creating a storage of energy for operating said movable member upon its release, a second movable member engaged with said first movable member in one direction, and free therefrom in a reverse movement, said second member being adapted to receive a weight to compress the tension means for said first member, second tension means engaging said second movable member, for effecting a counterbalance between said members prior to the release of the first member compensative of the weight employed for storage energy, and counterbalancing means for excess weight applied to said second member.

22. In a machine of the class described, vending mechanism, weighing mechanism, and power mechanism interposed between said vending and weighing mechanisms, comprising a series of members independently movable in the same plane, a series of tension means interposed between said members to create a storage of energy to the power mechanism for operating the vending mechanism, and to provide a constant maximum of power by an applied weight to said weighing mechanism.

23. In a device of the class described, vending mechanism, a spring mechanism for operating said vending mechanism when released from compressed condition, a weighing mechanism having counterbalancing mechanism operative upon the application of a weight in excess of the force required to energize said spring mechanism, and connec-

tions between said counterbalancing mechanism and said spring mechanism for energizing the latter, and permitting the independent operation of the vending mechanism on the recoil of said spring mechanism.

24. In a machine of the class described, vending mechanism, weighing mechanism, connections between the same simultaneously movable in one direction and independently in an opposite direction, a coil spring for storing energy to one of said members with the storage thereof created by a weight applied to said weighing mechanism, a second coil spring compensative of the applied weight of the minimum required for energy storage, and means for releasing said energy storage upon application of weight upon said weighing mechanism in excess of the minimum.

25. In a machine of the class described, vending mechanism, power mechanism therefor, comprising two members slidably movable upon each other, a spring for exerting tension to one of said members compressed by the application of a weight to the second member, and tension means controlling said second member, compressible by a weight applied thereto and governing the amount of weight to be applied to effect a release of energy storage to said first member.

In testimony whereof, I have hereunto set my hand.

EDMUND S. CHURCH.

Witnesses:

OLIVER B. KAISER,
EMMA SPENER.