

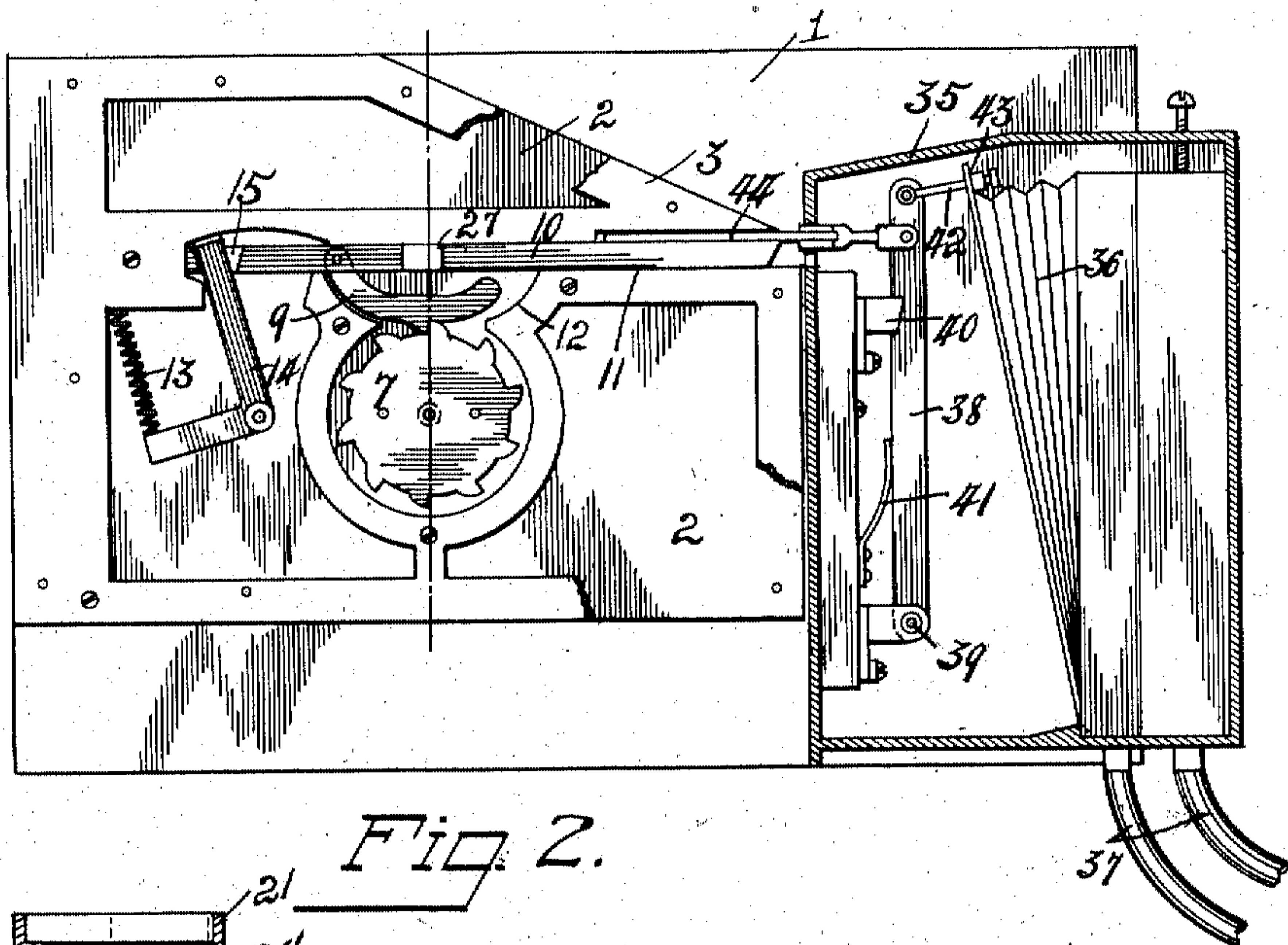
P. J. DREHER.  
 COIN CONTROL ATTACHMENT FOR AUTOMATIC PLAYERS OR THE LIKE.  
 APPLICATION FILED DEC. 9, 1910.

984,199.

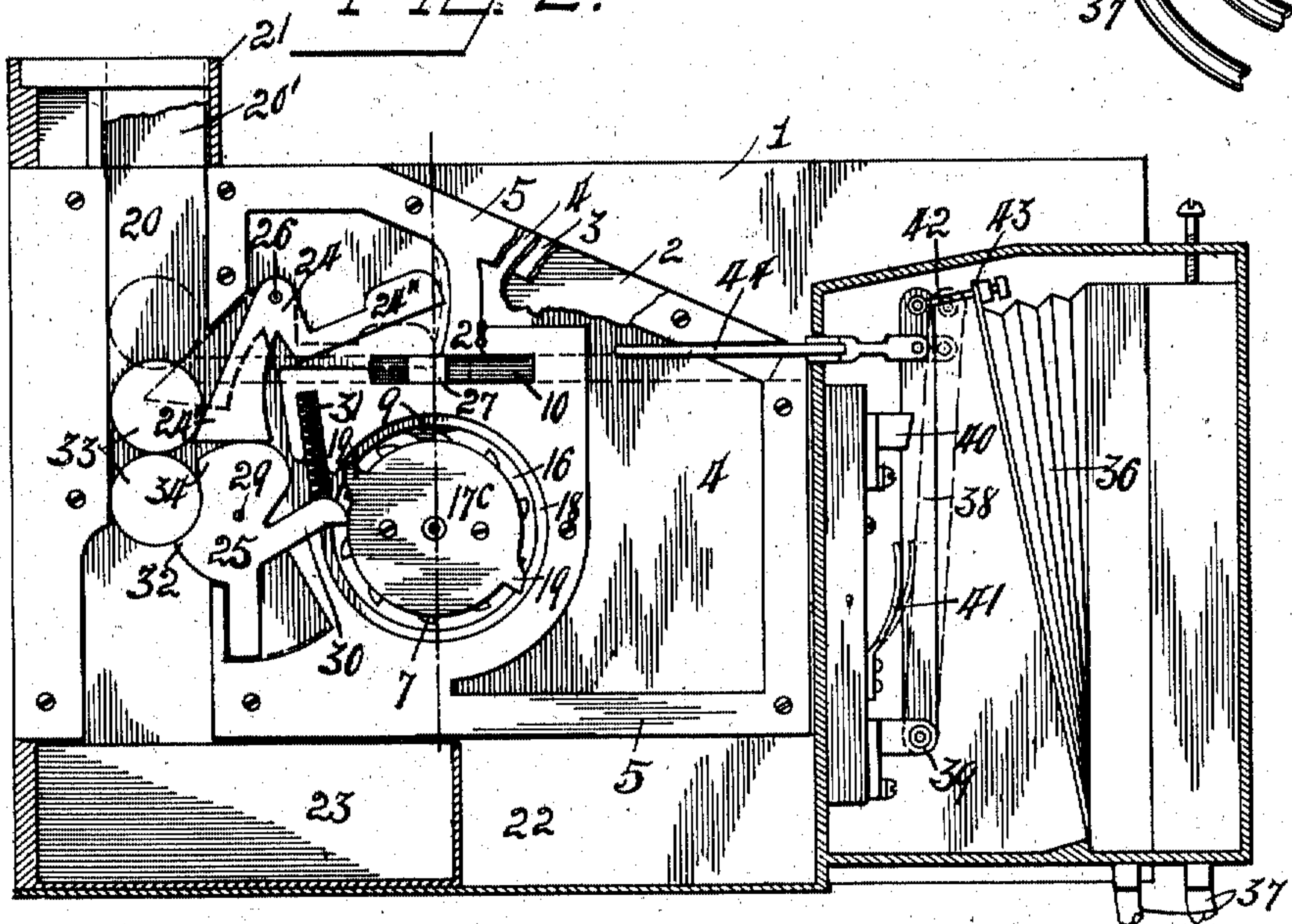
Patented Feb. 14, 1911.

2 SHEETS—SHEET 1.

*Fig. 1.*



*Fig. 2.*



WITNESSES

G. H. Bills,  
 M. S. Siskell,

INVENTOR.

Phillip Jacob Dreher,  
 By Bern & Owen,  
 His attys.

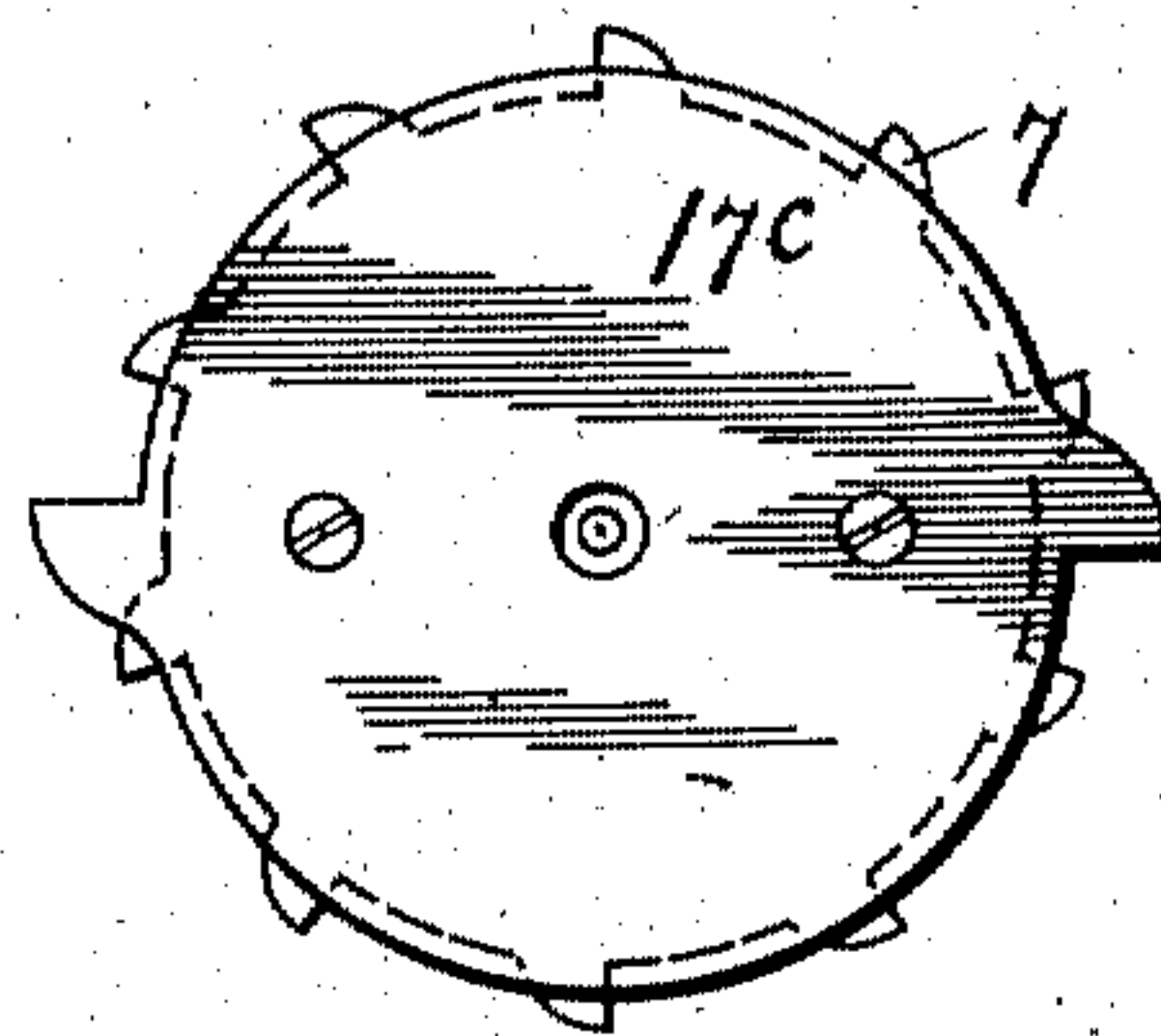
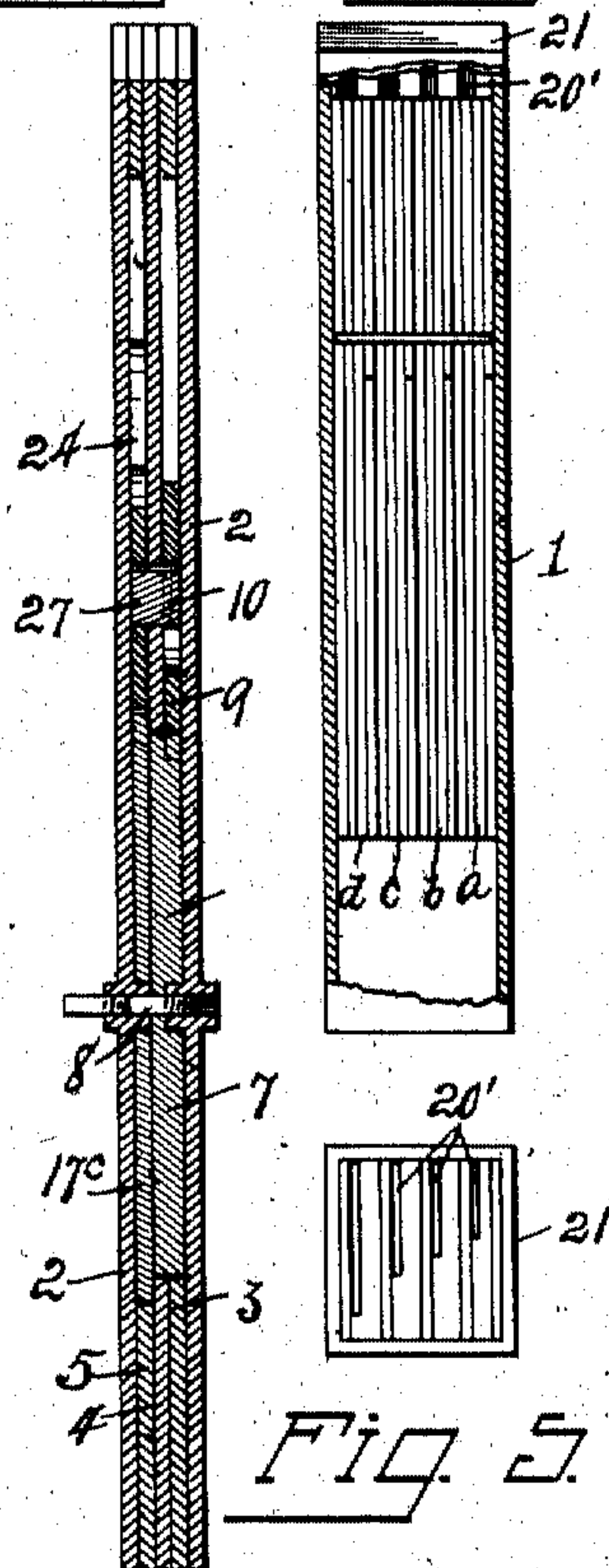
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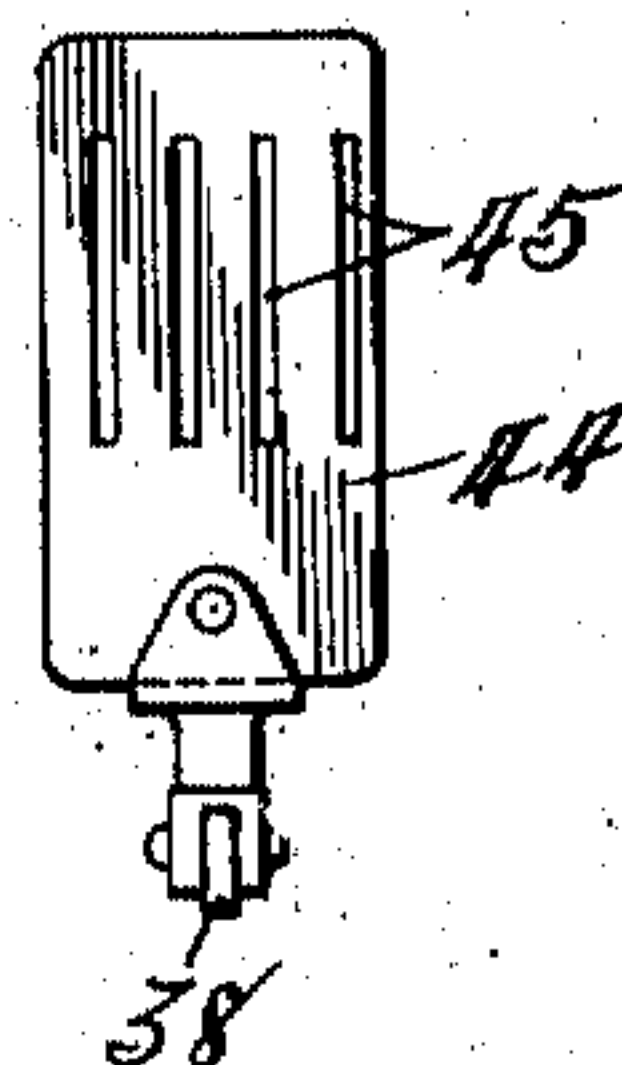
Patented Feb. 14, 1911.

2 SHEETS—SHEET 2.

*Fig. 3.* *Fig. 4.* *Fig. 5.*



*Fig. 6.*

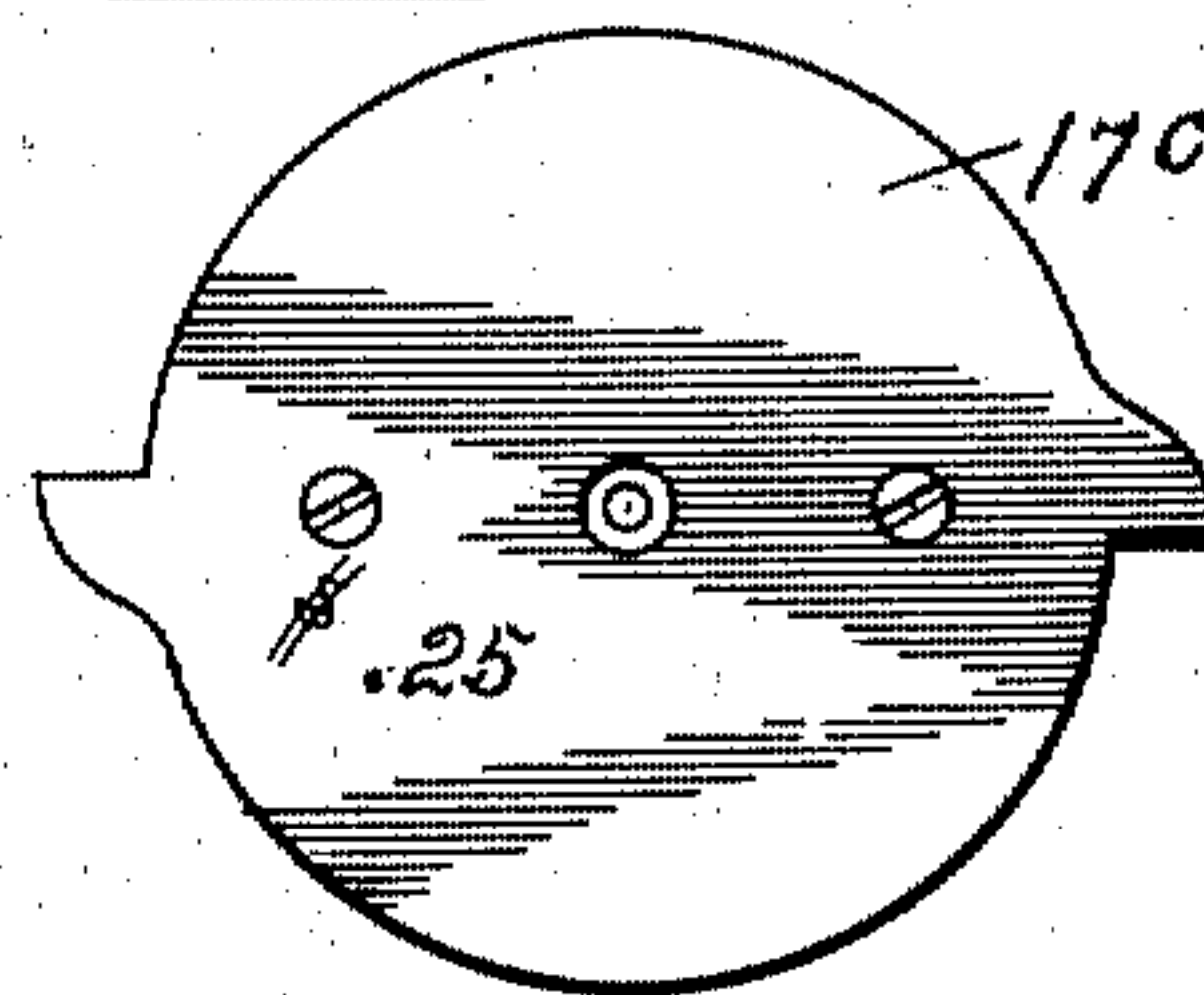
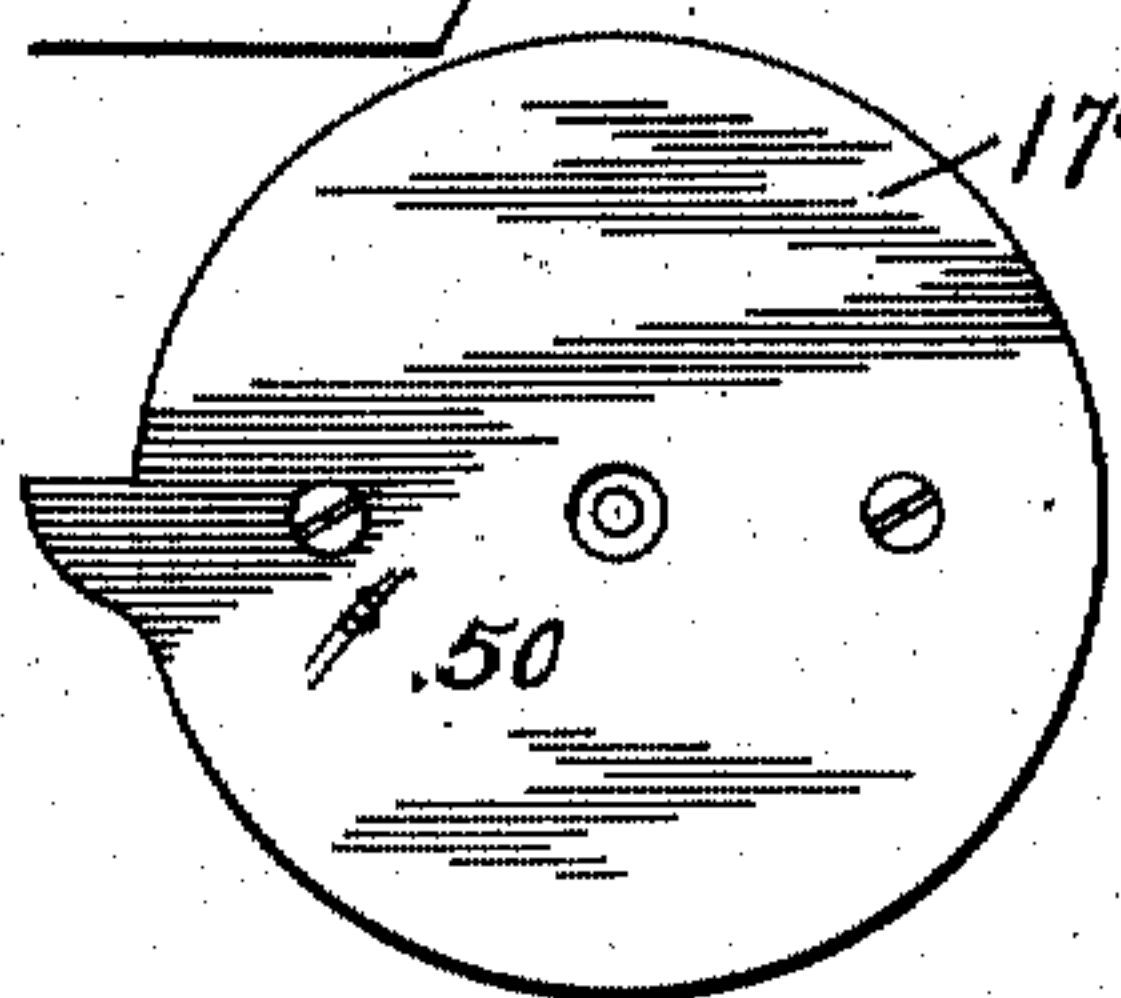


*Fig. 7.*

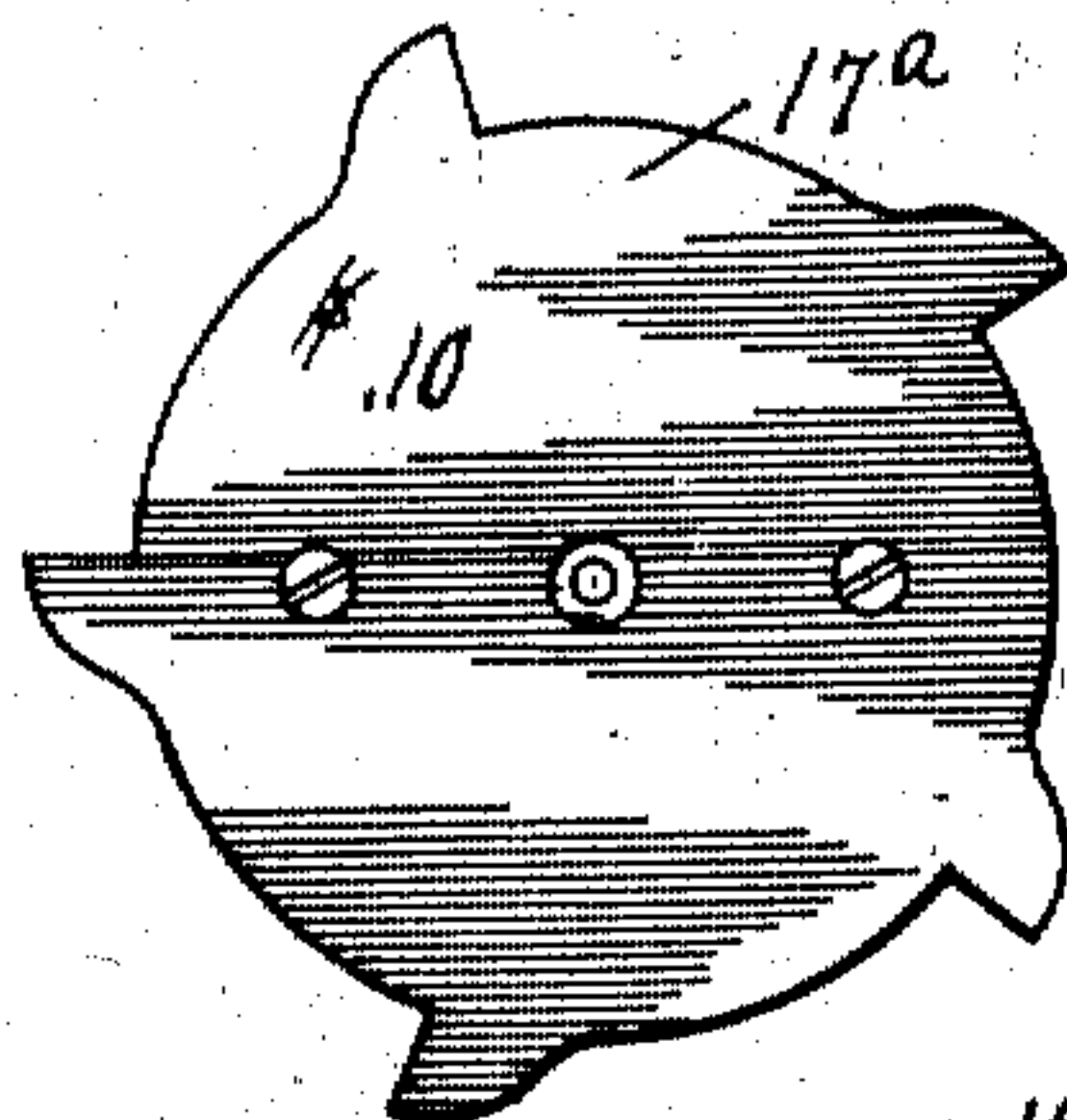


*Fig. 8.*

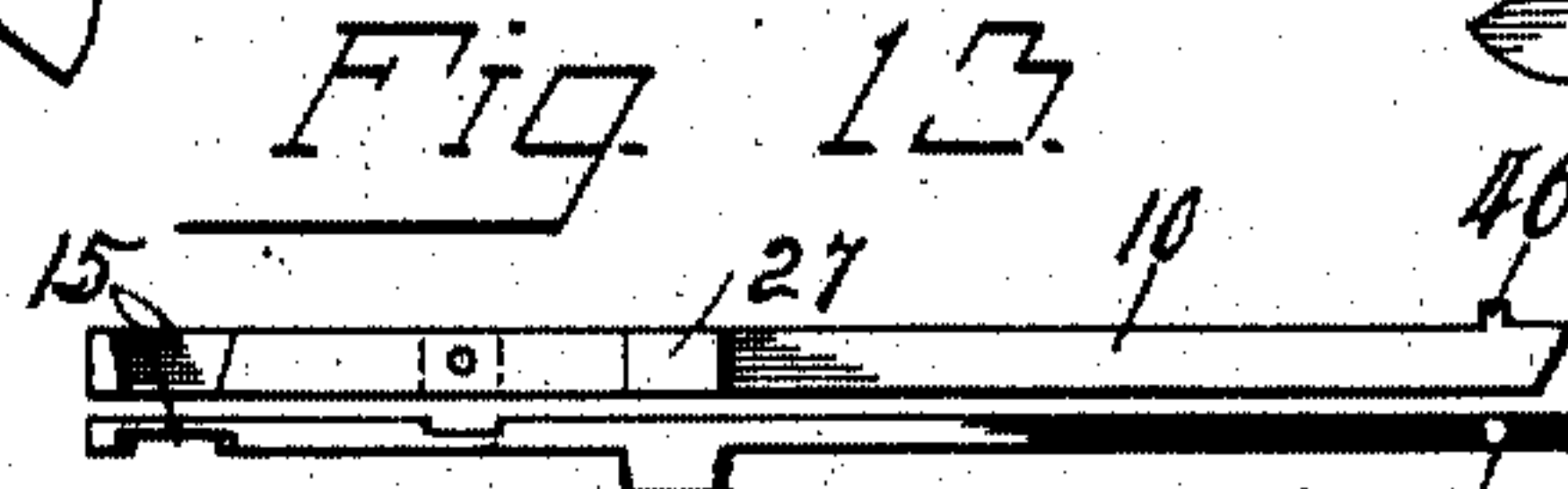
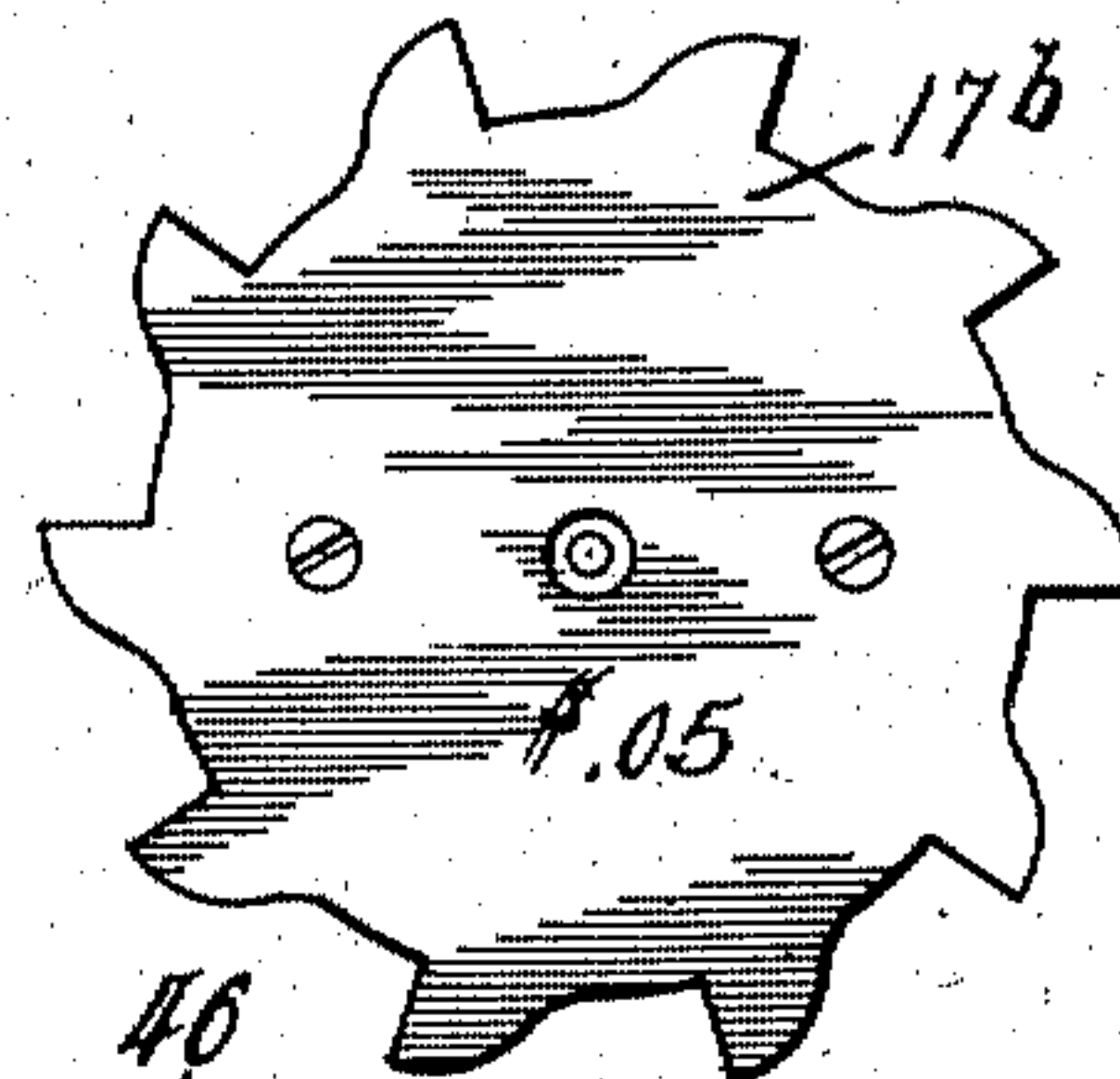
*Fig. 9.* *Fig. 10.*



*Fig. 11.*



*Fig. 12.*



*Fig. 13.* *Fig. 14.*

WITNESSES:

*W. H. Bills*  
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*By Owen & Owen,*  
*His attys.*



# UNITED STATES PATENT OFFICE.

PHILIP JACOB DREHER, OF TOLEDO, OHIO.

COIN-CONTROL ATTACHMENT FOR AUTOMATIC PLAYERS OR THE LIKE.

984,199.

Specification of Letters Patent.

Patented Feb. 14, 1911.

Application filed December 9, 1910. Serial No. 596,436.

*To all whom it may concern:*

Be it known that I, PHILIP JACOB DREHER, a citizen of the United States, and a resident of Toledo, in the county of Lucas and State of Ohio, have invented a certain new and useful Coin-Control Attachment for Automatic Players or the Like; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to coin-controlled apparatus of the class particularly adapted for use in connection with music-boxes or automatic players, but is not restricted to such use as it may be employed in any connection for which it may be adapted or appropriate.

The object of my invention is the provision of an improved apparatus of this character, which is automatically operative to play the number of pieces which the amount of the coin deposited within the apparatus entitles one to, as, for instance, should a nickel be deposited one piece is played, while the depositing of a dime, quarter or half dollar entitles one to the playing of two, five or ten pieces, respectively, which is accomplished without any further action upon his part.

The invention is fully described in the following specification, and while, in its broader aspect, it is capable of embodiment in numerous forms a preferred embodiment thereof is illustrated in the accompanying drawings, in which,—

Figure 1 is a side elevation of the pawl and ratchet means of one of the coin-controlled units of the apparatus with the co-operating coin controlled parts removed from the side thereof and an associated part in section and parts broken away. Fig. 2 is a similar view of the coin-cooperating parts of a unit with a side plate removed and with parts broken away and in section. Fig. 3 is an enlarged vertical cross-section of one of the coin-controlled units. Fig. 4 is a similar view on a reduced scale of four units together. Fig. 5 is a plan view of the part in which the coin receiving slots are located. Figs. 6 and 7 are details of a ratchet-wheel and an attached

trip-member. Fig. 8 is a plan of the slotted-draft bar. Figs. 9, 10, 11 and 12 are side views of the trip-members used in the half-dollar, quarter, dime and nickel units, respectively, and Figs. 13 and 14 are details of the pawl carrying bar of each unit.

Referring to the drawings, 1 designates a case or box in which are located a number of coin-controlled units corresponding to the number of coins of different denominations which the apparatus is adapted to receive and which is intended to be attached to a music-box or automatic piano to control the playing of the same. These units, in the present instance, are shown as being four in number and designated *a*, *b*, *c* and *d*, and respectively adapted to be operated by dimes, nickels, quarters and half-dollars. As all of these units are of the same construction, except for the number of teeth on the rotary trip-member and the size of the coin coacting parts, which are changed for each unit as the size and denomination of the coin may require, as hereinafter more fully described, the construction and operation of only one unit will be described in detail.

Referring now more particularly to Figs. 1, 2 and 3 which illustrate unit *c*, or the one adapted to be controlled by quarters, 2 designates a plate which divides units *b* and *c*; 3 a skeleton form of plate, which is shown as being secured to the side of plate 2, but may be integral therewith if desired; 4 a plate similar to plate 2, and secured to the outer side of plate 3, and 5 a second skeleton form of plate, which is secured to the side of the plate 4 opposed to the plate 3, and may be integral with the plate 4 if desired. The plate 3 is provided with an opening 6 in which is disposed a ratchet-wheel 7, being loosely mounted on a stub-shaft 8 projecting from the plate 2. The number of teeth of the ratchet depends upon the number of times the coin of lowest denomination is contained in the coin of highest denomination for which the apparatus is adapted, as, for instance, if a nickel is the lowest coin and a half dollar the highest coin, the latter equals ten of the former and the ratchet will consequently have ten teeth. The pawl 9 which coacts with the ratchet 7 to actuate its movements, is pivotally attached at its forward end to a bar 10, which is mounted for horizontal



reciprocatory movements within a race 11 provided therefor in the plate 3 over the ratchet 7. The pawl 9 rides upon the top of the ratchet and is adapted to drop by gravity into engagement with a tooth thereof when moved in proper position for such purpose. When the pawl has been moved a predetermined distance it is positively released from engagement with a ratchet tooth due to its nose coacting with the registering wall 12 of the plate opening in which it is disposed. The bar 10 is normally held retracted in forward position by a spring 13 acting on an angled lever 14, one arm of which works within a notch 15 in the bar end, or this may be accomplished in any other suitable manner.

The ratchet 7 is shown as being of suitable thickness to project through a registering opening 16 in the plate 4, and has a rotary trip-member concentrically secured thereto and disposed in the plane of the plate 5 within an opening 18 therein, see Fig. 2. The trip-member 17<sup>c</sup> turns with the ratchet and has a number of peripheral equidistantly spaced teeth 19 equal to the number of times the coin of its unit is contained in the coin of largest denomination for which the apparatus is adapted, as, for instance, the trip-member 17<sup>c</sup> has two teeth as a quarter is contained twice in a half dollar, the largest amount for which the present apparatus is adapted.

The plate 5 is cut away near its forward end to cooperate with the laterally abutting plate 4 of the same unit and the plate 2 of the adjoining unit *d* to form a vertical coin-chute 20, the upper end of which is shown as being extended by a registering chute portion 20' mounted in a frame 21, while the lower end thereof opens into a chamber 22 common to the coin-chutes of all the units. A drawer 23 is disposed within the chamber 22 to catch the coins. The plate or part 4 is also provided with suitable openings to receive the coin-actuated latch member 24 and the coin-stop 25.

The latch-member 24 is pivoted above the plane of movement of the bar 10, as at 26, Fig. 2, and has a nose-piece 24' projecting downwardly and forwardly from its pivot and a tail-piece 24'', which latter is weighted to cause it to normally stand lowered in position for its end to lie in the path of movement of a lug 27, which projects from a side of the associated bar 10 and works in a slot 28 provided in the plates 4 and 5, thus obstructing a complete forward movement of the bar 10. The nose 24' of the latch-member is normally held projected within the coin-chute 20 by the weighted tail-piece thereof, and upon the depositing of a coin within the chute, the weight of the same upon such latch nose overbalances the tail-piece thereof and effects a rocking of the

latch-member to the position shown in full lines in Fig. 2. The rocking of the latch-member in this manner moves its tail-piece from the path of movement of the bar-lug 27 and permits such lug and bar 10 actuated by the spring 13 and lever 14, to move forwardly into position for the pawl 9 to engage the next tooth of the ratchet 7 to that previously engaged thereby, as shown in Figs. 1 and 2. Upon the next rearward movement of the bar 10 the pawl 9 acts on the ratchet-wheel to rotate it a distance equal to the space between the teeth thereof.

The coin-stop 25 is pivoted within an opening of the plate 5 in advance of the trip member 17<sup>c</sup>, as at 29 (Fig. 2), and has a finger 30 projecting rearwardly therefrom in the path of movement of the teeth 19 of the member 17<sup>c</sup> whereby the coin-stop 25 is rocked by the engagement of the teeth 19 therewith when the member 17<sup>c</sup> is rotated. A coiled compression spring 31 is mounted within a socket in the plate 5 and acts on the finger 30 to yieldingly hold such finger in tooth engaging position. The forward edge of the stop 25 is provided with a nose or projection 32, which, when the stop is in normal position, projects into the coin-chute 20 in the path of movement of coins 33 therethrough whereby to obstruct and stop the movement of such coins as shown in Fig. 2. Upon a rocking of the stop 25 by the engagement of a moving tooth 19 with the finger 30 thereof the nose 32 is retracted from coin obstructing position and permits the lowermost coin in the chute, or that resting upon the stop, to pass downwardly therethrough.

In order to prevent a coin which is resting upon the lower coin in a slot, from passing downwardly through the chute past the stop 25, when the same is rocked from normal or coin obstructing position, the upper forward end portion of the stop 25 is fashioned, as at 34, to adapt it to project within the chute in position to obstruct the descent of the upper coin therein. As the stop 25 assumes its normal position after releasing the lower coin, the portion 34 thereof is retracted from coin engaging position and permits the upper coin to lower and rest upon the nose 32 of the stop. It is thus apparent that the stop 25 has an escapement action upon the coins and permits only one coin to pass downwardly through the chute upon a single rocking thereof. As the upper coin in the chute 20, or the coin which engages the nose 24' of the latch member 24, moves downwardly in the chute, such latch nose is released and the latch is permitted to assume its normal position with the end of the tail-piece 24'' thereof resting in position to obstruct a complete forward movement of the lug 27 with the bar 10.

The only change in the form and construction



tion of the different units of the apparatus is in the shape and size of the members 24 and 25 and the size of the coin chutes 20 to adapt them for the size of the coin employed, and in the number of teeth employed on the trip-member, as a trip-member 17<sup>a</sup> (Fig. 11) having five teeth is employed in connection with the dime unit, a trip-member 17<sup>b</sup> (Fig. 12) having ten teeth is employed in connection with the nickel unit, a trip-member 17<sup>c</sup> (Fig. 10) having two teeth is employed in connection with the quarter unit, and a trip-member 17<sup>a</sup> (Fig. 9) having one tooth is employed in connection with the half dollar unit.

To the rear of the coin control units is located a box or casing 35 in which is disposed a bellows 36 having air inlet and outlet pipes 37 which lead to and from suitable portions of the musical instrument whereby air is forced into the bellows or exhausted therefrom at predetermined points in the playing of a piece, as is common in pneumatic musical instruments, and will be hereinafter more fully explained.

The musical instrument to which the apparatus is attached is intended to be run by electricity and the circuit of the operating motor is opened and closed by movement of a switch arm 38 within the case 35, such arm being pivoted at one end to a pole 39 of such circuit and adapted upon a forward movement of its upper end to move into contact with the other pole 40 of the circuit to close the same. A spring 41 yieldingly acts on the switch arm 38 to normally move the same to open position. The upper end of the switch arm 38 has a rod 42 projecting rearwardly therefrom loosely through a registering opening in a lip 43 on the upper end of the movable bellows part and such rod is headed on the opposite side of the lip 43 to the switch arm 38, whereby the switch arm is permitted to freely move rearwardly relative to the bellows but a closing of the bellows is adapted to move the switch arm to open the electric circuit.

Pivoted to and projecting forwardly from the upper end portion of the movable switch arm 38, is a draft member 44 having slots 45 extending longitudinally thereof and receiving lugs 46 projecting upwardly from the rear ends of the registering bars 10.

When the switch arm 38 is in open position, as shown in dotted lines in Fig. 2, the bars 10 all stand with their lugs 27 abutting against the rear ends of the tail-pieces 24' of the latch members 24 of the units, and the depositing of a coin in any one of the coin slots effects a tilting of the associated latch member 24 to permit the associated bar 10 to move under the influence of the spring 13 and lever 14 to the limit of its forward movement whereby to draw the switch-arm 38 to closed position due to the proper stud

46 acting on the forward end of the associated slot in the plate 44. Such movement of the bar 10 also places its pawl 9 into engagement with a tooth of the associated ratchet 10. The power circuit for the instrument being closed in this manner the same remains closed until a piece is played. Upon the completion of a piece an aperture in the perforated music sheet moves into register with an opening in the mouth-piece of the instrument and permits an exhaust of air from the bellows 36. The exhaust of air from the bellows causes a rearward movement of the movable portion thereof, to which portion the switch arm 38 is attached, and a consequent movement of such arm from switch closing position and a rearward movement of the bar 10 to cause the pawl 9 attached thereto to act on the associated ratchet wheel 7 to move the same a distance equal to the space between the teeth thereof. The movements of the ratchet wheel 7 impart corresponding movements to the attached trip-member so that the teeth 19 thereof, when they move into register with the finger 30 of the coin-stop 25, will rock such finger and stop to permit a dropping of a coin 33 supported by the latter. The use of a bellows for automatically opening a switch is old in instruments of this class.

The operation of my improved apparatus in connection with a pneumatic music-box or piano is as follows:—Should a person desiring to operate the instrument have a nickel in change he drops the same in the coin chute associated with unit *b* of the apparatus which coin in its descent through the chute coacts with the nose 24' of the latch member 34 and effects a raising of its tail-piece 24'' from the path of movement of the bar lug 27. As the latch 24 moves from engagement with the lug 27 the bar 10 carrying such lug is drawn forwardly by the action of the spring 13 and lever 14 into position for the pawl 9 thereof to engage the next tooth in order on the ratchet 7. As the bar 10 moves forward from the position at which it was stopped by the latch 24, the stud 46 thereon coacts with the forward end of the slot 45 of the plate 44 into which it projects and effects a movement of the switch arm 38 into contact with the switch pole 40 to close the circuit of the motor (not shown) which operates the musical instrument. When the playing of the piece is completed the movable portion of the bellows 36 is moved by the exhaust of air therefrom so as to effect a movement of the switch arm 38 to open the circuit in which it is disposed. This movement of the switch arm also imparts a rearward movement to the control bar 10 and effects a rotation of the ratchet 7 a distance equal to the space between two teeth thereof. Inasmuch



as the rotary trip member 17<sup>b</sup> associated with the nickel unit has a tooth for every tooth of the ratchet 7, the coin stop 25 will be moved at each movement of the ratchet to permit a tripping of the lower coin and a descent of the next coin from engagement with the latch 24 and into contact with the stop 25 by which it is then supported. The movement of the upper coin from engagement with the latch 24 permits such latch to lower and coact with the lug 27 to lock the bar 10 against a subsequent forward movement until another coin has been deposited in the chute for such purpose.

The operation of each of the other units of the apparatus is the same as that above described, except that the coin-stop 25 is only tripped at every second movement of the ratchet if a dime is deposited, at every fifth movement thereof if a quarter is deposited, and at every tenth movement, or one complete revolution of the ratchet, if a half-dollar is deposited. It is thus apparent that if, for instance, a quarter rests upon the coin stop 25 of the unit *c* and another quarter is deposited in such slot the latch 24 will be moved to release the bar 13 and be held in such released position until five pieces have been played, as the action of the bellows 36 at the end of each piece causes an automatic throwing out of the switch arm 38 and a movement of the bar 10, pawl 9 and ratchet 7, while the unrestricted forward movement of the bar 10 permits it, after each throwing out operation, to return to its forward position to engage its pawl 9 to the next ratchet tooth and to throw the switch lever 38 into closed position. When the fifth piece has been played a tooth 19 of the trip-member 17<sup>c</sup> will have moved into position to effect a tripping of the coin-stop 25 and permit a tripping of the lower coin and a descent of the upper coin from latch engaging to coin-stop engaging position thus permitting the latch 24 to move into position to prevent a subsequent forward movement of the bar 10 until another coin has been deposited in the chute.

I wish it understood that my invention is not limited to any specific construction or arrangement of the parts except in so far as such limitations are specified in the claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is,—

1. In a coin-controlled apparatus, a coin-chute, a ratchet, means intermittently movable to actuate said ratchet, a latch member normally preventing an engagement of said means and ratchet and moved from normal position by the deposit of a coin in the chute, a coin-stop associated with the chute, and means movable by said ratchet and operative to trip said stop at least once during a rotation of the ratchet.

2. In a coin-controlled apparatus, a coin-chute, a coin-stop associated therewith and normally assuming a coin stopping position, rotatable means for tripping said coin-stop a predetermined number of times in a rotation thereof, mechanism operative to impart intermittent rotary movements to said tripping means, and means normally serving to prevent an actuation of said tripping means by said mechanism and movable by the depositing of a coin in the chute to permit a movement of the tripping means by said mechanism.

3. In a coin-controlled apparatus a coin-chute, a coin-stop associated therewith and normally standing in coin stopping position, rotatable means for tripping said coin-stop a predetermined number of times in a rotation thereof, ratchet means for moving said tripping means, the pawl member of which is influenced to normally stand in ratchet engaging position, and means normally acting to prevent an engagement of the ratchet members and moved from said normal position by the depositing of a coin in said chute.

4. In a coin-controlled apparatus, a coin-chute, a coin-stop associated therewith and normally assuming a coin stopping position, a rotary tripping-member for actuating intermittent tripping movements of said coin-stop upon a rotation of said member, ratchet means operative to impart intermittent rotary movements to said member, and means normally acting to prevent an engagement of the members of said ratchet means and movable from normal position by the depositing of a coin in said chute.

5. In an apparatus of the class described, a coin-chute, an oscillatory coin-stop associated therewith, a rotary trip member having at least one tooth for coacting with said coin-stop to trip the same upon a rotation of said member, ratchet means for imparting intermittent rotary movements to said member, latch means normally coacting with a member of such ratchet means to prevent movements thereof and moves from normal position by the depositing of a coin in the chute and held in such position until the coin-stop is tripped to release the coin held thereby.

6. In an apparatus of the class described, a coin-chute, an oscillatory coin-stop associated therewith, a rotary tripping member for tripping said stop at predetermined points in a rotation of said member, ratchet means operative to communicate intermittent rotary movements to said member, an oscillatory latch normally coacting with said ratchet means to prevent a movement thereof and movable from normal position by a coin deposited in said chute.

7. In an apparatus of the class described, the combination of a coin-chute, an oscillatory coin-stop associated therewith and in-



fluenced to normally stand in coin stopping position, a rotary tripping member operative upon a rotation thereof to impart predetermined tripping movements to said stop, pawl and ratchet means operative to impart intermittent rotary movements to said member, the pawl being normally influenced to move to engage the ratchet tooth next in order, and a latch member adapted to normally coact with a part of said pawl and ratchet means to prevent movements thereof and movable from such normal position by the depositing of a coin into said chute, said stop member being adapted to permit the passage of only one coin thereby within the chute at each tripping movement thereof.

8. In an apparatus of the class described, the combination with the switch in an electric operating circuit for a music box, and means for automatically opening such switch at the completion of a predetermined operation of the apparatus, of a coin-chute, a coin-stop associated therewith, means movable to intermittently trip said stop, mechanism for imparting intermittent movements to said tripping means and having a part attached to said switch and yieldingly movable in one direction to normally close said switch and movable in the other direction by said switch when the latter is moved to open position by said automatic means, latch means normally acting to prevent a movement of said mechanism and movable from normal position by the depositing of a coin into said chute.

9. In an apparatus of the class described, the combination with a switch for an electric operating motor for the apparatus, and means for automatically moving the switch to open position at predetermined periods in an operation of the apparatus, of a coin-controlled mechanism comprising a coin-chute, a coin-stop associated with such chute and normally standing in coin stopping position, a rotary member operative upon a ro-

tation thereof to impart predetermined tripping movements to said stop, pawl and ratchet means for intermittently moving said member, the pawl thereof having connection with said switch and being influenced to normally move into position to close said switch and engage the next tooth in order on the ratchet after a movement thereof, and latch means adapted to normally prevent a switch closing movement of said pawl and being moved from normal position by the depositing of a coin into said chute.

10. In an apparatus of the class described, the combination with the switch of electric power means for working the apparatus, and means automatically movable at predetermined points in an operation of the apparatus to effect an opening of said switch, of a coin-controlled mechanism therefor comprising a coin-chute, a coin-stop associated with such chute, a rotary tripping member operative during a rotation thereof to trip said coin-stop a predetermined number of times, a ratchet attached to said member, a reciprocatory bar attached to said switch and having a lug thereon, a pawl carried by said bar and adapted to coact with said ratchet and to impart rotation thereto when the bar is moved from normal position, a member normally locking said bar against movement and movable from normal position by the depositing of a coin within said chute, said bar being normally influenced to move to the limit of its movement in one direction to place its pawl in engagement with a tooth of the ratchet and to move the switch to open position.

In testimony whereof, I have hereunto signed my name to this specification in the presence of two subscribing witnesses.

PHILIP JACOB DREHER.

Witnesses:

C. W. OWEN,  
M. G. GASKELL.