

April 8, 1941.

F. H. OSBORNE ET AL
COIN CONTROLLED MECHANISM

2,237,573

Filed Sept. 7, 1937

3 Sheets-Sheet 1

Fig. 1

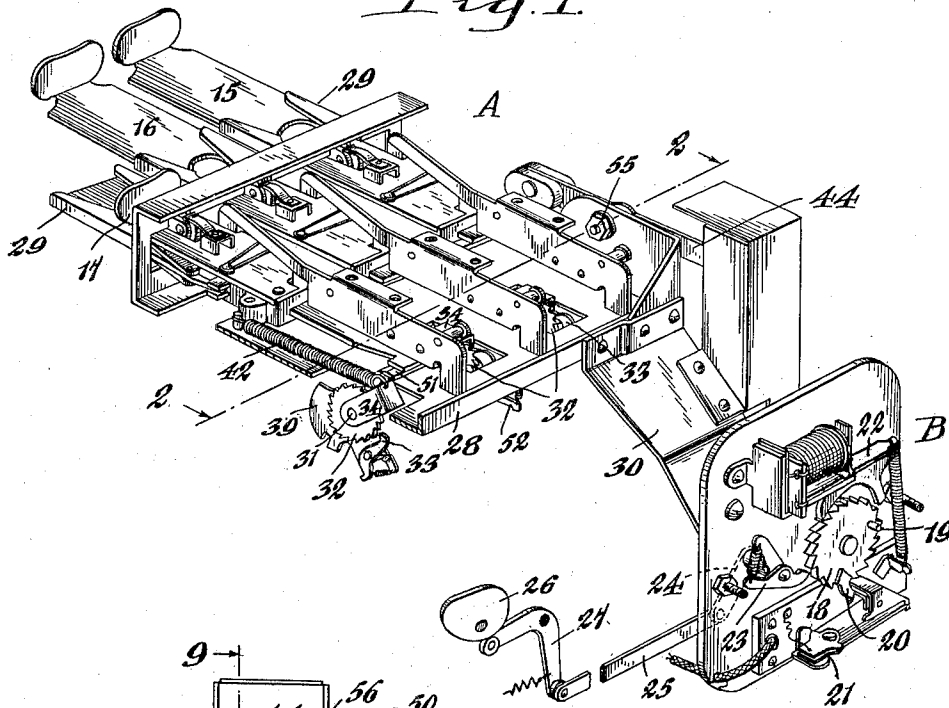
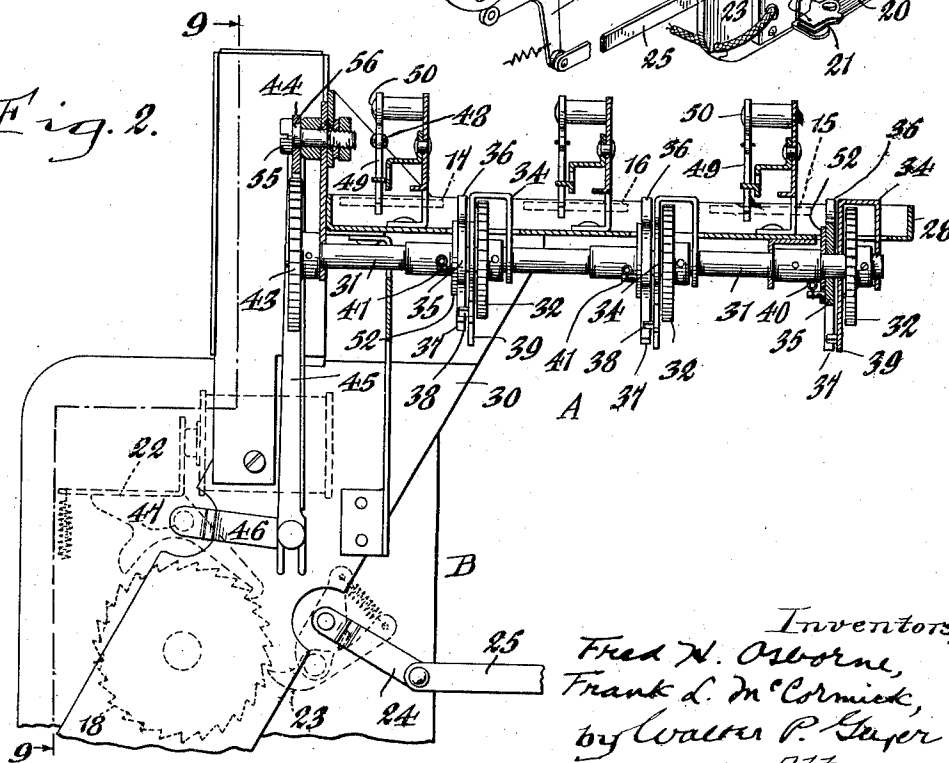


Fig. 2



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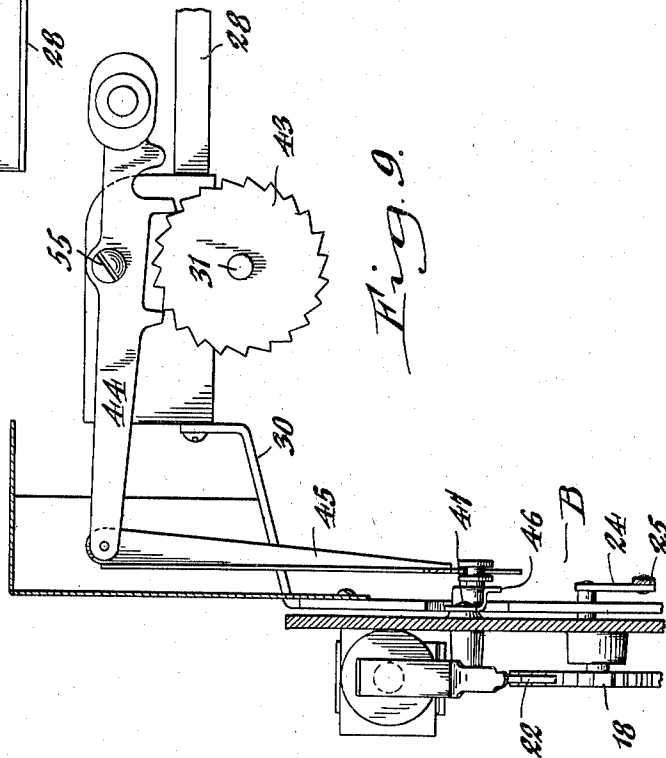
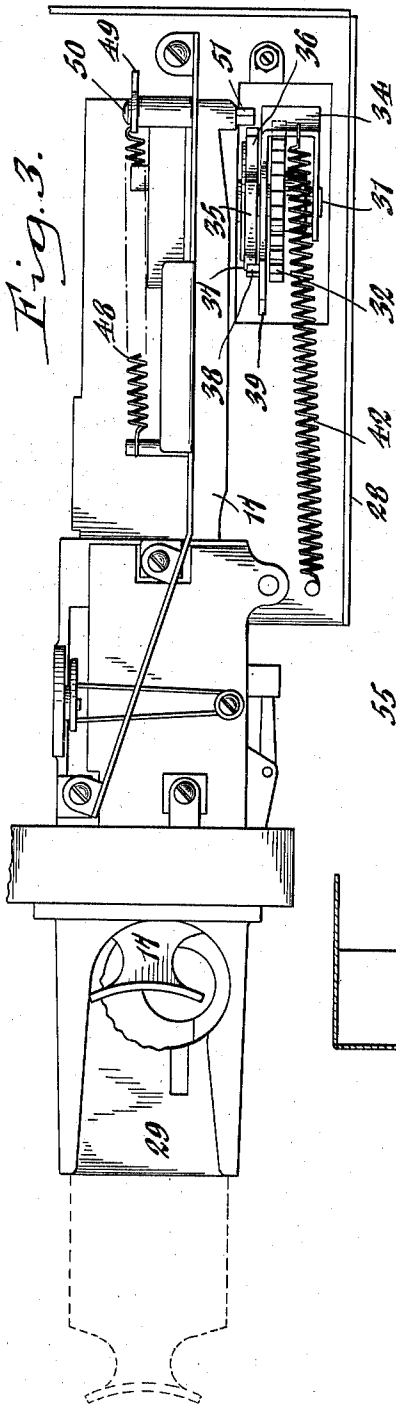
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COIN CONTROLLED MECHANISM

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3 Sheets-Sheet 2



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3 Sheets-Sheet 3

Fig. 4.

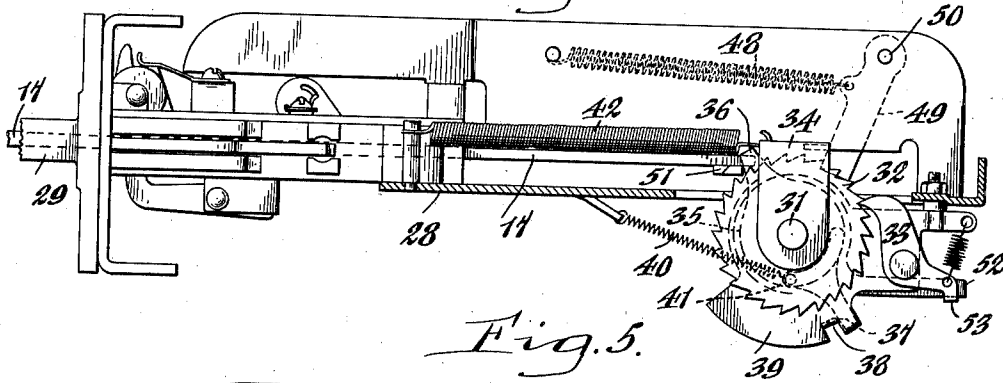


Fig. 5.

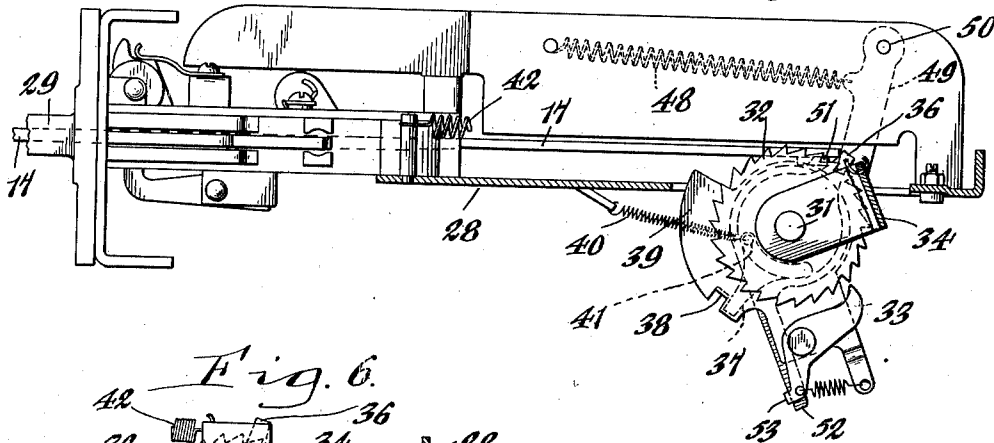


Fig. 6.

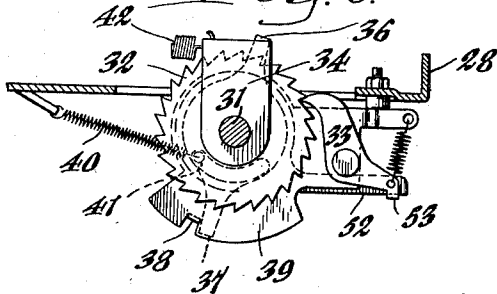


Fig. 7.

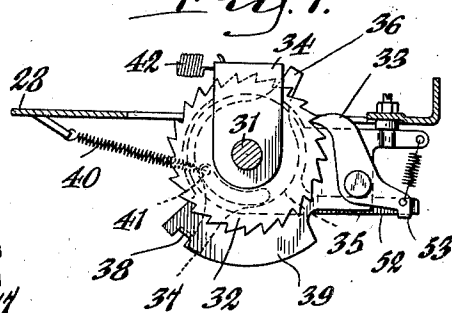
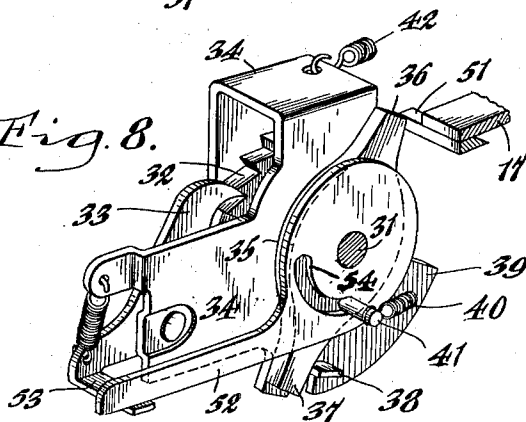


Fig. 8.



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UNITED STATES PATENT OFFICE

2,237,573

COIN CONTROLLED MECHANISM

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3 Claims. (Cl. 74—128)

This invention relates to certain new and useful improvements in coin-controlled mechanism adapted for use with coin-operated phonographs or other devices which release one or more objects to the patron or operator upon the deposit of one or more coins.

It has for one of its objects to provide a multiple coin-controlled mechanism which is so designed and constructed as to function with coins of different denominations, say five, ten and twenty-five cent pieces.

Another object of the invention is to provide a multiple coin-controlled mechanism of this character designed for use in conjunction with a magazine switch device and wherein the individual coin slides or coin advancing members of the mechanism mechanically control the actuation of the magazine switch device to thereby properly register and govern the latter in accordance with the coins deposited.

A still further object of the invention is to provide a coin-controlled mechanism for use in conjunction with magazine switch devices which is simple, compact and inexpensive in construction and which is positive and efficient in operation.

Other features of the invention reside in the construction and arrangement of parts hereinafter described and particularly pointed out in the appended claims.

In the accompanying drawings:

Figure 1 is a perspective view of our coin-controlled mechanism showing it in connection with a magazine switch of usual construction. Figure 2 is an enlarged transverse section thereof taken on line 2—2, Figure 1. Figure 3 is an enlarged fragmentary top plan view of the 25 cent coin slide unit showing the same in its operative or projected position. Figures 4 and 5 are side elevations of such mechanism, the base plate being in section, showing the coin slide in its retracted and projected positions, respectively. Figure 6 is a fragmentary sectional elevation of the ratchet mechanism of the 10 cent coin slide unit. Figure 7 is a similar view of the 5 cent coin slide unit. Figure 8 is an enlarged perspective view of the 25 cent ratchet mechanism, looking from the opposite side to that depicted in Figure 4. Figure 9 is an enlarged fragmentary sectional elevation taken substantially in the plane of line 9—9, Figure 2, and showing the connection between the coin slide mechanism and the magazine switch.

Similar characters of reference indicate corresponding parts throughout the several views.

Our coin-controlled mechanism, while designed more particularly for use on automatic phonographs which employ magazine switches for registering the coins deposited and which assure the playing of as many records as there are coins or coin values deposited, is also applicable to other apparatus wherein coin devices are used. In its general organization, it consists of a multiple coin-controlled mechanism including five, ten and twenty-five cent coin-receiving and advancing slides disposed side by side as a complete unit on a suitable frame or support; mechanical means governed by the respective coin slides for individually controlling the actuation of the magazine switch in accordance with the denomination and number of coins deposited; and a magazine switch device of ordinary construction operatively connected to the mechanical means for actuation thereby to register the number and denomination of coins deposited and accordingly maintain the circuit of the phonograph or other apparatus closed or operative until the proper number of records have been played for the coins deposited.

Referring now to the drawings, A indicates the coin-controlled mechanism or assembly consisting of a plurality of coin slide units of well known construction to accommodate 5, 10, and 25 cent coins, the shiftable coin-receiving and advancing slides of these units being indicated at 15, 16 and 17, respectively, and B indicates the magazine switch which may be of any well known construction, that shown in the drawings, by way of example, consisting of a ratchet wheel 18 having a pin 19 thereon engageable with a trip 20 for opening at a predetermined time the switch 21 connected, say, to the motor circuit of an automatic coin-controlled phonograph; an escapement or feed pawl 22 mechanically controlled by our coin mechanism for advancing the ratchet wheel one tooth for each 5 cent or equivalent coin value deposited in the coin-controlled mechanism, such movement of the wheel causing its switch-control pin 19 to recede from the trip 20 a distance of one tooth at each advancing impulse imparted to the wheel by the escapement pawl; and a pawl or detent 23 for turning the ratchet wheel in the opposite direction in step by step fashion after each record is played, said pawl 23 being actuated by a crank arm 24 and link 25 to a moving part of the phonograph controlling the selection of records, such for example, as a cam 26 and bell crank 27. The magazine switch mechanism shown is of the conventional type and the coil appearing thereon serves to actuate the

escapement pawl 22 when the mechanism is electrically-controlled, but plays no part in the present embodiment of our invention.

The various parts of the coin-controlled mechanism, as well as the magazine switch device actuated and governed thereby, may be compactly mounted on a suitable supporting frame or platform 28 for ready attachment as a unit in the phonograph or other apparatus, the guide members 29 of the respective coin slides 15, 16 and 17 being mounted at the front portion of this platform and the magazine switch device being suspended on a bracket 30 depending from the rear end of the platform, as shown in Figure 1. The mechanical means governed by the respective coin slides for individually controlling the magazine switch device is supported on the rear portion of the platform.

The coin slide units are of any suitable and well known construction, the type shown in the drawings corresponding to that shown in the United States Letters Patent to Hall, No. 2,010,360, dated August 6, 1935, and it is not deemed necessary therefore to give any detailed description of each of these coin slides as units. Suffice it to say, however, that each coin slide 15, 16 and 17, when a proper coin is inserted therein, is adapted, when advanced, to make one complete stroke to transfer the coin from the receiving position of the slide shown by dotted lines in Figure 3 to the discharge position shown by full lines in the same figure, wherein the coin is adapted to drop by gravity into a suitable receiver provided for that purpose. The mechanical means of our invention for controlling the actuation of the magazine switch is actuated by the full stroke movement of the respective coin slides to thereby register the deposit of a coin, or in the case of a dime or a quarter, the step by step movement of the ratchet wheel 18 of the magazine switch so that the patron receives full value for the coins deposited whether they be nickels, dimes or quarters, the ratchet wheel registering or advancing one step for each five cent value inserted in the coin mechanism.

Operatively associated with and disposed in the path of movement of each of the coin slides 15, 16 and 17, is a ratchet feed mechanism, which, in the case of the nickel slide 15, transmits a one-tooth movement to the ratchet wheel 18 of the magazine switch and in the case of the dime slide 16 and the quarter slide 17 transmits a two-tooth and a five-tooth movement, respectively, to the magazine switch ratchet wheel. Each of these ratchet feed mechanisms is identical in construction except for a different adjustment or setting of its parts to travel a distance of one, two or five teeth in accordance with the particular coin slide advanced, and a description of one of these mechanisms will therefore suffice for all. Journaled in suitable bearings applied to the rear portion of the bottom side of the platform 28 is a horizontal shaft 31 on which the various ratchet feed mechanisms are mounted in the operating paths of the respective coin slides, each mechanism including a ratchet wheel 32 fixed to the shaft with which the spring-pressed feed pawl 33 cooperates to effect the turning of the shaft 31 in a counterclockwise direction, viewing Figures 1 and 4-7, inclusive, the pawl merely ratcheting over the ratchet wheel a predetermined number of teeth, depending on the coin value—one tooth for each 5 cents—during the advance stroke of the coin slide to pre-set the

parts preparatory to the automatic operative movement of turning the ratchet wheel and shaft 31 the proper distance in the opposite or clockwise direction. This pawl is applied to the rear end of an oscillating yoke 34 pivotally mounted on the shaft 31, and mounted freely on the shaft alongside this yoke is an oscillating trip member 35 having a radial arm 36 at its upper side normally disposed in the path of the final travel of the companion coin slide 15, 16 or 17, and having a diametrically opposed arm 37 at its opposite side which normally abuts against a stop lug 38 bent laterally from the lower segmental-shaped portion 39 of the yoke 34 and functions to limit and govern the operative movement transmitted to the shaft 31. A spring 40 attached at one end to a pin 41 projecting from the face of the trip member 35 and at its other end to the adjoining portion of the platform 28, serves to constantly urge the trip member to its normal position in the path of an advancing coin slide. In the case of the ratchet feed mechanism associated with the five cent coin slide, the stop lug 38 is positioned as shown in Figure 7 with the radial arm 36 of the trip member disposed in advance of a vertical plane passing through the axis of the shaft 31. In the case of the ratchet feed mechanism associated with the ten cent coin slide, the stop lug of the trip member 35 is positioned as shown in Figure 6 or at a distance from the five cent trip lug equal to one tooth of the ratchet wheel 32, whereby the companion arm 36 is disposed nearer said vertical plane. Correspondingly, the stop lug 38 of the twenty-five cent ratchet feed mechanism is positioned as shown in Figure 4 wherein such lug is radially spaced from the stop lug of the five cent ratchet feed mechanism a distance equal to five teeth of the ratchet wheel, with the result that the trip lugs 36 of the respective ratchet mechanisms are positioned at different circumferential points about the shaft axis to be successively actuated by the respective coin slides, subsequent to their reaching the acceptance station or the discharge points of the coins from the slides, at different stages of their final movements or strokes to effect the desired pre-settings of the ratchet mechanisms. In the case of the five cent ratchet feed mechanism, the trip arm 36 is adapted to be tripped by the coin slide 15 adjacent the end of or at a point short of the end of its forward stroke, while the trip arms of the ten cent and twenty-five cent ratchet feed mechanisms are successively tripped at points at remoter distances from the stroke-termini of their respective coin slides 16 and 17. During the advance stroke of the coin slide, and at the tail end of such movement, it engages the trip arm 36 and simultaneously effects the unitary turning of the trip member 35 and companion yoke 34 with its pawl 33, the latter ratcheting over the teeth of the ratchet wheel 32. In the case of the five cent ratchet feed mechanism the pawl ratchets past one tooth and in the case of the ten and twenty-five cent mechanisms the pawl ratchets over two teeth and five teeth, respectively, of the companion ratchet wheel, the relative radial angular displacements of the trip member arms 36 and stop lugs 38 predetermining the amount of travel of the ratchet feed mechanism.

Connected to the yoke 34 of each ratchet feed mechanism is a spring 42, which, after the ratcheting of the pawl 33 over the ratchet wheel 32 in the manner previously described, serves to

return the yoke and its associated parts to their initial position and in so doing causes the pawl 33 to be engaged with the ratchet and in turn transmit motion to the shaft 31 a circumferential distance of one-tooth, two teeth or five teeth, depending upon the particular coin slide 15, 16 or 17 being actuated. From the foregoing it will be understood that the advance movement of the coin slide pre-sets the ratchet feed mechanism, while the spring 42 attached to the yoke 34 furnishes the motive power to automatically move the shaft 31 in a direction to mechanically actuate the magazine switch mechanism. For this purpose, a ratchet wheel 43 is fixed to one end of the shaft 31 and preferably cooperating therewith is a weighted feed or escapement pawl 44 which is actuated or oscillated one stroke for each single tooth-travel imparted to said ratchet wheel by the coin-slide-governed ratchet feed units. The free end of the escapement pawl 44 is connected by a depending link 45 with a crank arm 46 fixed on the pivot shaft 47 of the escapement pawl 22 of the magazine switch mechanism. By this construction, as the shaft 31 is turned a fraction of a revolution corresponding to a one-tooth, two-tooth or five-tooth movement of the ratchet feed mechanisms, the ratchet wheel 43 is accordingly turned the same distance to effect an oscillating of the escapement pawl 44 to in turn, through the link 45, crank arm 46 and escapement pawl 22, transmit a corresponding step by step movement to the ratchet wheel 18 of the magazine switch mechanism to thereby set such mechanism in proper adjusted or registered position as to assure the playing of the phonograph until all of the records, to which the patron is entitled for the coins deposited, have been played.

Each coin slide, after being advanced its full stroke to pre-set the companion ratchet feed mechanism in the manner heretofore described, is adapted to be automatically returned a partial distance by a coil spring 48 connected to an arm 49 pivoted at 50 to a bracket disposed over the front portion of the coin slide for limited swinging movement, the lower end of such arm being adapted to abut against the front end of the coin slide and thereby partially return the slide. During the advance movement of the slide the arm 49 is swung forwardly to tension the spring 48. The balance of the return movement of the coin slide is effected by the user merely grasping the slide and returning it to its retracted position.

By preference, the front end of each coin slide is provided with a laterally-extending lug or projection 51 which is adapted to contact the trip arm 36 of the companion ratchet feed mechanism to pre-set its pawl 33 accordingly, after which the lug 51 rides off the trip arm, and the yoke 34 and associated parts are returned by the spring 42 to transmit an effective movement to the shaft 31. This lug 51 is chamfered at its rear edge, as shown in Figure 8, so that upon the automatic return stroke of the slide imparted to it by the spring 48, such lug encounters the trip arm 36 and independently rocks it about the shaft axis until the lug again rides off the trip arm, after which the trip member 35 is returned by its spring 40 to its initial position with its lower arm 37 abutting the stop lug 38 of the yoke 34. Disposed alongside the trip member 35 and freely pivoted on the shaft 31 is a lever 52 whose free end engages a lateral abutment 53 extending from the tail of the pawl 33, while the

hub portion of this lever is provided with an arcuate slot 54 to permit a movement of the trip member 35 relative to said lever during the return of the ratchet feed mechanism to its initial position, the pin 41 of the trip member travelling in this arcuate slot during such time. During this relative movement of the parts, the lever 52 holds the pawl 33 away and released from the ratchet wheel 32, the spring 40 being of greater tension than the pawl-spring to attain this result, so that after an effective stroke is imparted to each slide the patron cannot "milk" the slide in an attempt to register and transmit an operative tripping stroke or strokes to the ratchet wheel 18 of the magazine switch.

For the purpose of adjusting the escapement pawl 44 associated with the ratchet wheel 43, it is pivoted on a screw stud 55 having an eccentric portion 56 thereon engaging the pivot-opening of the pawl. By this construction, should the pawl require adjustment, it is only necessary to turn the screw-stud in one direction or the other to accordingly displace the pawl relative to the ratchet wheel to insure proper action.

Briefly, the operation of this coin-controlled mechanism is as follows:

Assume the mechanism to be applied to an automatic coin-controlled phonograph and the user or patron, at five cents per record, desires to play eight records, and after making his selections at the phonograph, places a nickel in the slide 15, a dime in the slide 16, and a quarter in the slide 17. Upon advancing the slide 15, the ratchet feed mechanism associated therewith is advanced one tooth and accordingly the pressure from the spring 42 turns the shaft 31 a fractional revolution or a distance equal to one tooth on the ratchet wheel 32, and this motion is accordingly transmitted to the ratchet wheel 43 which actuates the escapement pawl 22 and ratchet wheel 18 of the magazine switch a distance of one tooth; said wheel 18 turning in a counter-clockwise direction, viewing Figure 1; similarly, upon advancing the ten cent slide 16 and the quarter slide 17, movements are imparted to the companion ratchet feed mechanisms to effect the turning of the shaft 31 a distance of two teeth of the ratchet wheel 32 and a distance of five teeth of the ratchet, respectively, resulting in the transmission of that movement to the ratchet wheel 43 and accordingly to the escapement pawl 44 to in turn register those movements in step by step fashion to the ratchet wheel 18 of the magazine switch. For each tooth movement imparted to the shaft 31 and ratchet wheel 18, the pin 19 of the latter recedes a corresponding distance from the switch-trip 29. After each record is played, the bell crank 27 is actuated to cause the pawl 23 to turn the ratchet wheel 18 in the opposite or clockwise direction a distance of one tooth so that when the last or eighth record has been played, the pin 19 on the ratchet wheel 18 is in position to engage the trip 29 and effect the automatic opening of the switch 21 to break the motor circuit of the phonograph. Upon the deposit of another coin in any one of the coin slides, the ratchet wheel 18 and its magazine switch recedes from the trip 29 to automatically effect the closing of the switch and start the phonograph playing.

In the normal position of the parts, the yoke 34 abuts at its pawl-carrying end against the adjoining end of the platform 28, being held in such position by the power spring 42, and the turning of the shaft 31 under the pressure of this

spring through the companion ratchet feed unit is arrested upon the yoke abutting the platform.

Should the patron insert a bent or spurious coin and jam one or two slides in the "in" position, the phonograph is not rendered inoperative since the insertion of a coin in the other slide will advance the magazine switch the predetermined number of teeth.

We claim as our invention:

1. A device of the character described, comprising an advancing slide, a shaft having means thereon for controlling a part to be actuated, a ratchet wheel fixed on said shaft, a power-transmitting yoke pivotally mounted on said shaft and carrying a feed pawl in operative engagement with said ratchet wheel for transmitting motion to said shaft, an energy-storing element connected to said yoke for urging it in a direction to transmit motion to the shaft through the medium of the feed pawl and ratchet, and a trip member in normal coupling engagement with said yoke and disposed in the path of an operative movement of said slide for shifting said yoke and its pawl to a given pre-set position relative to the ratchet wheel, said trip member being released at a predetermined time in the advancing stroke of the slide to render the power-yoke operative to transmit a predetermined degree of motion to said shaft.

2. A device of the character described, comprising an advancing slide, a shaft having means thereon for controlling a part to be actuated, a ratchet wheel fixed on said shaft, a pivoted yoke having a stop thereon mounted on said shaft and carrying a feed pawl in operative engagement with said ratchet wheel for transmitting motion to said shaft in one direction, a power means connected to said yoke for urging it in a direction

to turn said shaft, and a trip member pivoted on said shaft alongside said yoke and normally abutting the yoke-stop to hold it in a pre-set position, said trip member having a part disposed in the operative path of said slide to be actuated thereby adjacent the end of its advance stroke to bodily pivot said trip member and said yoke to a predetermined position relative to the ratchet wheel, said trip member being thereupon released to render said power means operative to turn said shaft through the medium of the ratchet wheel and feed pawl, a predetermined distance.

3. A device of the character described, comprising an advancing slide, a shaft having means thereon for controlling a part to be actuated, a ratchet wheel fixed on said shaft, a pivoted yoke mounted on said shaft and carrying a feed pawl in operative engagement with said ratchet wheel for transmitting motion to said shaft, a spring connected to said yoke for urging it in a direction to turn the shaft, a trip member in normal coupling engagement with said yoke and disposed in the path of and governed by the advancing slide for shifting said yoke and its pawl to a given pre-set position relative to the ratchet wheel, said trip member being released from said slide adjacent the end of its advance stroke to render the yoke-spring operative to transmit a predetermined degree of motion to said shaft, and a spring-pressed means for partially returning the slide to a position to restore said trip member to its initial position in coupling engagement with said yoke upon the actuation of the latter to turn said shaft.

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