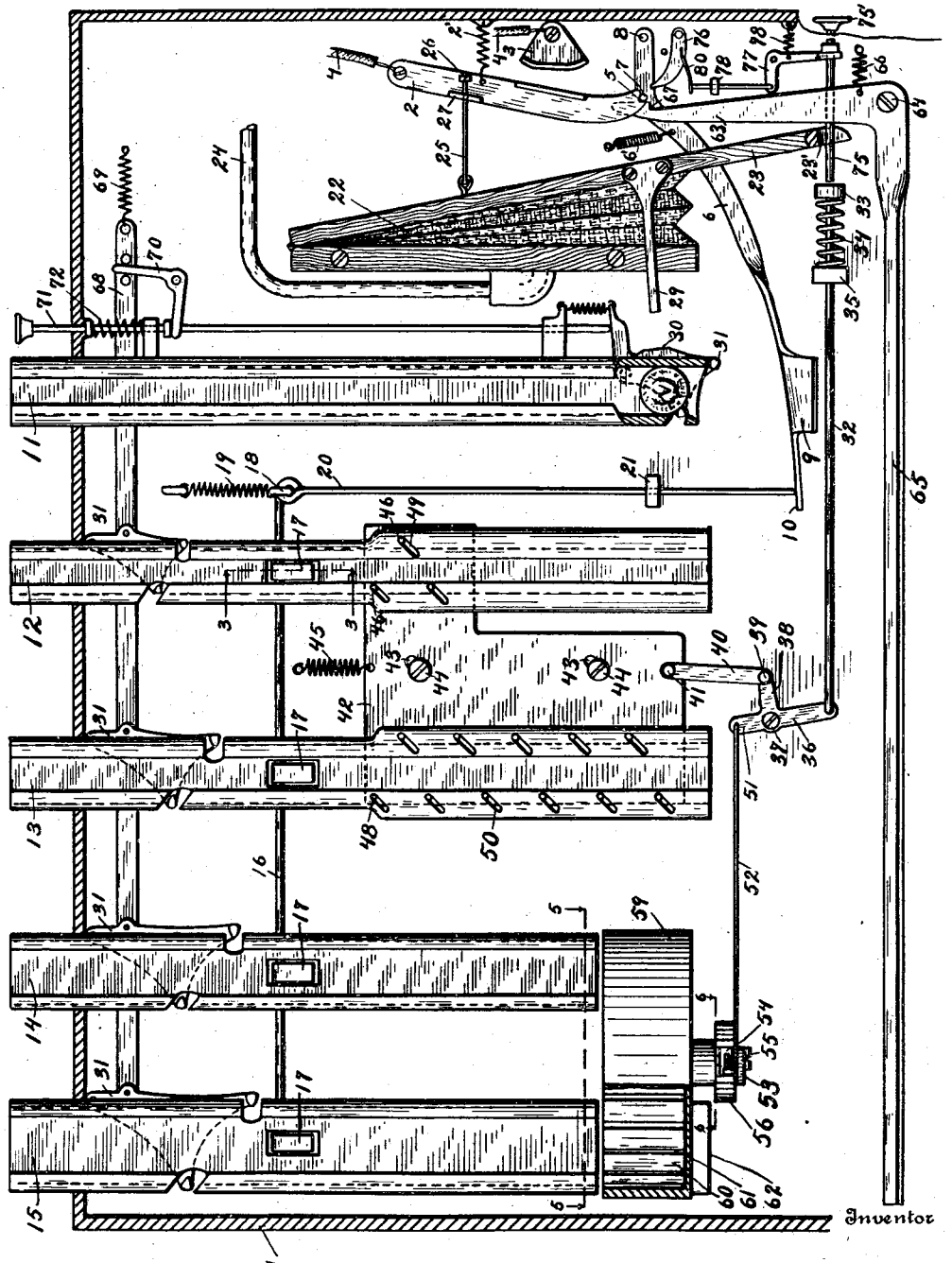
G. H. FULLINGTON.

COIN CONTROLLED APPARATUS.

APPLICATION FILED MAR. 29, 1910.

1,050,358. Patented Jan. 14, 1913.

3 SHEETS—SHEET 1.



Witnesses

Luella Greenfield

F. Gertrude Tolman

Fig. 1.

Inventor

George H. Fullington

By Chappell Earl

Attorneys

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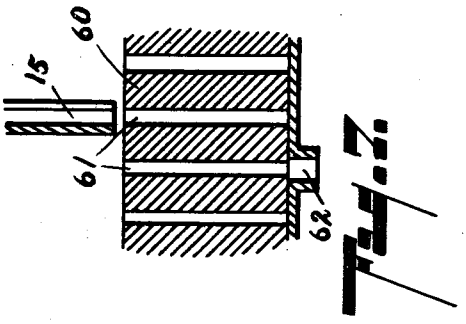

Fig. 3.

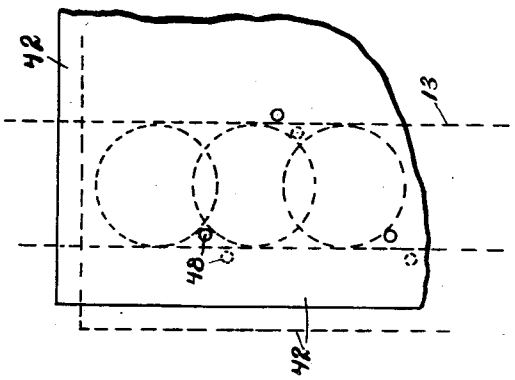

Fig. 4.

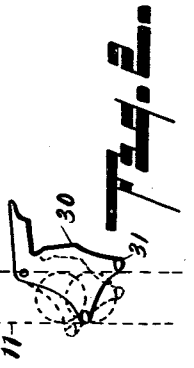

Fig. 2.

Inventor

George H. Fullington

Witnesses

Luella Greenfield

F. Gertrude Taleman

By Rappell & Earl

Attorneys

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3 SHEETS—SHEET 3.

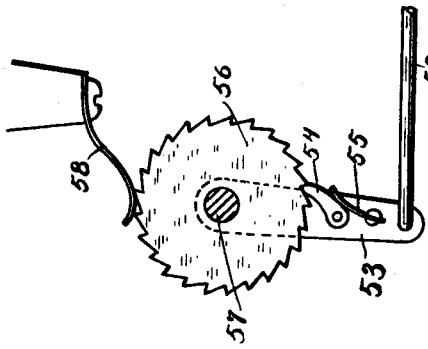

Fig. 6.

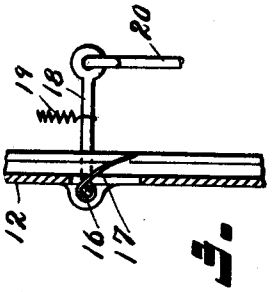

Fig. 4.

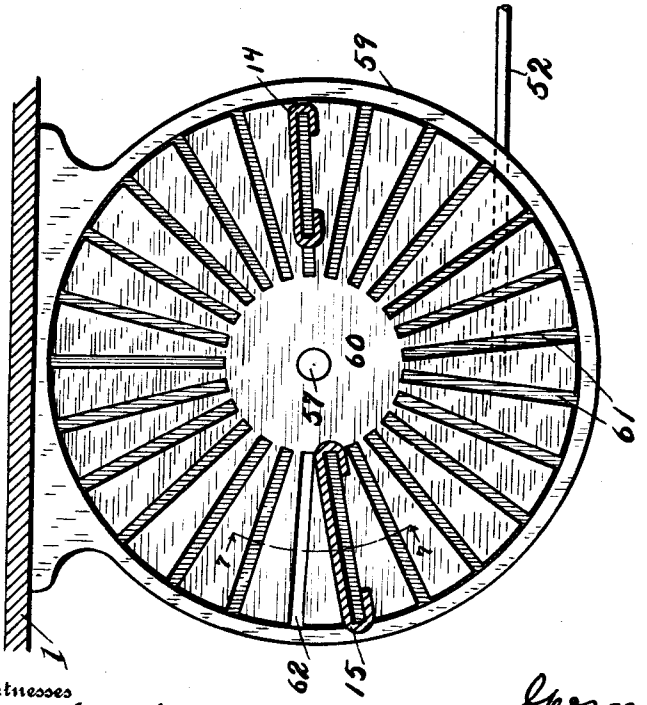

Fig. 5.

Witnesses

Luella Greenfield

F. Gertrude Tallman

Inventor

George H. Fullington

By Chappell & Earl

Attorneys

UNITED STATES PATENT OFFICE.

GEORGE H. FULLINGTON, OF DETROIT, MICHIGAN.

COIN-CONTROLLED APPARATUS.

1,050,358. Specification of Letters Patent. Patented Jan. 14, 1913.

Application filed March 29, 1910. Serial No. 552,190.

To all whom it may concern:

Be it known that I, GEORGE H. FULLINGTON, a citizen of the United States, residing at Detroit, Wayne county, Michigan, have invented certain new and useful Improvements in Coin-Controlled Apparatus, of which the following is a specification.

This invention relates to improvements in coin-controlled apparatus for controlling and actuating electric piano-players or musical instruments of a like or similar character.

The objects of the invention are: first, to provide an improved switch means for controlling the parts by means of a coin. Second, to provide improved means for actuation by the coin, whereby it is not necessary to exchange a large coin for nickels and feed in a quantity of the same, but the coins themselves can be dropped into the proper chutes in the machine, and the machine deliver full value by the proper number of instalments for the coin or coins introduced. Third, to provide improved coin receiving devices, which can be readily operated by means of push-buttons and levers to free the machine from coins after a patron of the machine has passed on, having been satisfied without exhausting the instalments of music paid for. Fourth, to provide improved means of permitting the freeing of the machine from coins, and, at the same time, avoiding the continuous playing of the instrument by the mere depression of the button or key.

Further objects and objects relating to details of construction, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The structure described constitutes one effective embodiment of my invention. Other embodiments would be readily devised by those skilled in the art.

The invention is clearly defined and pointed out in the claims.

A structure constituting an effective and preferred embodiment of the features of my invention is clearly illustrated in the accompanying drawing, forming a part of this specification, in which—

Figure 1 is a detail elevation view with the case in section. Fig. 2 is a detail view of the coin dropper means. Fig. 3 is an enlarged detail sectional view, taken on line 3—3 of Fig. 1, showing the coin trip means. Fig. 4 is a detail view of the pin-plate coin feed mechanism for advancing the coin, as a dime or quarter, step-by-step until the full value of the same, indicated by the proper number of instalments, has been delivered. Fig. 5 is a detail sectional plan view, taken on a line corresponding to line 5—5 of Fig. 1, considerably enlarged, showing the details for advancing a dollar or half-dollar through the machine and insuring the automatic operation of the piano or other instrument the correct number of instalments for that value. Fig. 6 is a detail sectional view, on line 6—6 of Fig. 1, showing details of the ratchet means for advancing this dollar and half-dollar device from the actuation of the switch mechanism. Fig. 7 is a detailed sectional view, on a line corresponding to line 7—7 of Fig. 5, showing details of the discharge mechanism for the dollar and half-dollar, whereby the falling coin will trip the stop lever means and stop the instrument.

In the drawing, all of the sectional views are taken looking in the direction of the little arrows at the ends of the section lines, and similar numerals of reference refer to similar parts throughout the several views.

Referring to the numbered parts of the drawing, the case 1 is of metal or any suitable material and completely incloses the other parts of the structure, except as a window may be inserted in the side to permit the observation of the operation of the mechanism whenever that may be desired, as is sometimes done with this apparatus. Within this case is an electric switch, made up of the pivoted member 2, swinging against the fixed member 3. A spring 2′ urges the member 2 into contact with the member 3, and the circuit 4—4 is thus controlled by this switch, and, of course, the operation of the motor for the piano-player or other musical instrument is thus controlled.

The switch member 2 is provided with a notch 5 at the end, which coöperates with a latch lever mechanism to hold it in the open position. This latch mechanism consists of a lever 6, provided with a pin 7, for engaging in the said notch 5. This lever is pivoted within the case at 8, and is held normally upward by the coiled spring 6′. On this latch lever 6 is provided a pan 9, against which the coin, as a five-cent piece, drops,

and the part is also provided with an extension 10, which is operated by a coin-actuated means in connection with the remaining series of coin chutes, as will be hereafter more fully and completely described.

The chute for the nickels, which is the smallest denomination of coins that this particular machine is intended to handle, is a simple chute with a coin dropper 31 at the bottom, which is provided with an ear 30 actuated from a finger 29 on the side of the bellows, which will be hereafter described. Coin chutes are provided for the coins of higher denominations, as dimes, quarters, half-dollars and dollars, being numbered, respectively, 12, 13, 14 and 15. These coin chutes are all provided with coin droppers 31, as illustrated in said Fig. 1, which are connected together by a common bar 68, which will be hereafter described.

The switch mechanism is actuated and the circuit broken by means of a bellows structure 22, the movable member of the bellows being provided with an extension 23 for acting upon the coin feed devices. This bellows is actuated through the control of the air in the pipe 24, which is effected from the piano-player mechanism, which is here of the pneumatic type, although it is clear that such operation might be effected by means of an electro-magnet, where instruments of a different character are in operation. When the movable side of the bellows 22 is actuated, it operates through the link connection 25, having a stop button 26 on its outer end. This link extends through an ear 27 on the switch member 2, whereby, when the bellows is collapsed, this switch member 2 will be withdrawn, and, if the latch mechanism 6 is in operation, the same will be retained in the depressed position and the circuit broken; and, consequently, any further playing of the piano or instrument, is stopped. There is a finger 29 secured to this movable member of the bellows, which strikes the lug 30 on the coin dropper 31 of the chute 11 for the nickels. If there is an additional nickel in this chute, there having been more than one put into the machine in the first place, it will then be released and will drop against the pan 9, which will release the switch mechanism and permit the circuit to be closed and permit the instrument to play another instalment of music. The dropping of the coin by the coin dropper in any of the other chutes 12, 13, 14 and 15 accomplished the same result by the action of the coin upon the yielding finger 17, which is secured to the rock shaft 16. This depresses the rock shaft arm 18 against the tension of the spring 19, which forces the plunger 20 down against the projection 10 of this latch lever mechanism, thereby releasing the switch and permitting the circuit to be closed and insuring an additional instalment of music. This vertical plunger 20 is guided in a suitable guiding ear 21 on the back of the case. When a dime or a quarter is dropped by the dropper already referred to, it descends past the trip finger 17 of its particular chute and drops down to a coin feed mechanism below, which consists of a series of pins, which, for the dime, consists of a pair of rows or pins 46, which permit the coin to advance step-by-step, and, when it is finally discharged from the bottom of the chute, it strikes against the long arm 65 of the stop lever and releases the catch mechanisms and supports the switch in the open position, as will be hereafter more clearly defined. The quarter will descend against a series of pins 48. These pins 46 and 48 are all on the single plate 42, which is supported by screws 44—44 in oblique slots 43—43, and the reciprocation of this plate upwardly and downwardly vibrates the said pins back and forth in slots 49 and 50, respectively, at each side, and advances the coin or coins step-by-step, until, finally, they are discharged at the bottom of the chute and allowed to strike the stop lever arm 65. This plate is actuated from the bellows extension 23, which operates the plunger rod 32 by striking against the head 33 thereof. This plunger rod is held normally toward the right by a coiled spring 34, acting against the head and against the perforated ear 35 on the back of the case. This acts upon the lever 36. An arm 38 of this lever is pivoted at 39 to a pitman 40, which is connected at the pivot 41 to the pin-plate 42, which controls the feed of the quarters and dimes in their respective chutes. This plate is held normally upward by means of the coiled spring 45, so that it is operated by pressing it downwardly, the spring causing it to recede upwardly. An arm 51 of this lever 36 is connected by a link 52 to the ratchet lever 53, carrying the pawl 54, which is acted upon by the spring 55. This pawl acts upon the ratchet wheel 56, which is on the vertical shaft 57, and the ratchet is acted upon by a detent spring 58 supported on the side of the case, as illustrated. (See particularly Fig. 6 for the details of this ratchet mechanism.)

A cup-shaped bracket 59 is secured to the back of the case 1, the side walls of the said cup extending upwardly, and within this cup is a rotating disk 60, containing radial vertical slots 61 for the reception of coins,—in this case dollars and half-dollars. These are delivered to the same through their respective chutes 14 and 15, as clearly appears in Figs. 1 and 5. When the coin drops into the slot of this wheel or disk, and the same is acted upon successively by the

ratchet means and its connections already referred to, it will be noted that the coin will be advanced step-by-step, so that a half-dollar will be advanced twelve times, and a dollar will be advanced twenty-four steps, when the same will be brought to the discharge aperture 62, clearly illustrated in Figs. 1 and 7. The coin will then drop downwardly and hit the long projecting arm 65 of the stop lever and stop the machine until another coin has been introduced. Thus it will be seen that this simple contrivance takes care of both the half-dollar and the dollar and secures the delivery of the proper number of instalments of music.

The stop lever 63 is pivoted at 64 on the lower part of the case, and has a long broad arm 65, which extends under the discharge ends of all of the different coin chutes and receiving apparatus, whereby the coins from all of the same drop upon this long arm and actuate it against its supporting spring 66, which is connected to the upwardly projecting portion of this stop arm 63. The upper portion of this arm is provided with a notched catch 67, which engages over the pin 7. It will thus be seen that whenever this stop lever is not acted upon, it engages the pin 7 and holds the latch lever 6 depressed, so that the switch is free to close and continue another instalment of music. It will, therefore, be seen that, whenever a coin passes out of its chute and delivery mechanism, no matter which of the five chutes it may drop from, it will strike the long arm 65 of the stop lever, which releases the hook 67 and permits the latch 6 to swing upwardly and engage the movable switch member 2 and stop the machine whenever the end of the particular instalment which is then in motion is reached, because, when the end of the instalment of music is reached, the bellows will be acted upon through the connections in the pipe 24 and the movable switch member 2 will be pulled to one side and the pin 7 will engage the notch 5 on the end of the switch member 2.

Whenever a person has placed a coin in the machine, no matter which chute it is placed in, and has heard all the music he cares to hear and passes on, it is, of course, entirely proper for an attendant to empty the coin out of the machine, so that it will be ready for the next patron. The nickel chute, or, in fact, all of the chutes may be emptied, and the coin droppers operated by means of the key member 71. This key is held normally upward by means of the spring 72, acting in a well-known way. This acts upon a bent lever 70, which throws a common bar 68, toward the left of Fig. 1, and thus releases and drops into the machine any coin that may be in either one of the chutes 12, 13, 14 or 15, as well as in chute 11. To empty chute 11, the lower end of this key 71 acts upon a projecting finger 73, connected to the coin dropper at the end of the chute 11, and causes the coins to drop one at a time from that source. A spring 74 holds this member normally upward. This means is independent of the bellows means for actuating the same parts. It is necessary also to push this button 71 to drop the coins into the machine from any of the chutes. When the machine is thus set in motion and the coin dropped from the chute into the actuating mechanism, the machine will continue to play automatically until all coins are discharged from the machine, delivering the proper instalments of music for the coins that have thus been introduced. It is necessary to depress this button 71 to introduce any additional coins of a higher denomination, as the automatic means for releasing the same has been omitted, in view of the fact that it is necessary to operate the same only at comparatively long intervals. To empty the coin chutes 12, 13, 14 and 15, I provide a special push key 75, which has a button 75′ toward the outside of the case, and enables the operator to depress the plunger 32 by striking this key against the same. However, it will be observed that, after the machine is set in operation, any person could continue the same indefinitely by merely pressing this button, unless some special provision was made to obviate this. I avoid this contingency by use of the bent lever 77, which is held in its normal position by the coiled spring 78. This is connected to the vertical plunger 79, which acts upon the latch lever 76 through the spring finger 80. The latch lever 76 is thus lifted upwardly whenever the key 75 is depressed, and is thus brought into position to latch and engage the notch 5 in the end of the movable switch member 2, so that the circuit will not be closed again until the pressure is removed from the key 75. This mechanism, of course, is not connected to the chute 11, which is operated by the special push button or key 71, and this special connection just referred to is not needed. The repeated depression of this key 71 will, of course, rapidly discharge all of the coins that are in this chute 11. The operation of these discharge devices does not, of course, break the current and stop the music till the particular instalment is fully rendered.

I have shown two different styles of apparatus for advancing coins through my apparatus step-by-step to secure the proper rendering of instalments of music, and it will be clear why this is done. To make use of a simple pin-plate structure for use on the dollar and half-dollar will require so long a column as to make the structure cumbersome, and this is avoided by the compact structure which has been made use of for the dollar and half-dollar. Of course,

the structure that I have made use of for the dollar and half-dollar might have been used for the quarter and dime also. It is, however, believed to have been simpler to provide the plate with pins where a compact structure is possible, rather than the more elaborate structure which would thus be needed. Two different types of devices are necessary, because, in order to properly actuate the stop lever, it will be noted that a dime must fall to a much greater distance than the larger coins. Of course, the nickel or the smallest denomination of coin provided for, would need to be provided with a magazine that would hold a number of the coins, which can be discharged automatically in order to avoid the constant attention of an attendant.

I have described the structure adapted to the playing of the usual electric piano-player. These piano-players are provided with pneumatic means and the music sheet is perforated to permit the action of a stop mechanism through a suitable tube for that purpose. For that reason, I have illustrated this structure as especially adapted that way, but I desire to comment that, of course, electric contact could be made use of in place of this pneumatic device and the changes that would need to be made are entirely obvious, and I have not therefore made any attempt to illustrate the same here.

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

1. In a machine of the class described, the combination with a suitable case, of a stop bellows means; an electric switch; a connection from the said bellows to the said switch to break the circuit of an electrically controlled instrument; a notch in the movable member of said switch; a latch mechanism with a pin for engaging the said notch to hold the switch open; a coin chute or chutes with the delivery ends arranged to deliver a coin to act upon the latch mechanism and release the same to permit the switch to close when a coin is introduced; a stop lever mechanism with a catch for engaging the latch mechanism to hold the same out of engagement to be acted upon by the ultimate discharge of the coin from the chute to permit the latch mechanism to engage the switch and break the circuit and thus stop the motor, all coacting substantially as described and for the purpose specified.

2. In a machine of the class described, the combination of a suitable case; a suitable electric circuit for controlling the motor; an electric switch with a movable member; a stop bellows with connections to the movable member of said switch; a latch mechanism for engaging the said movable member of said switch to hold the same open; a coin chute arranged so that a coin, in entering the same, acts upon the said latch mechanism and permits the switch to close; a stop lever mechanism with a notch for engaging the latch mechanism to hold the same out of engagement with the said switch; and a pan connected to the said stop lever mechanism, whereby the said stop lever is acted upon by the coin to release the latch mechanism and prevent the closing of the circuit, coacting for the purpose specified.

3. In a machine of the class described, the combination with a series of coin chutes, of a trip mechanism arranged to be actuated by the dropping of the coin in the chute; a feed mechanism associated with each chute for advancing the coin step-by-step a number of steps proportional to the coin value after it has tripped and started the machine; and a stop lever arranged for the coin to drop against when it passes from the feed mechanism for tripping the stop means for stopping the motor at the end of the step-by-step feeding of the coin, coacting for the purpose specified.

4. In a mechanism of the class described, the combination of a coin chute; a trip mechanism for the coin to actuate the starting of a machine; means associated with said chute to advance the coin step-by-step through the said chute; and a stop lever with connections for engaging the actuating means and suppressing the operation of the same with an extension in the path of the said chute whereby, when the coin drops out of the feeding mechanism, it stops the machine, coacting for the purpose specified.

In witness whereof, I have hereunto set my hand and seal in the presence of two witnesses.

GEORGE H. FULLINGTON. [L. S.]

Witnesses:
GLORA E. BRADEN,
F. GERTRUDE TALLMAN.