

No. 669,433.

Patented Mar. 5, 1901.

C. A. YALE.

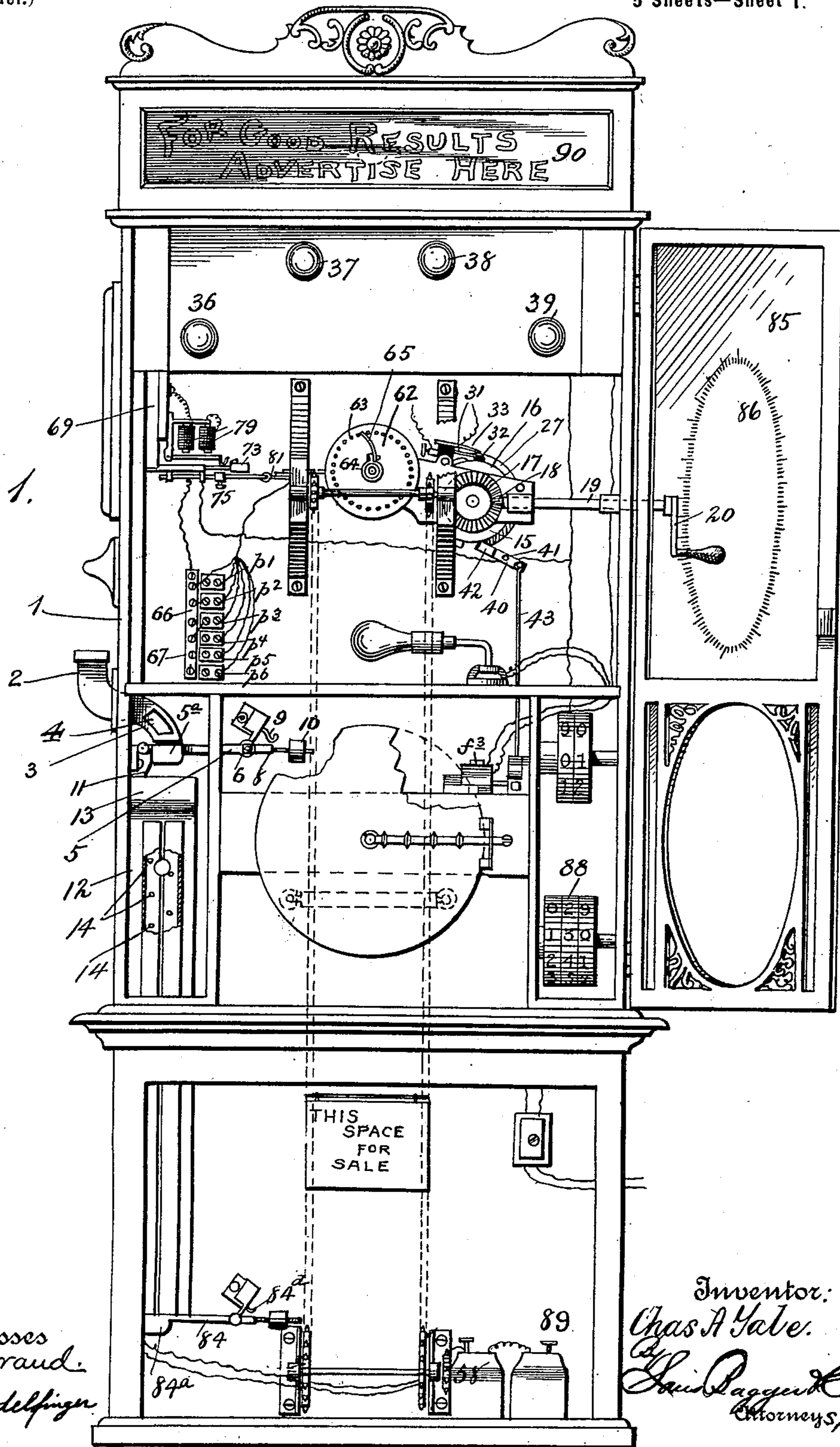
ADVERTISING AND VENDING APPARATUS.

(Application filed Apr. 9, 1900.)

(No Model.)

5 Sheets—Sheet 1.

Fig. 1.



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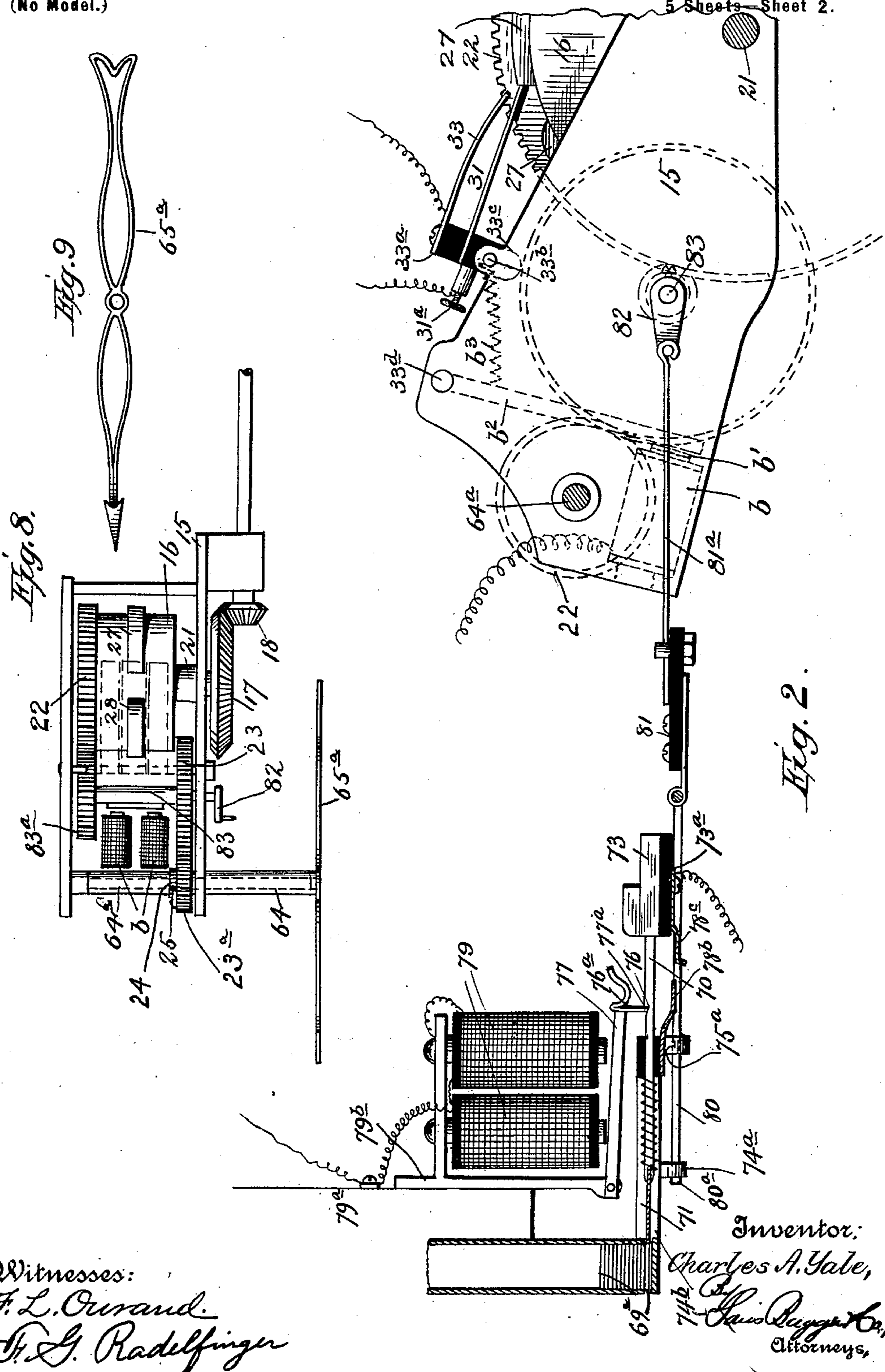
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Fig. 3.

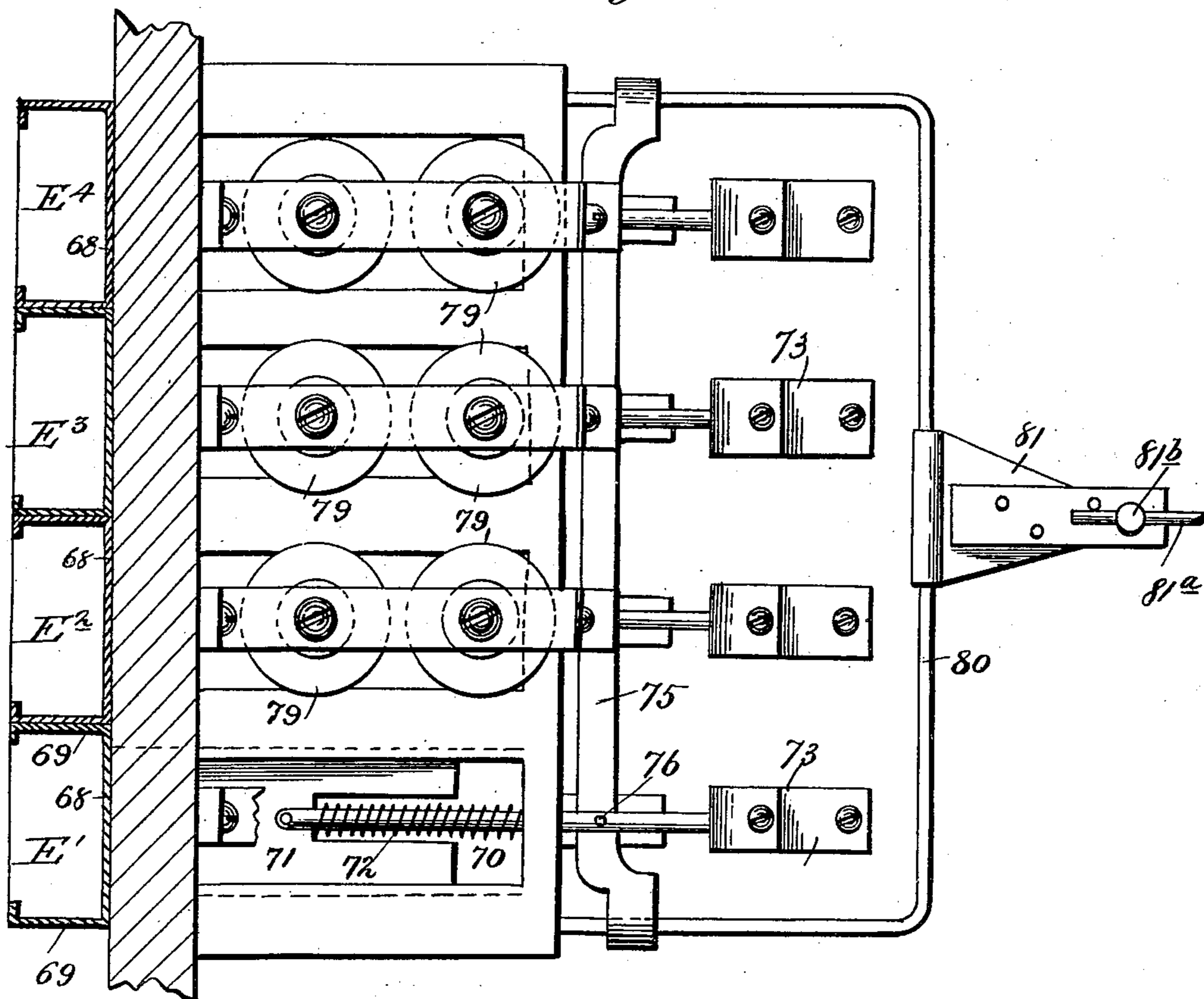
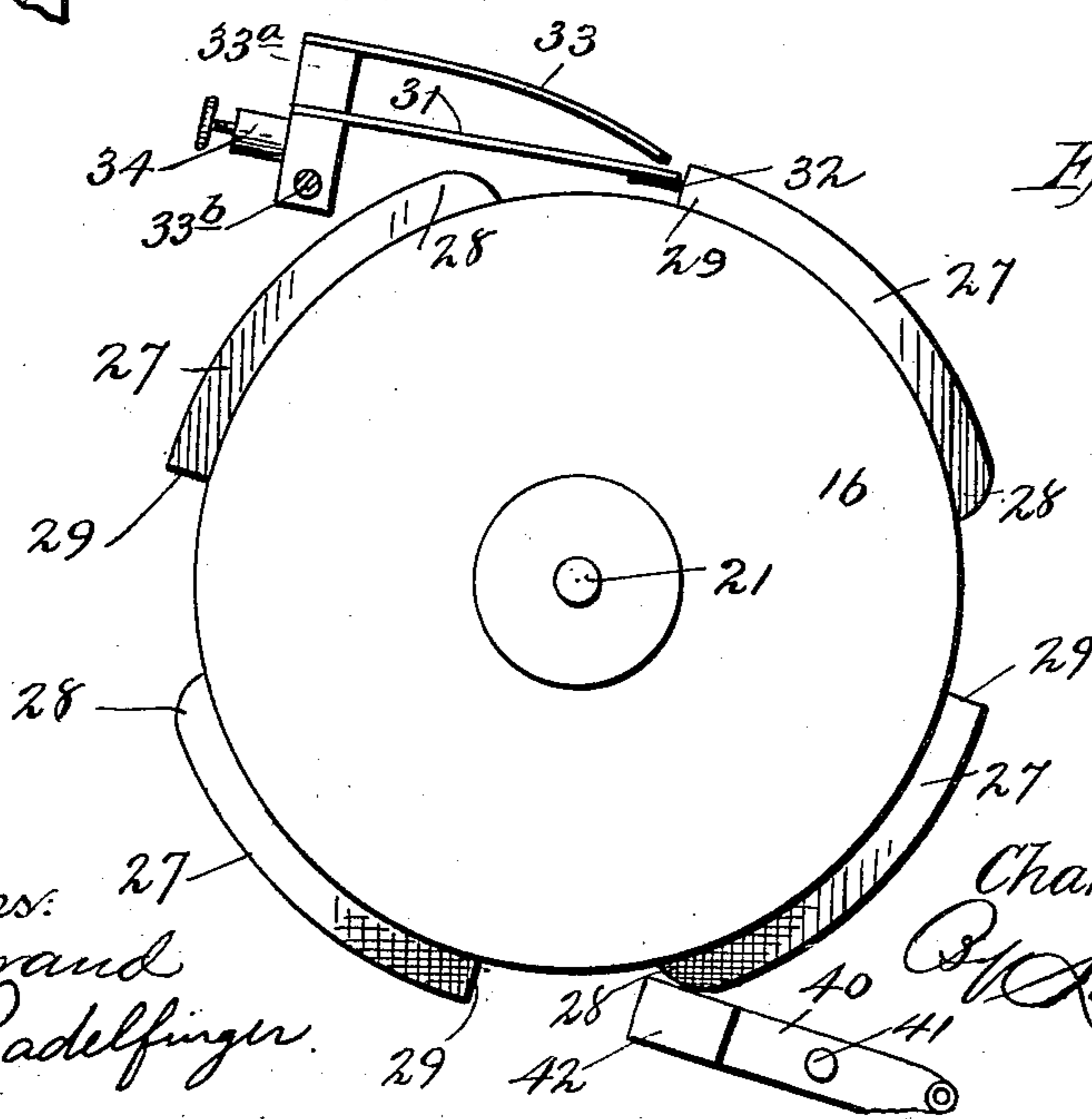


Fig. 5.



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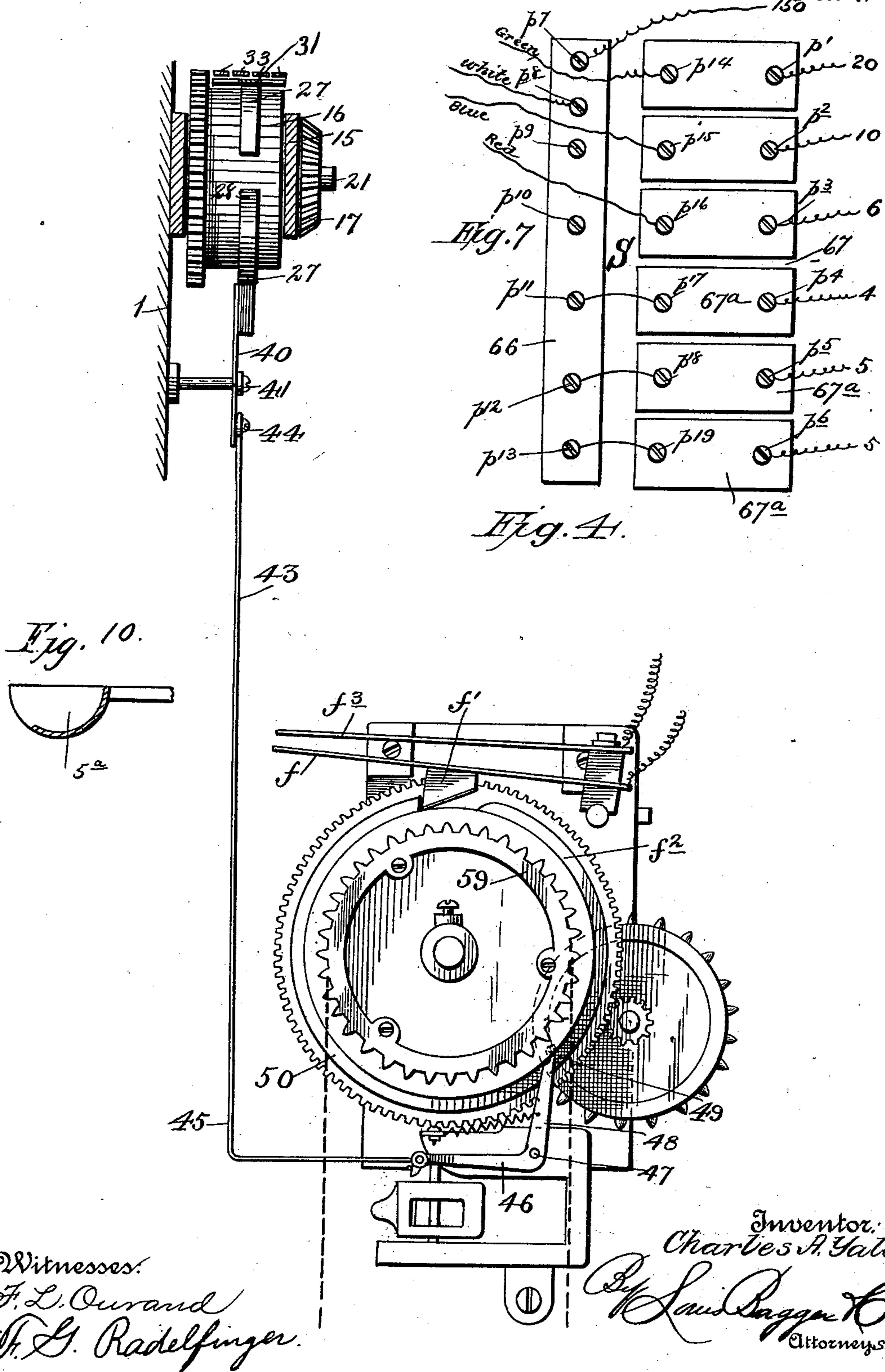
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ADVERTISING AND VENDING APPARATUS.

(Application filed Apr. 9, 1900.)

(No Model.)

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No. 669,433.

Patented Mar. 5, 1901.

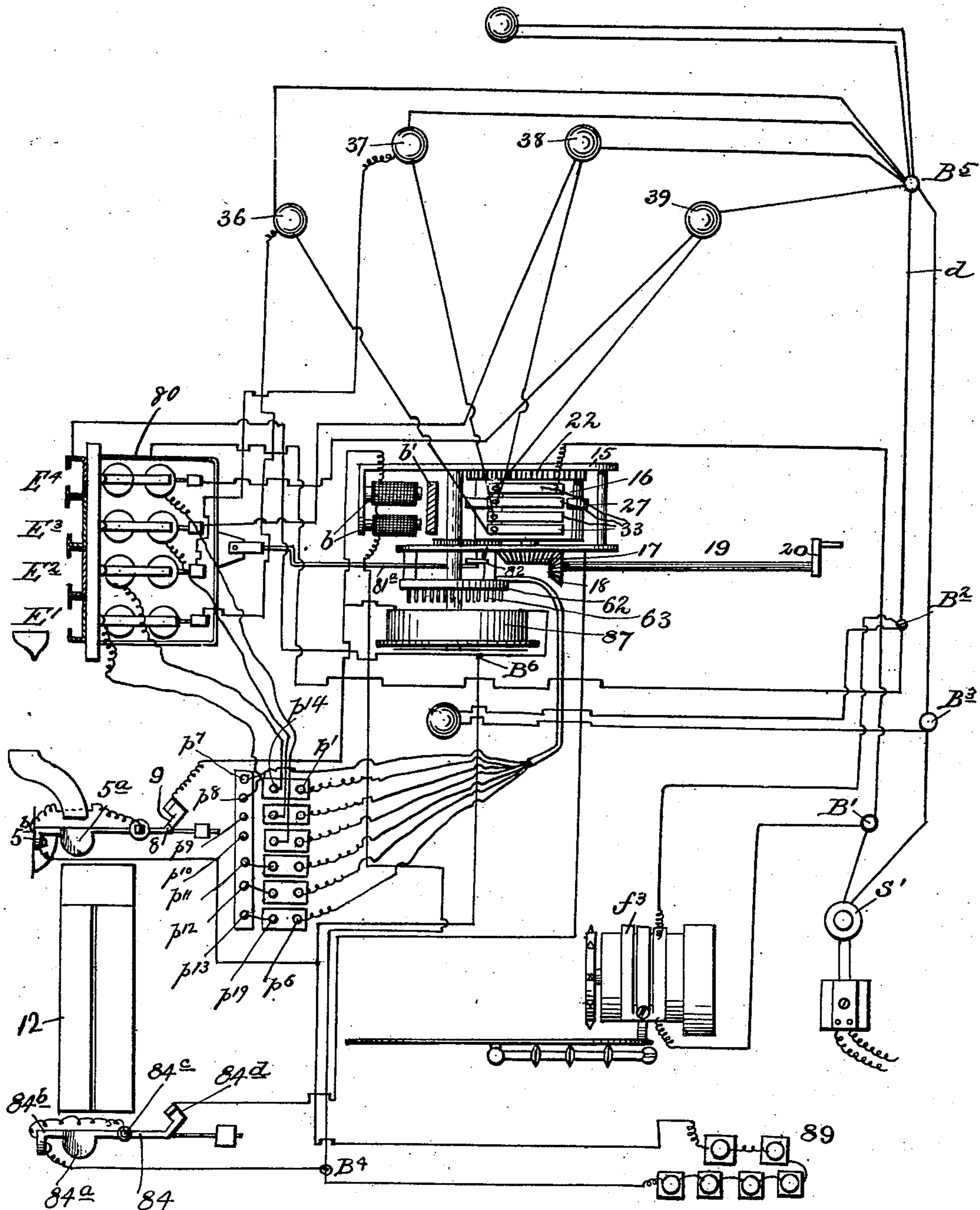
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ADVERTISING AND VENDING APPARATUS.

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(No Model.)

5 Sheets—Sheet 5.



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Fig. 6.

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# UNITED STATES PATENT OFFICE.

CHARLES A. YALE, OF BURLINGTON, VERMONT, ASSIGNOR TO THE YALE  
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## ADVERTISING AND VENDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 669,433, dated March 5, 1901.

Application filed April 9, 1900; Serial No. 12,175. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES A. YALE, a citizen of the United States, residing at Burlington, in the county of Chittenden and State of Vermont, have invented new and useful Improvements in Chance Mechanism for Advertising and Vending Apparatus, of which the following is a specification.

My invention relates to chance devices; and the object of the same is to produce a machine of this character which is operated by depositing a coin in a slot and which is particularly adapted to be placed in retail shops for vending and advertising purposes. With this object in view my machine is constructed to flash electric lights of different colors, play music, and rotate an indicator-hand and eject a ticket, which drops into a tray on the side of the cabinet containing the mechanism.

The invention consists of the novel construction and combination of parts hereinafter fully described and claimed.

In the accompanying drawings, which form a part of this specification, Figure 1 is a front elevation of the cabinet which contains the mechanism, the front part or door of said cabinet being thrown open to better illustrate said mechanism. Fig. 2 is a side view of a portion of the spring-motor and ticket-ejector or vending mechanism. Fig. 3 is a plan view of the ticket-ejector or vending mechanism with parts broken away. Fig. 4 is an end view of the spring-barrel of the music mechanism and showing a cam which operates a circuit maker and breaker. Fig. 5 is an end view of the cylinder or drum of the spring-motor and showing a series of cams thereon for controlling the flash maker and breaker for the flash-lights. Fig. 6 is a diagrammatic view of electric connections for operating the various mechanisms. Fig. 7 is a plan view of the switchboard. Fig. 8 is a plan view of the spring-motor. Fig. 9 is a plan view of the indicator-hand. Fig. 10 is a detail section of the upper coin-receptacle.

Like characters of reference designate like parts wherever they occur in the different views of the drawings.

The numeral 1 designates a cabinet within which the mechanism is mounted. This cabinet may be of any suitable shape or structural

design. The coin-receiver 2 is secured at the side of the cabinet and communicates with the coin-tube 3 inside said cabinet, said coin-tube having an opening 4 in its side sufficiently large to discharge a coin of smaller size than the one intended to operate the mechanism. The tube 3 is inclined to compel the coin to drop out by gravity through the opening 4 if not of the proper size. At the lower end of the tube 3 a coin-balance lever 5 is pivoted at 6, said lever having a coin-receptacle 5<sup>a</sup> on its outer end. As the coin drops into the receptacle 5<sup>a</sup> the weight of the coin depresses that end of the lever 5 and throws up the opposite end. Upon this end of the lever is a projecting pin 8, which comes in contact with the circuit-closer 9 and closes a battery-circuit, setting in motion the first section of the mechanism. The lever 5 is provided with an adjustable weight 10 for regulating the balance or poise of said lever. The coin-receptacle 5<sup>a</sup> has a slot in its under side and outer end, and a curved plate 11, located at the end of the receptacle, serves to hold the coin in said receptacle until the lever has dropped far enough at that end to make the contact of the pin 8 and plate 9 at the opposite end, when the coin then rolls out of the end of the receptacle, the plate 11 being bent away from said receptacle at the lowermost position of movement thereof. The coin is thus deposited into a chute 12, having a flaring mouth 13. In order that the coin may be retarded in its fall for a purpose to be hereinafter set forth, a series of pins 14 extend across the path of the coin and compel it to take a sinuous course in traversing the chute from top to bottom.

The spring-motor, Fig. 1, comprises the spring-drum 16, having upon one end a bevel-gear 17 in mesh with a beveled pinion 18 on the inner end of a shaft 19, the outer end of which shaft is provided with means for the application of a key 20 for winding the motor, the end of said shaft projecting through the side of the cabinet. On one end of the spring-drum shaft 21 is a gear-wheel 22, in mesh with a gear 23<sup>a</sup>, mounted on a shaft 23. A second gear 23 is keyed to the shaft 23 and meshes with a pinion 23<sup>a</sup>, loosely mounted on the sleeve 64 and provided with a pawl 25.

The pawl 25 engages a ratchet 25<sup>a</sup>, keyed to the sleeve 64. When the gear 23 is revolved by releasing the spring-motor, it will actuate the gear 23<sup>a</sup>, thus turning the sleeve 64, and the pawl 25 will engage the teeth on the ratchet 25<sup>a</sup>. When the gear 23 is brought to a stop, the sleeve will continue to spin, the pawl 25 riding freely over the teeth of the ratchet 25<sup>a</sup>. On the periphery of the drum 16 are four cam projections 27, located at equal distances apart, and these cam projections are each provided with a curved end 28 and an angular shoulder 29. Immediately above the drum is a spring-brush 31, Fig. 2, located underneath a spring-brush 33, there being four spring-brushes 33 and but one brush 31. These brushes are mounted on a support 33<sup>a</sup>, of dielectric material, which is pivoted at 33<sup>b</sup> to the motor-frame. A spring 33<sup>b</sup> is connected at one end to a stud 33<sup>c</sup> on the frame 33<sup>a</sup>, and its opposite end is attached to a lever 33<sup>d</sup>, pivoted at 33<sup>d</sup> to the motor-frame and carrying at its lower end an armature 33<sup>e</sup>. This armature is located in front of a pair of electromagnets 33<sup>f</sup>, supported upon the motor-frame. When these magnets are energized, the armature 33<sup>e</sup> is attracted, thus operating the lever 33<sup>d</sup>, which pulls upon the spring 33<sup>b</sup> and turns the frame 33<sup>a</sup> about its axis 33<sup>b</sup>, lifting the brush 31 and releasing the spring-drum 16 of the motor. The drum 16 then revolves on its axis 21, and as the circuit through the coils 33<sup>f</sup> is immediately broken when the coil leaves the receptacle 33<sup>a</sup> (see circuit C', hereinafter traced) the brushes 31 and 33 will be released and will come in contact with the cam 27. This action brings the brushes 31 and 33 in contact, thereby completing a circuit through them. (See circuit C<sup>2</sup>, hereinafter traced.) When the brushes have traversed the length of the cams 27, they engage a shoulder 29 and stop the motor. There are four differently-colored electric-light bulbs 36, 37, 38, and 39, Fig. 1, arranged on the arc of a circle near the top and inside the cabinet. These lights are wired up, so that either of two independent circuits may be completed through them. The first circuit C<sup>2</sup> is completed through the brushes 31 and 33. This circuit continues during one-fourth of a revolution of the drum 16 and flashes the lights simultaneously. The second circuit is completed by the ticket-ejecting mechanism. (See circuit C<sup>6</sup>.) The cams 27 also serve another purpose—viz., they release the spring music-motor, as will now be described. A lever 40, Fig. 4, is pivoted at 41 to the inner wall of the cabinet, and at one end lever 40 is insulated at 42 from the cam 27. A rod 43 is connected to the opposite end of the lever 40 at 44, and near the lower end of the rod 43 a bend 45 is formed therein. This rod is connected at its terminal end to an elbow-lever 46, pivoted at 47 to the framework of the music mechanism. The arm 48 of this lever is provided at its terminal end with a toe 49, which fits an aper-

ture in the music-barrel 50 of a Regina music-box, the construction of which need not be herein specifically described. In place of this music-box I may use a phonograph or other sound-reproducer, and the rod 43 is designed to release the drum or record-revolving mechanism to start the device into operation.

Located in the rear of shaft 53 is a disk 62, of non-conducting material, which has a series of pins 63 mounted thereon near its periphery and arranged in a circle. This disk is supported on brackets secured to the back of the motor-frame. Mounted on a shaft 64<sup>a</sup> is a sleeve 64, which has keyed thereto a spring-brush 65 and an indicator-hand 65<sup>a</sup>. When this sleeve 64 is set spinning about the shaft 64<sup>a</sup>, the brush 65 snaps over the pins and gradually brings the hand to a stop. The brush will then rest on one of the pins 63, and a circuit will be completed through that pin and the brush. On the upper glass door 85 of the cabinet a dial 86 is painted, with numbers arranged in a circle thereon corresponding to the pins. The indicator-hand is thus enabled to point out the number corresponding to the pin upon which the brush has stopped. In this manner the pins corresponding to the different-colored lights can be ascertained, as the same number would always correspond to the same light for any given arrangement of the switchboard, as will appear in the tracing of the circuits. Consequently any derangement of the machine may be readily discovered and corrected, for if the lights failed to light the defective pin or circuit would be designated on the face of the dial by the indicator-hand. These pins 63 are divided up into groups—say seven groups—and the members of each group are connected in series by wires looped around them, the groups being then connected in parallel to a switchboard S, Fig. 7. In the present arrangement of my apparatus the number of pins in each group are one hundred and fifty, twenty, ten, six, four, five, five.

The switchboard S consists of two sections 66 and 67. The section 67 is composed of six horizontal plates 67<sup>a</sup>, insulated from each other, and each plate is provided with two points of attachment for wires. Each pair of points are supplied with metallic connections; but they are insulated from all the other points of the switchboard. These points are designated by the reference characters  $p'$  to  $p^6$ , inclusive, and  $p^{14}$  to  $p^{19}$ , inclusive. The section 66 is provided with seven points of attachment for wires, (designated by the characters of reference  $p^7$  to  $p^{13}$ , inclusive,) which are all in metallic connection with each other. The wire corresponding to the largest group—that is, group 150—is connected up to one of the points on section 66—to  $p^7$ , as shown. The other groups are connected up to the points  $p'$  to  $p^6$ , inclusive, on section 67 of the switchboard. One of the remaining points on section 66—say  $p^8$ —is connected up to compartment E' of the ticket-ejector, to be hereinafter

ter described. Three of the remaining points on section 67, as  $p^{14}$ ,  $p^{15}$ , and  $p^{16}$ , are connected to the other three compartments of said ticket-ejector. The remaining points on section 67, as illustrated,  $p^{17}$ ,  $p^{18}$ , and  $p^{19}$ , are connected in parallel to three of the remaining points on section 66, as shown,  $p^{11}$ ,  $p^{12}$ , and  $p^{13}$ . It will be obvious that these latter cross connections may be varied indefinitely and the percentage of the machine thereby adjusted.

The mechanism for ejecting goods or a ticket entitling the holder to the value of the coin deposited will now be described. Within the cabinet, at one side, there are four compartments  $E^1$ ,  $E^2$ ,  $E^3$ , and  $E^4$  for containing goods or tickets. As shown, these compartments are arranged and constructed to contain tickets; but with slight modification they could be adapted to hold goods put up in suitable packages, and these packages could be ejected in substantially the same manner as the tickets. These compartments consist of sheet-metal boxes arranged vertically, the upper end of each being open, as shown in plan view, Fig. 3. The flanges 69 extend a sufficient distance to confine the column of tickets in the compartments; but the lowermost ticket may always be pushed out owing to the fact that the flanges 69 are removed at the bottom of the compartments to an extent just sufficient to permit a ticket to pass out. The tickets lie loosely in the compartments, and as one is ejected those above it fall, thus always leaving the bottom ticket in position to be ejected. Each compartment contains tickets of a different color, corresponding to the colors of the electric-light bulbs 36, 37, 38, and 39, so that when by chance a white ticket is ejected a white light is produced. In like manner when by chance a blue or a green ticket is ejected a light of the same color is produced. It will be understood that these tickets are of different value—that is to say, they entitle the holders to variable quantities of goods, depending upon the color of the ticket.

For each ticket-compartment there is a separate ticket-ejector, and as they are substantially identical in construction but one need be described.

Referring to Figs. 2 and 3, a wire yoke 80 is mounted to slide in guides  $74^a$ , permanently attached to the frame  $74^b$ . The ends  $80^a$  of the yoke-rod are upset to keep them from pulling out from the guides. A metal clip 81 is secured centrally to the yoke 80 and is provided with a rod  $81^a$ , adjustable in the guide  $81^b$ . This rod extends backward and is pivotally attached to a crank 82, keyed to a shaft 83. There is also keyed to the shaft 83 a gear-wheel  $83^a$ , which meshes with the wheel 22. The gears 22 and  $83^a$  are so proportioned that one revolution of the gear-wheel  $83^a$  is completed during one-fourth revolution of the gear-wheel 22. Keyed to the longitudinal members of the yoke 80 is a bar

75, which is provided with four transverse perforations  $75^a$ , which correspond to the four compartments of the ticket-ejector. Secured to the bar 75 immediately beneath each of the perforations is a metal tongue  $78^b$ , which serves the double purpose of a circuit-maker and a pusher. Mounted to slide back and forth in the perforations  $75^a$  is the ticket-ejector. This ticket-ejector consists of a rod 70, having attached at one end a bifurcated plate 71, a spiral spring 72, surrounding said rod, and a buffer 73, attached to the opposite end of the rod 70. The spring 72 bears at one end against the plate 71 and is secured thereto and at its other end against the bar 75. A tongue  $78^c$  is attached to the bottom of the buffer 73, said tongue having a downwardly-turned point and a point of attachment  $73^a$  for an electric wire. This point is insulated from the point on rod 70. This rod 70 has a notch 76, adapted to be engaged by a toe  $76^a$ . Secured to the frame  $79^a$  is a bracket  $79^b$ , which supports a pair of electromagnets 79. Pivoted to the lower end of the bracket is an armature 77 for said magnets, which is provided at its outer end with an upwardly-curved tongue designed to enable the armature 77 to be lifted out of the way by the buffer 73 and the toe  $76^a$  for engaging the notch 76, as previously referred to. The operation of this mechanism in ejecting a ticket is as follows: We will suppose the mechanism to be in the position it occupies when a coin is being deposited in the coin-tube 2. The pusher will be in the released position, and the plate 71 will protrude into the ticket-compartment through the opening  $69^a$ , and the crank 82 in the position shown in Fig. 2. When the circuit is completed through the magnets  $b$ , the drum 16 will be released and revolved one-fourth of a revolution. This rotation of the drum 16 will compel the gear  $83^a$  to make a complete revolution and pull back the yoke 80, causing the tongue  $78^b$  to contact with the tongue  $78^c$  and the buffer 73 and retract the pusher against the stress of the spring 72. When the crank 82 has completed one-half a revolution, the toe  $76^a$  will engage the notch 76, thus retaining the pusher. The completion of the revolution of the crank 82 will restore the yoke 80 to its initial position. When the coin has reached the lower receptacle  $84^a$ , a circuit  $C^5$ , to be hereinafter described, will be established through the coils 79, the armature 77 attracted, the pusher released, a ticket ejected, and a circuit completed through tongues  $78^b$  and  $78^c$ , which circuit will persist until the music-barrel stops. (See circuit  $C^6$ .)

A lower coin-balance lever 84 is pivoted in the bottom of the cabinet and has a coin-receptacle  $84^a$  located immediately below the coin-chute 12. In construction and operation the lever 84 is identical with lever 5, previously described. It is designed to complete a circuit (see circuit  $C^5$ ) by coming in contact with circuit maker and breaker  $84^d$ , which sets in operation the ticket-ejecting mechanism pre-

viously described. During the time the coin is retarded in the chute 12 by the pins 14 the pointer is revolving, and before the coin drops into the coin-receptacle of the lever 84 the pointer has stopped and its finger points to one of the numbers on the dial-plate.

In the lower compartment of the cabinet the batteries 89 are placed.

It will be understood that the motor 15 and the barrel 50 of the music-box are to be wound up by a crank or key and that these mechanisms are merely released by the electrical connections about to be described.

The various circuits designated by the characters C' to C<sup>7</sup>, inclusive, now to be traced are: circuit C' for setting in operation the spring-motor 15, circuit C<sup>2</sup> for simultaneously flashing the four colored lights, circuit C<sup>3</sup> for operating the ticket-ejector, circuits C<sup>4</sup> for lighting one of the bulbs 36, 37, 38, or 39. Circuit C' starts from batteries 89 and proceeds through binding-post B<sup>4</sup> to magnets b, thence through wire to circuit-closer 9, thence through pin 8 on lever 5, thence through pivot 6 of lever 5, thence through the bracket 5<sup>b</sup>, thence through wire to said batteries 89. This circuit exists during the interval the coin remains in the coin-receptacle 5<sup>a</sup>. The function of this circuit is to energize the coils b, which attract the armature b', attached to lever-arm b<sup>2</sup>, and thus cause said lever-arm to pull upon spring b<sup>3</sup>, thus raising the spring plate or stop 31, which releases the drum 16 and starts the motor 15 and simultaneously completes the circuit C<sup>2</sup> through brushes 31 and 33. The circuit C<sup>2</sup> starts from a permanent source of electricity, such as electric-light wires connected to switch S', and proceeds through the wire connected to one of the brushes 33. These brushes are connected in series, and the circuit then proceeds through lower brush 31, normally out of contact, thence through binding-post 31<sup>a</sup>. These posts being connected in series, the current will divide into four parts, the lights being connected in parallel, and proceed through the lights 36, 37, 38, and 39, lighting them, thence through the four wires to binding-post B<sup>5</sup>, thence uniting through wire back to switch S'. This circuit exists only during the interval after the brush 31 has been raised and is traveling over the rim of the drum 16—that is, during one-fourth of a revolution of said drum. Circuit C<sup>3</sup> starts from batteries 89 and proceeds through wire and binding-post B<sup>4</sup> to the bracket 84<sup>b</sup>, thence through bracket and pintle 84<sup>c</sup> to lever 84, thence through circuit-maker 84<sup>d</sup>, thence through wire to motor-frame 15, thence through frame 15 to shaft 64<sup>a</sup>, through sleeve 64, through brush 65, through the one of the pins 63 on the non-conducting disk 62 on which the brush 65 has stopped. The course of the circuit from this point on will depend on the pin on which the brush 65 has stopped, or, more explicitly, it will depend on the group in which the pin is included on which the brush has stopped.

The different cases which may arise are closely analogous, and but one will be described in detail. For the method of connection on the switchboard see description of the switchboard. We will suppose that the pin selected is included in the white group. The circuit will therefore proceed from one of the pins 63 to point p<sup>7</sup>, thence through switchboard 66 to point p<sup>8</sup>, thence through wire to magnet-coils 79 on the ticket-ejector E', thence through the magnet-coils 79, energizing them and causing them to simultaneously operate the ticket-ejector, which pushes out a white ticket and closes the circuit C<sup>6</sup>, to be hereinafter described. The circuit C<sup>5</sup> then proceeds through the wire, connecting the frame 68 of the ticket-box, Fig. 2, and thence through wire to batteries 89. This circuit C<sup>5</sup> exists during the interval the coin remains in receptacle 84<sup>a</sup>. Circuit C<sup>6</sup> is but one of four, and as they are analogous only one need be described in detail. It starts from switch S' and proceeds through binding-post B', thence through music-barrel through binding-post B<sup>2</sup>, thence through wire to circuit-maker 78<sup>c</sup>, Fig. 2, thence through circuit-maker 78<sup>b</sup>, thence through wire to light to one of the four lights 36, 37, 38, and 39, lighting said light, thence through wire to binding-post B<sup>5</sup>, and finally through binding-post B<sup>3</sup> to switch S'. This circuit exists during the time the music is playing after the ticket has been ejected.

The operation of my invention is as follows: When a coin is deposited in the receiver 2, it drops by gravity into the coin-receptacle 5<sup>a</sup>, and by tipping the upper coin-balance 5 the circuit-closer 9 closes the circuit which leads to the spring-motor. The movement of this motor sets into operation the indicator-hand, the music-barrel, and flashes the colored lights. When the coin drops into the lower coin-receptacle, a connection is made with the ticket-ejector in the manner fully described. When the music-barrel has made one complete revolution, the cam projection f' drops into the notch in the music-barrel and the entire mechanism is stopped.

I am aware that many changes in the details of construction may be made without departing from the spirit and scope of my invention. I do not therefore wish to be restricted to the exact construction shown.

Having thus fully described my invention, what I claim is—

1. In a chance device, the combination, substantially as described, of a motor, a series of conducting-pins arranged in a circle and insulated from one another, a brush mounted to be spun and positioned to contact with said pins when spinning, circuits each including said brush and one or more of said pins, means operated by said motor for spinning said brush, and means for stopping and starting said motor.

2. In a chance device, the combination, substantially as described, of a series of conducting-pins arranged in a circle and insulated

from one another; a brush mounted to be spun and positioned to contact with said pins when spinning, means for spinning said brush, ticket-ejectors, circuits each including said brush, one or more of said pins and one of said ticket-ejectors.

3. In a chance device, the combination, substantially as described, of a series of conducting-pins arranged in a circle and insulated from one another, a brush mounted to be spun and positioned to contact with said pins when spinning, means for spinning said brush and circuits each including said brush and one or more of said pins.

4. In an apparatus of the character described, the combination of a motor, means for stopping and starting said motor, a disk provided with a series of contact-pins near its periphery, a sleeve journaled centrally said disk, a spring-brush and an indicator-hand secured to the sleeve, and a series of electric lights in circuit with said pins and brush.

5. In a chance device, the combination, substantially as described, of a motor, means for stopping and starting said motor, of a series of pins arranged in a circle, a brush and hand mounted on a sleeve which is constructed to be spun on a shaft, said brush being positioned to contact with said pins, a numbered dial arranged to operate in combination with said hand and having a series of numbers thereon corresponding to said pins, and means for spinning said sleeve.

6. In a chance device, the combination, sub-

stantially as described, of a series of conducting-pins arranged in a circle and insulated from one another, a brush mounted to be spun and positioned to contact with said pins when spinning, means for spinning said brush, ticket-ejectors, a switchboard, and circuits each including one or more of said pins, said brush, one of said ticket-ejectors, and said switchboard.

7. In a chance device, the combination, substantially as described, of a motor, means for stopping and starting said motor, a series of conducting-pins arranged in a circle and insulated from one another, a brush mounted to be spun and positioned to contact with said pins when spinning, means operated by said motor to spin said brush, ticket-ejectors provided with circuit makers and breakers operated thereby, circuits each including said brush, one or more of said pins, and one of said ticket-ejectors, a series of electric lights and circuits each including one or more of said electric lights and the contact-tongues of one of said circuit makers and breakers, said circuits each being made and broken by the said circuit maker and breaker included therein.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

CHARLES A. YALE.

Witnesses:

BENNETT S. JONES,  
E. P. BUNYEA.