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AUTOMATICALLY SELECTIVE RECORD PLAYING MEANS

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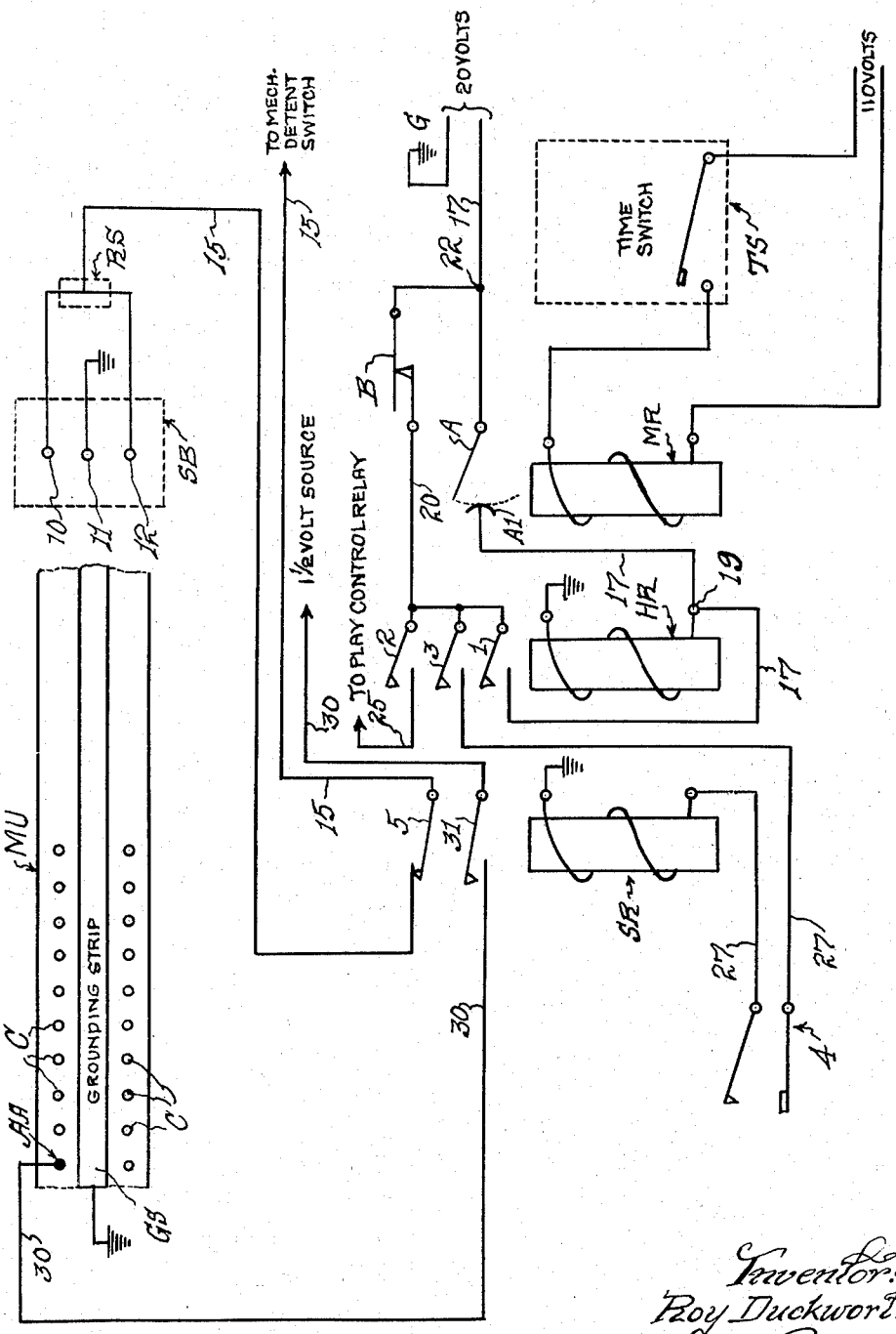

Inventor:
Roy Duckworth
By. Roy Griffith Jones
Attorney

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AUTOMATICALLY SELECTIVE RECORD PLAYING MEANS

Roy Duckworth, Rahway, N.J.

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This invention relates to means whereby a special or predetermined phonograph record is played periodically, at selected time intervals, on a coin-operated machine, regard being had for a record which is being played in response to the insertion of a coin.

The invention constitutes a simple and inexpensive attachment for machines which does not interfere with the machine's usual operation, and preferably functions with an accumulator comprising a memory unit scanned by a moving scanning block carried by the playing head, and preferably uses a connection for the special record to a particular position on the memory unit, and also functions to automatically postpone the transmission of the scanning signal from the block while permitting the block's movement relative to the memory unit.

The special or predetermined record which is played periodically may have any content; it may be, for example, a listed record played free, or a commercial or advertising record regarding other records in the machine, or relating to any service or product.

The invention is illustrated in the figure of the drawing, which is a schematic diagram of the memory unit and the accompanying scanning block, both of which form part of the coin-controlled phonographic machine, together with a diagram of my attachment.

It may be assumed for the purpose of describing the structure and function of the attachment in the more involved situation, that one or more coins have been deposited for the playing, respectively of one record, or more than one in succession.

As stated, the memory unit MU, and the associated traveling scanning block SB, which block is secured to the traveling record selector and player, or traveling head, form part of the regular equipment of the coin-operated phonographic machine, hereinafter referred to simply as the machine. While the construction of said unit and block are known, it may be said, in brief, that the unit usually comprises, as at present used in the machines, a front and a back row of condensers, one for each record, which become charged when a coin is deposited for a corresponding record, there being a grounding strip GS between the rows. Each of the mentioned condensers is connected to a wire which leads to selecting buttons, which buttons close circuits to charge the condensers.

The scanning block SB includes contacts **10, 11** and **12**, of which **11** is grounded and the other two are connected to a reversing switch RS, which in turn is connected through the main signalling line or lead **15** to the detent switch of the machine, and through which charges on the condensers are conveyed to the machine to set in motion the mechanism which plays a record, it being understood that the block travels back and forth from right to left and reversely over MU, its contacts sliding over the condensers and the grounding strip to successively pick up charges on the condensers. The line **15** usually goes directly to said detent switch, but for the purpose of this invention, a switch **5** is placed in this

line, which switch is opened to break the main lead when it is time to play the special record, thus temporarily preventing paid-for records from being played. The condenser AA of the MU, shown at the extreme left of the back row of condensers, is connected to the machine through line **30**, so that the special record is periodically played, provision being made for charging this condenser automatically at the appointed time.

The attachment now to be described as coacting with the machine, including the MU and SB, may be said to begin with a time switch TS, through which current is fed to what I call a momentary contact relay MR, these two components constituting a circuit fed from a 110 volt line. Assuming the TS in operation, and set to go on and off alternately at chosen intervals of say, one hour, the time switch closes the circuit for one hour and then opens the circuit and keeps it open for the succeeding hour, and so on repeatedly. When the circuit closes, a momentary contact switch A, which is resilient, is pulled toward the solenoid MR and held to the solenoid for an hour. During this movement of switch A, it briefly makes contact with a stationary contactor A1. The switch A is in a line **17** of a 20 volt circuit, the other side of the circuit grounded at G. There is a take off from line **17** at point **19** as a grounded winding for a holding relay HR. There is also a take off **20** from line **17** at point **22**, which includes switch B and runs to spring or resilient switches **1, 2** and **3**. These switches are closed simultaneously when solenoid HR is energized, and are self-opening when the solenoid is deenergized. Switch **1** closes on line **17**, so that relay HR remains energized, switch **2** closes on line **25**, which goes to a play control relay in the machine to put the machine in operation, and switch **3** closes on line **27**. Line **27** includes a switch **4** which is normally closed, but which is opened by a lever on the traveling playing head, which head picks records out of the racks, said lever acting when the picking action is performed, and holding switch **4** open until the record has finished playing. Line **27** continues beyond switch **4** to form the grounded winding for relay SR. Switch **2** being closed, the play control relay in the machine is energized, thereby putting the machine into play, which includes travel of the scanning block SB back and forth over the memory unit MU, to select a record as indicated by a charged condenser. Current through switch **3** energizes the special record relay SR, it being recalled that switch **4** is closed until a record is being picked out of the rack. If no record is playing, switches **5** and **31** will immediately be actuated by SR, the former switch being opened and the latter closed. Switch **5** being open, the scanning block cannot transmit signals from the condensers to the machine through the main lead **15**. However, if a paid-for-record is playing, switch **4** has been opened by the playing head, as previously stated, and relay SR will not actuate switches **5** and **31**. But as soon as the record being played has been returned to the rack, switch **4** closes, so that switches **5** and **31** are actuated, the former being opened so that the main lead **15** to the scanning lead is broken. This causes the scanning block, in its travel over the memeory unit MU, to pass over any charged condensers without conducting current therefrom.

From a 1.5 volt grounded source, a line **30**, which includes a switch **31**, runs to condenser AA, at the extreme left of the back row of condensers, to charge condenser AA. When the moving scanning block SB contacts condenser AA, conditions are such that the special record is played.

The operation will now be described. When switch A briefly makes contact with stationary contactor A1, solenoid HR is energized long enough to close switches **1, 2** and **3** through line **17**. When line **17** is open by the

opening of switch A, current flows through line **20** to these switches. Current through line **20** by way of switch **1** then keeps switches **1**, **2** and **3** closed and keeps holding relay HR energized.

Current through line **20**, switch B, switch **2**, and line **25** goes to the play control relay in the machine to start the machine and put it into play. If no paid-for record is playing, current flows through switch **3**, line **27** and normally closed switch **4**, energizing the special record relay SR, opening switch **5** and closing switch **31**. If a paid-for record is playing, switch **4** is open, but is closed by replacement of the record in the rack after play is finished. Switch **5** being open, the main lead to the machine is open, thus temporarily preventing the machine from playing any further paid-for record, so that SB moves left to the AA position without picking up any signals from the corresponding condensers. Switch **31** having been closed by special record relay SR, a voltage is put on condenser AA from the mentioned 1.5 volt source. When SB has travelled to the extreme left, it opens switch B. With switch B open, HR and SR are deenergized, closing switch **5** and putting the main lead from the scanning block back into normal operation and allowing it to pick up a signal from AA to play the special record. After the special record has been played, SB continues moving to the right, picking up any selections from the back row which are to be played. Then, in moving from right to left, SB picks up any selections in the front row which were by-passed on the movement left to the AA position. SB travels right to left and back twice (2 round trips) when the play control is energized

What is claimed is:

1. In an automatic, coin-operated phonographic machine having a traveling playing head, a memory unit including a series of condensers adapted to be charged through record selecting switches, a traveling record selector and playing head, and a scanning block carried by said head, the block movable over said condensers, and a main line from said block connected to said machine to transmit a current to mechanism thereof for the picking up and playing of records, an attachment comprising a first circuit including an automatic time switch

adapted to open and close for selected time periods, and a relay adapted to be energized through the time switch, a second circuit including a momentary contact switch adapted to momentarily close this circuit both when the relay is energized and when it is deenergized, a holding relay energized momentarily when said momentary contact switch is closed, a third circuit, which includes part of said second circuit, for continuing the energizing of the holding relay when the momentary contact switch is open, said third circuit including a first switch closeable by the holding relay, and including also a second and third switch closeable by the holding relay, said second switch adapted to close a circuit leading to a play control relay forming part of the machine, a special record relay, a fourth circuit including said third switch of the third circuit and adapted to energize the special record relay and including a normally closed switch adapted to be automatically opened by the traveling head when the latter reaches a selected condenser of one of said series of condensers, a fifth circuit adapted to put a potential on a selected condenser of the memory unit and including a switch closeable by the special record relay and leading to a voltage source, a normally closed switch in said main lead adapted to be opened by energization of the special record relay, said third circuit including a switch adapted to be opened by the playing head to deenergize the holding relay and thus deenergize the special record relay and so closing the switch in the main lead to put the machine into normal operation when the scanning block reaches a predetermined position in its travel.

2. The combination specified in claim 1, in which the selected condenser of the memory unit is at one end of the said series of condensers.

3. The combination specified in claim 1, in which said momentary contact switch is resilient and is normally biassed to open position.

References Cited in the file of this patent

UNITED STATES PATENTS

2,240,609	Cummings	May 6, 1941
2,627,415	Rasmussen	Feb. 3, 1953