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PERIODIC SWITCH

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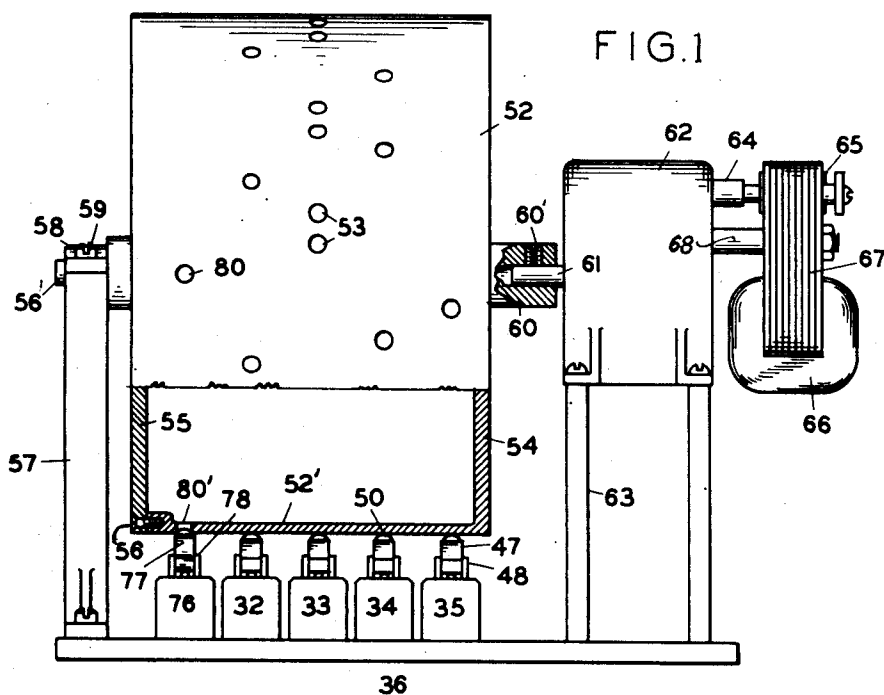


FIG. 2

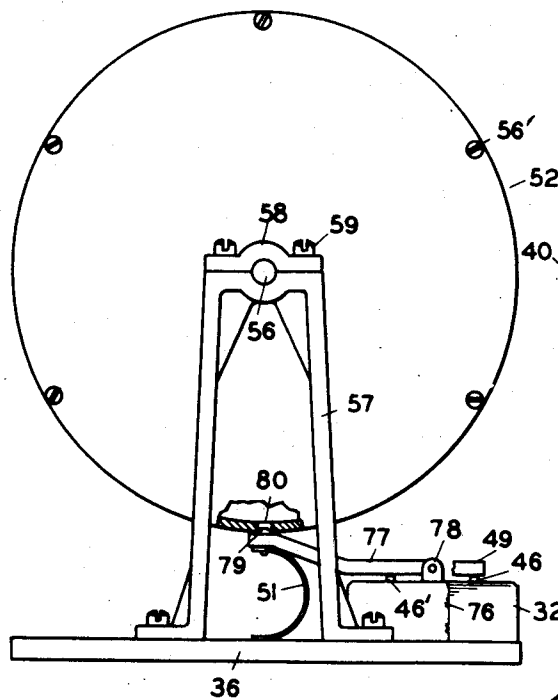
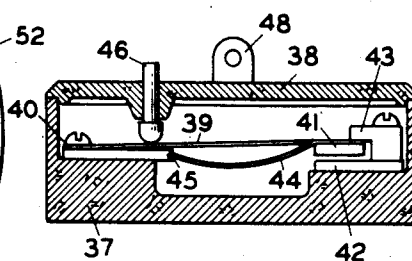


FIG. 3



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PERIODIC SWITCH

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1 Claim. (Cl. 200—27)

This invention relates to improvements in periodic switches, and more particularly to switches for electrically operated musical chimes.

Among the objects of the invention is to provide a periodic switch for musical chimes which is largely composed of parts which are commercially available.

Another object is to obviate the necessity for attention or servicing of the periodic switch.

Another object is to produce a periodic switch, inexpensive and durable in construction, and permanently reliable in operation.

Other objects and advantages appear as this description progresses.

In this specification and the accompanying drawing, the invention is disclosed in its preferred form.

In the one sheet of drawings:

Fig. 1 is a front elevation of the control means for the chimes constructed in accordance with this invention.

Fig. 2 is a side elevation of the same.

Fig. 3 is a vertical section of one of the switches for controlling the solenoids, which actuate the chime strikers.

In detail, the construction illustrated in the drawing, referring more particularly to Figs. 1 and 2 comprises the several switches 32, 33, 34, and 35 mounted alongside each other on the base 36. This type of switch is available in the art.

The construction of these switches is illustrated in Fig. 3 and consists of the recessed dielectric base 37 closed by the cover 38. The resilient lever 39 is fixed on the base 37 at 40 and has the non-burning contact 41 on its end opposite the contact 42 on the base 37. The lever 39 normally impinges against the stop 43 and separates the contact 41 from the contact 42. The resilient arms 44 are integral with the lever 39 on each side thereof, and are bowed, having their free ends confined in the notches 45. The dielectric operating plunger 46 rests on the lever 39 and extends upward through the cover 38.

External pressure on the plunger 46 depresses the lever 39 and brings the contact 41 into engagement with the contact 42 until the plunger is released. The combined operation of the spring members 39 and 44 is such that the contact 41 instantaneously makes and breaks engagement with the contact 42. The proximity of the plunger 46 to the pivot 40 of the lever 39 enables the switch to be operated with a micrometric movement of the plunger.

The switches 32 to 35 have the levers 47 pivoted on their covers between the lugs 48. The

ends of the levers extend at 49 into operative position above the respective operating plungers 46 of the several switches. The opposite ends of the levers are provided with the rounded studs 50. The springs 51 expanding between the base 36 and the levers 47 urge the studs 50 upward into engagement with the periphery of the hollow drum 52.

This drum has the perforations 53 therein at intervals in alignment with the several levers 47. The studs 50 are adapted to enter the perforations 53 under the urge of the springs 51. This swings the levers 47 on their pivots 48 and depresses their ends 49 against the plungers 46 to operate the switches 32 to 35.

The drum consists of the side plate 54 having the lateral flange 52¹ which forms the periphery of the drum. The opposite side plate 55 is secured to the flange 54 by the screws 56¹. The side plate 55 has the trunnion 56 which is supported in a bearing on the bracket 57 which is fixed on the base 36. The bearing on the bracket is closed by the removable cap 58 which is secured in place by the screws 59.

The opposite side of the drum has the hollow trunnion 60 which telescopes over the low speed shaft 61 of the speed reducer 62, and is secured thereto by the set screw 60. The speed reducer is mounted on the standard 63 and supports the drum 52 opposite the bracket 57. The high speed shaft 64 of the speed reducer is driven by the "squirrel cage" type induction motor 65 which is energized by the coil 66 wound on the usual laminated field core 67. The motor assembly is fixed on brackets such as 64 which extend laterally from the speed reducer 62.

The switch 76 has the lever 77 pivoted thereon at 78 and has the stud 79 which is adapted to rest in the interspaced perforations 80 in the periphery of the drum 52. The operating plunger 46¹ of the switch 76 is so arranged with respect to the lever 77 the switch remains open until the stud 79 is displaced from its normal position in one of the perforations 80. The switch 76 may be interposed in the circuit of the motor coil 66 to control the duration of the motor operation as is conventional in the art of electrically operated musical chimes.

A manual switch may be the usual door bell button and is connected in parallel with the motor switch 76.

The invention operates substantially as follows: When the field coil 66 is energized from an outside source to drive the motor 65 the drum 52 is slowly rotated at predetermined speed through 55

the interposed speed reducer 62. The rotation of the drum immediately displaces the stud 79 from the perforation 80¹ and swings the lever 77 to depress the plunger 46¹ and close the switch 76. Current then flows through the switch 76 to the coil 66 to continue the operation of the motor 65 after the manual switch not shown has been released.

The rotation of the drum brings at intervals one of the perforations 53 into registry with its cooperating stud 50. The spring 51 forces this stud upward into the aligned perforation swinging the lever 37 to momentarily close the corresponding switch 32, 33, 34, or 35. The perforations 53 are arranged on the drum 52 so as to operate the switches 32 to 35, which may be interposed in the control circuits of a conventional electrically operated musical chimes in the proper sequence, and timing to play a musical air.

When the next perforation 80 moves into registry with the stud 79, the lever 77 swings into its original position and opens the switch 76. This interrupts the flow of current to the field coil of the motor 65 and discontinues the rotation of the drum 52.

When the motor coil 66 is again momentarily energized from an outside source, a second cycle of operation is initiated and the apparatus strikes up another air which terminates when the stud

79 again enters one of the perforations 80. In this manner several different airs are being played in succeeding cycles of operation. If desired, the repertoire may be varied by substituting another drum at 52 having suitable perforations. This may be quickly and conveniently accomplished by removing the bearing cap 58 and disengaging the trunnion 60 from the shaft 61 by loosening the set screw 60. The new drum may then be mounted in the apparatus.

Having thus described this invention what is claimed and desired to be secured by Letters Patent is:

Control means for musical chimes comprising a base; a plurality of switches having operating plungers extending therefrom and mounted along side each other on said base; levers pivoted on the covers of said switches and operatively engaging said plungers; studs on said levers; a hollow drum longitudinally arranged with respect to said series of studs and rotatably mounted in standards fixed on said base and having perforations therein adapted to cooperate with said studs to move said levers; springs expanding between said levers and said base and arranged to urge said studs into said perforations; and means for rotating said drum at predetermined speed.

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