

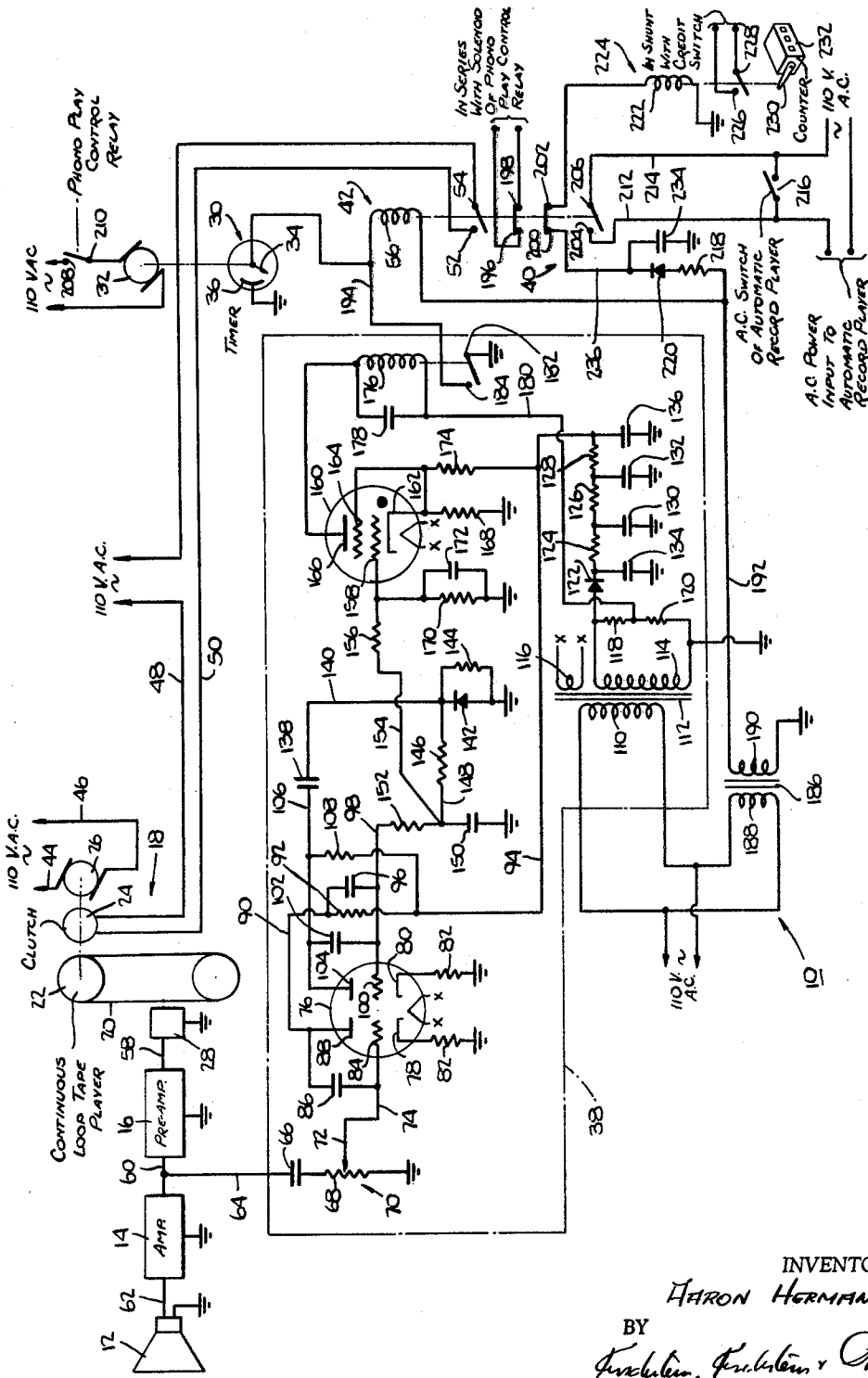
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ADVERTISING ADJUNCT FOR AUTOMATIC RECORD PLAYING MACHINES

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**ADVERTISING ADJUNCT FOR AUTOMATIC
RECORD PLAYING MACHINES**

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This invention relates to an advertising adjunct for an automatic record playing machine, the latter being more popularly known as a "juke box."

It is an object of my invention to provide an improved adjunct which is adapted to cooperate with a juke box to deliver commercial messages at judicially spaced intervals.

Adjuncts of this type, that is to say, arrangements for delivering commercial messages in connection with the operation of a juke box, have been proposed heretofore, but to date they have been subject to certain difficulties which have prevented their widespread commercial acceptance.

One of the principal drawbacks in connection with such adjuncts is that the delivery of a commercial message to a captive audience, i.e., people in the establishment where the juke box is located, tends to cause resentment against the commercial sponsor because it is delivering a sales talk over an instrumentality for the intended operation of which the regular customers are paying their own money. Moreover resentment is aroused by the intrusion of a commercial note into what previously had been pure entertainment. It is much as if subscribers to a pay television system were required to listen to commercial advertising.

It is an object of my invention to provide an adjunct of the character described which overcomes the aforesaid drawback, that is to say, which prevents or minimizes any resentment that listeners might feel.

More specifically, it is an object of my invention to provide an adjunct of the character described which in association with the delivery of a commercial message supplies the patrons with free entertainment following upon the close of the message.

It is another object of my invention to provide an adjunct of the character described which in a single cycle, repeated at judicious intervals, will transmit a prerecorded commercial message or any one of a series of such messages and follow each message with a free play of a record in the juke box.

It is a more specific object of my invention to provide an adjunct of the character described in which following the play of a commercial message a free credit is established in the juke box so that any one of the patrons simply needs to press a selection button and the juke box will play a record without charge.

Another difficulty with adjuncts of the character described is that they create an economic conflict. The owner of the establishment in which the juke box is located and who derives a revenue from the play of the juke box does not want the box to function, as for instance, for the delivery of a commercial message or even of a free play, if in so doing, it will materially reduce the earning power (revenue) of the machine. On the other hand, the commercial sponsor would like to have his message delivered as frequently as possible.

It is another object of my invention to provide an adjunct of the character described which creates a nice balance between these conflicting economic interests.

It is a more specific object of my invention to provide an adjunct of the character described which has a certain, optionally adjustable, cycle at the end of which a commercial message and free play are performed, but which cycle is halted by paid-for play of the juke box, so that

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during a period when the box is in operation the commercial message will be deferred by a period of time equal to the time for the paid-for plays.

It is another specific object of my invention to provide an adjunct of the character described wherein, in addition to the deferral of play of an advertising message due to operation of a paid-for play of the juke box, the juke box itself will by its own operation prevent the delivery of a commercial message.

It is another object of my invention to provide an adjunct of the character described in which improved means are provided to determine the end of a commercial message and thereupon establish a credit for a free play.

It is an ancillary object of my invention to provide an adjunct of the character described in which the means for determining the end of a commercial message is responsive to the audio sound of said message, and moreover, in which suitable means is included to prevent crediting a free play during a short pause in the commercial announcement.

It is another object of my invention to provide an adjunct of the character described which is arranged to prevent cutting off the advertising message, as for example, by operating the master control switch for the juke box, whereby once the advertising message is started its completion is ensured.

It is another object of my invention to provide an adjunct of the character described including a control check for the number of free plays provided consequent upon delivery of advertising messages, whereby a proprietor of an establishment in which a juke box is installed will not be tempted to falsify the receipts from the juke box because of an incorrectly stated number of non-paid playing operations of the box.

It is another object of my invention to provide an adjunct of the character described which constitutes relatively few and simple parts and is rugged, foolproof, quick acting and efficient in operation.

It is another object of my invention to provide an adjunct of the character described which can be installed on a standard commercial juke box without interfering with the normal operation of the box.

Other objects of my invention in part will be obvious and in part will be pointed out hereinafter.

My invention accordingly consists in the features of construction, combinations of elements and arrangements of parts which will be exemplified in the adjunct hereinafter described, and of which the scope of application will be indicated in the appended claims.

In the accompanying drawing in which I have shown one of the various possible embodiments of my invention, I have illustrated a circuit diagram and schematic representation of an adjunct constructed in accordance with my invention, the same being shown in its rest or idle condition.

In the following description I have detailed the adjunct as it is employed in combination with an automatic record playing machine. It should be understood, however, that my invention is not to be limited to such a machine, but can be employed in connection with any type of sound reproducing means, as for instance, a machine which will controllably select and play different magnetic tapes, or a machine which will controllably select and play different radio station broadcasts. All such machines, however, are of a coin-controlled type, so that entertainment is forthcoming for specified periods of time and with a specified selection upon the deposit of coins. These machines include one or more speakers which I may employ in cooperation with my adjunct and also include an audio amplifier which I likewise may use. The preamplifiers of such machines may or may not be suitable for use with my adjunct and therefore, as later will

be brought out, I prefer to use a separate preamplifier, that is to say, a preamplifier other than the one employed in the juke box.

Juke boxes in general have certain other components which I employ in connection with my adjunct. For example, a standard juke box has a credit storage means, such as a credit switch which normally is actuated upon deposit of coins of different denominations to store up one or more credits, as the case may be, that are applied to plays of the box and are consumed by actuation of a selection switch. Also a standard juke box as a phonograph play control relay. This is a relay the solenoid of which is in energized condition, i.e. actuated, when the juke box is in operation, either during the play of a record or during the operative cycle of the selection head. Furthermore, the usual juke box includes an A.C., or power, switch, usually located in an inaccessible spot such as the back of the machine and which may be employed to cut off the power to the machine. I may employ any one or more of the foregoing components of a juke box in association with my adjunct but always will use the credit storage means.

Referring now in detail to the drawings, the reference numeral 10 denotes an adjunct constructed in accordance with my invention, said adjunct being illustrated partially by a circuit diagram and partially by schematic representations of the mechanical components. The adjunct includes a loud speaker 12 which may be the loud speaker of the juke box, and an amplifier 14 which likewise may be part of the juke box but which desirably is part of the adjunct inasmuch as it is desired to have an audio amplifier which is crisp in the voice range since its principal function is to insure the delivery of a clear commercial message. The adjunct further includes a preamplifier 16. I have not detailed the circuit of either the amplifier or the preamplifier inasmuch as both are entirely conventional, the preamplifier being one which is ordinarily used in connection with a tape pickup head.

The adjunct also includes a tape player of any conventional kind. Preferably I employ a tape player which employs a continuous loop cartridge, to wit, a cartridge having an endless loop of tape that is shown schematically and is indicated by the reference numeral 20. One typical such tape player is the Viking Model "36" or the Viking Model "35," both manufactured by Viking of Minneapolis, Inc., Minneapolis, Minn. Such tape players include a rather long endless loop of magnetic tape that provides as much as 128 minutes of play. The loop is moved by engagement with a capstan 22 which is driven through a clutch 24 by a capstan motor 26. The clutch 24 is of the electrically actuated type and when deenergized is open (idle). The capstan motor is continuously driven but will not move the tape 22 unless and until the clutch has become engaged (operative) by electrical energization thereof. Thereupon the capstan will move the loop past a magnetic sound pickup head 28, the electrical output from which is fed to the preamplifier, the latter, as is conventional, having its impedance matched to that of the pickup head.

Another element of my adjunct is a timer 30. Said timer includes a timer motor 32 connected to a rotatable timer element 34 that is adapted, once each revolution of the timer, to close a pair of normally open timer contacts. One contact is actuated by the timer element 34 and the other contact 36 is stationary. Desirably the period of the timer cycle is adjustable, as is the length of time that the contacts are closed. Many timers of this nature are manufactured commercially and I mention by way of example, the series RB timer manufactured by the Hayden Division of General Time Corp. of Torrington, Conn. This timer will repeat a preset cycle of switching operations so long as the circuit to the motor 32 is energized. The total time period of a single cycle may be varied, as may be the length of the short period during which the normally open contacts of the timer are closed. I have found that highly suitable results are secured when

the complete timer cycle is between 15 to 20 minutes although this is not critical. A satisfactory period of time for the closure of the timer contacts is about ten seconds. However, I will point out later the factors which affect the length of the closure period.

Another element of my adjunct is an audio actuated relay switch 38 having a slow release, that is to say, a switch which will be actuated comparatively rapidly but which has a noticeably slow deenergization (release) period, for example, a deenergization period in the order of four or five seconds. Preferably this period may be controlled. Said relay switch 38 will be described in detail hereinafter in connection with the circuit of my adjunct, but it may be mentioned now that it constitutes that portion of the circuit which is inclosed by a dot-and-dash block.

The adjunct further includes an energy charging and storage bank 40 and a control relay 42, the latter being initially operable by the timer 30 and being held in operated condition by the audio actuated relay switch 38. Said control relay has several functions principal among which are regulation of the tape player, and regulation of the energy charging and storage bank which results in accreditation of a free play in the juke box.

Referring now to the circuit diagram, the capstan motor 26 is connected by leads 44, 46 to a source of electric power such as 110 volt A.C., which during a business day drives said motor. The electrically actuated clutch 24 which is mechanically interposed between the motor 26 and the capstan 22 is arranged to be energized by a pair of leads 48, 50 from a source of electrical energy such as the same 110 volt A.C. However the lead 50 includes in series therewith a pair of normally open switch contacts 52, 54 that are arranged to be closed upon energization of the solenoid 56 of the control relay 42. Hence as long as the control relay is idle the tape loop is stationary. Said loop has recorded thereon a series of suitable commercial messages, i.e. messages from a sponsor each of which may be of some appropriate length, for example, fifteen seconds or even up to as much as thirty seconds and which are physically spaced from one another along the length of the tape. That is to say, between each successive set of commercial messages there is a silent or unrecorded space on the tape which occupies a predetermined period of time at the normal rate of travel of the tape loop, e.g. 3¾ i.p.s. or 7½ i.p.s. The time duration of this silent period is not critical; however I have found that a suitable length is about ten seconds. There is a certain relationship which will be expressed hereinafter among the time duration of the idle period, the length of time required for the slow release switch to become idle after deenergization, and the length of time that the timer contacts are maintained closed by the timer motor.

As long as the capstan is driven the portion of the tape loop moving past the sound head 28 will deliver an audio modulated, electrical signal corresponding to the commercial message, to the lead 58 which connects the head 28 to the preamplifier 16. The preamplifier will send a signal modulated by the commercial message through a lead 60 to the audio amplifier 14 which will boost the power of the signal sufficiently to drive the speaker 12 through a lead 62.

A lead 64 connected to the lead 60 at the output of the preamplifier 16 draws a small amount of signal strength from the preamplified commercial message and directs it to the audio actuated relay switch 38 which, as noted heretofore, is a slow release switch. The preamplified message is fed to an input coupling condenser 66 and then to the resistance winding 68 of a potentiometer 70 having a manually adjustable tap 72.

The function of the potentiometer is to regulate the amount of input power applied to the relay switch 38. It will be seen hereinafter that the greater the input power

the longer will be the period of time delay so that, in effect, the potentiometer 70 may be employed to regulate the length of the delay release period.

The end of the resistance winding 68 remote from the input condenser is grounded. The tap 72 is connected by an input lead 74 to a conventional audio amplifier. Inasmuch as the output from the audio amplifier is fed to an integrating circuit and is not used to provide intelligible sound for reproduction, any type of audio amplifier may be used, e.g. Class A, Class B or Class C. Accordingly, it will be understood that the amplifier illustrated has only been shown by way of example.

Said amplifier comprises a double triode 76 each of the two cathodes 78, 80 of which are separately grounded through resistors 82. The grid 84 of the first stage of the double triode is connected to the input lead 74 and also by a neutralizing condenser 76 to the anode 88 of the first amplifier stage. Said anode is connected by a lead 90 to one terminal of a load resistor 92, the other terminal of which is connected to a positive high voltage line 94.

The amplified output of the first stage which appears on lead 90 is coupled through an interstage condenser 96 to a lead 98 connected to the grid 100 of the second stage of the double triode. Said grid is also connected by a neutralizing condenser 102 to the anode 104 of the second stage. The second stage anode is connected by a lead 106 to one terminal of a load resistor 108, the other terminal of which likewise is connected to the positive high voltage line 94.

The implied output of the first stage which appears on lead 90 is coupled through an interstage condenser 96 to a lead 98 connected to the grid 100 of the second stage of the double triode. Said grid is also connected by a neutralizing condenser 102 to the anode 104 of the second stage. The second stage anode is connected by a lead 106 to one terminal of a load resistor 108, the other terminal of which likewise is connected to the positive high voltage line 94.

Positive high voltage is applied to the line 94 from a 110 volt A.C. source which feeds the primary 110 of a transformer 112 having two secondary windings 114, 116. The 6.3 volt secondary winding 116 has its output terminals X, X connected to the heater leads X, X of the various tubes in the audio actuated relay switch 38. The 200 volt secondary winding 114 has its terminals connected to a pair of voltage divider resistors 118, 120 which are in series with one another and are in shunt across the secondary winding 114. One end of the secondary winding 114 is connected to ground, the other end is connected to a filtered rectifier circuit including in series a solid state rectifier 122 and three resistors 124, 126, 128. The output from the last resistor is connected to the positive high voltage line. The points between each of the resistors 124, 126, 128, and between the first resistor 124 and the rectifier 122, and between the last resistor 128 and the positive high voltage line 94 is connected to ground through condensers 130, 132, 134, 136, respectively, so that a suitable positive potential is applied to the line 94.

The output from the second stage of the double triode amplifier is connected through a coupling condenser 138 and a lead 140 to a rectified integrating circuit constituting, in effect, an integrating rectified time delay circuit. Said circuit comprises a rectifier 142 connected to the lead 140 and so oriented as to accumulate a positive charge on said lead 140. The opposite terminal of the rectifier runs to ground to permit leak-off of negative charges. Said rectifier is shunted by a high value leak resistor 144. The lead 140 also is connected to one terminal of a resistor 146 the other terminal of which is connected by a lead 148 to one terminal of a charging condenser 150 the opposite terminal of which is grounded. The lead 148 also is connected to a resistor 152 which in turn is connected to the lead 98.

With this arrangement the output from the cascaded capacity coupled audio amplifier stages will, when audio signals are applied to the input lead 64, build up a positive potential in the rectifier RC time delay network constituted by the rectifier 142 the resistors 144, 146 and the condenser 150. This positive charge will appear on the lead 154 which is connected to the junction between the resistors 146, 152 and the condenser 150. With a normal

amplitude for the audio signals the potentiometer 70 can readily be adjusted so that after a few milliseconds of operation of voice or sound input, a positive potential will be built up on the lead 154 which potential with the balance of the circuit about to be described, will remain for approximately four or five seconds.

It should be mentioned at this point that the purpose of this integrating time delay circuit which provides the slow release of the relay switch 38 is to maintain a positive potential on the lead 154 during lapses of audio transmission in a commercial message. When music is being played it is very rare for a silent period to appear for more than a fraction of a second; however, during the delivery of a commercial message it is quite common for there to be a pause in the order of up to two or even three seconds, as for the purpose of emphasizing an important point in the message, and it is desired that the switch 38, once it has been actuated by the commencement of audio signals on the input lead 64 remain actuated for a period when no modulation appears on such input lead due to such a pause. Nevertheless the period of release should be shorter than the idle interval between commercial messages on the tape. The reason for this will appear shortly hereafter.

The positively chargeable lead 154 is connected through a current limiting resistor 156 to the control grid 158 of a controlled rectifier 160 in the form, for example, of a thyatron having a cathode 162, a screen grid 164 and an anode 166. The cathode is connected to ground through a resistor 168. The control grid 158 is connected to ground through a grid leak resistor 170 shunted by a condenser 172. The screen grid 164 and the cathode are connected to the positive high voltage line 94 through a current limiting resistor 174. The anode 166 of the thyatron is connected to one terminal of a load which constitutes a relay solenoid 176 shunted by a condenser 178 that is provided in order to avoid chattering of the relay contacts. The other terminal of the solenoid 176 is connected by a lead 180 to a junction between the resistors 118, 120 whereby a 110 volt A.C. voltage appears on said lead 180 and, thereby an alternating potential is impressed upon the anode 166 of the thyatron. Hence the thyatron is deactuated every other half cycle (when the anode is negative) and is in condition for operation the remaining half cycles.

The values of the resistors 168, 170 and 174 are so selected that during the half cycle when a high positive potential is applied to the anode and the anode is positive with respect to the cathode, the control grid will be negative with respect to the screen grid so long as no positive potential appears on the lead 154. However when positive potential is applied to the lead 154 the potential on the control grid 158 will overcome the negative bias and will be positive with respect to the screen grid whereby to fire the thyatron during the half cycle when its anode is positive.

The inductance of the solenoid 176 and capacity of the condenser 178 are so selected that the relay will remain energized during intermediate idle half cycles of the thyatron between energized half cycles thereof. Also as noted previously, the solenoid 176 will remain energized during pauses in audio modulation appearing on the input lead 64 which pauses may be as long as about three seconds.

If for any reason it is desired to change the duration of pause during which the solenoid 176 will remain energized after initial energization thereof, the tap 72 is adjusted to increase the voltage applied to the grid 84 if the pause is to be lengthened and vice versa.

The solenoid 176 controls a pair of switch contacts 182, 184, the contact 182 being grounded. These switch contacts are the relay switch contacts of the audio actuated relay switch 38, being normally open but being closed upon the appearance of modulation on the input lead 64 and remaining closed for a selected short period

after such modulation ceases. Such period is shorter than the idle period on the tape loop 20 between successive commercial messages.

The solenoid 56 for the control relay 42 is adapted to be energized from a transformer 185 having a primary 188 in parallel with the primary 110 of the transformer 112. The secondary 190 of the transformer 186 provides a low voltage, e.g. 25 volts, between ground and a low voltage A.C. line 192. The line 192 runs to one terminal of the solenoid 56. The other terminal of said solenoid is connected by a lead 194 to the timer 30 and by a parallel lead 196 to the contact 184. Hence closure of either the timer contacts or of the audio actuated switch contacts will energize the control relay 42. The control relay solenoid 56 has four pairs of contacts two of which are normally open and two normally closed. The pair of contacts 52, 54 in the control circuit for the capstan clutch 24, which contacts are normally open, already have been mentioned. In addition thereto there are a pair of normally closed contacts 196, 198, a second pair of normally closed contacts 200, 202 and a second pair of normally open contacts 204, 206.

The normally closed contacts 196, 198 are connected in series with the solenoid of the phonograph play control relay of the juke box. As long as these contacts are closed the juke box is able to make a selection of records and to play a record. If the contacts are open the juke box is unable either to select or play a record.

It may be mentioned at this time that pursuant to my invention the phonograph play control relay is provided with a normally closed pair of contacts 208, 210 in series with the power circuit for the timer motor 32. Accordingly the timer motor 32 only will run so long as the juke box is idle, i.e. not being played, inasmuch as the solenoid of the phonograph play control relay is idle (deenergized) at such time. However, if the juke box is playing or selecting a record the contacts 208, 210 are open and the timer is halted.

The normally open pair of contacts 204, 206 are connected by leads 212, 214 across an A.C. switch 216 which is a manually controlled switch in the power line input to the automatic record player. When this switch 216 is closed the automatic record player is ready to be operated by coin control operation followed by manipulation of the selector mechanism. When the switch 216 is open the automatic record player is disconnected from the line and is dead. However when the solenoid 56 is energized the switch 216 is jumped, i.e. shunted, by the then closed contacts 204, 206 to supply power to the automatic record player for the period of energization of the solenoid 56.

The normally closed contacts 200, 202 connect the low voltage line 192 through a current limiting resistor 218 and a solid state rectifier 220 to a solenoid 222 of an accrediting relay 224, one terminal of the solenoid being thus connected to the low voltage line and the other terminal to ground. The relay 224 has a pair of normally open contacts 226, 228 connected in shunt with (across) the credit switch of the automatic record player. When these contacts are closed one credit will be deposited in the credit storage circuit of the automatic record player in the same manner that a credit is deposited upon closure of the coin-controlled credit switch. The armature of the relay 224 also is linked to the tally arm 230 of a counter 232 whereby a cumulative count will be provided of the number of times that the accrediting relay 224 has been actuated.

A high capacity pulse condenser 234 has one terminal connected to ground and the other terminal connected to the lead 236 between the rectifier 220 and the contact 200.

To explain the operation of the adjunct 10 let it be assumed that the A.C. power switch 216 to the automatic record player is closed, that A.C. power is applied to said adjunct at all the various points indicated in the

circuit, that the condition of the timer is such that at the moment the timer contacts are open, and let it further be assumed that the automatic record player is idle, that is to say, it is not playing a record or in the process of selecting a record, so that the solenoid of the phonograph play control relay is deenergized and said relay is idle. At such time the contacts 208, 210 will be closed so that the timer motor will be running although the contacts of the timer are open. Because the contacts 52, 54 are open the capstan clutch 24 will be idle and the tape loop 20 will be stationary, hence no sound will be picked up by the head 28 and no commercial message will be delivered.

If at this time a coin is deposited in the juke box and the record selection mechanism manipulated, the phonograph play control relay will be energized. This will open the contacts 208, 210 so that the timer motor will stop. Hence the contacts 52, 54 will remain open whereby during the paid-for play period of the juke box the timer cycle will be held up and, moreover, no commercial message will be delivered.

Some time after, depending upon the frequency and number of paid-for operations, the timer contacts will close during a period when the juke box is idle. These contacts cannot close when the juke box is in paid-for operation because the timer motor is stationary during such a period.

When the timer contacts close they will complete a circuit from the secondary winding 190 through the solenoid 56 to ground whereby to actuate the control relay 42. As soon as the armature of the control relay 42 pulls in the four pairs of contacts of this relay are actuated. The normally closed pairs of contacts 196, 198 and 200, 202 are opened while the normally open pairs of contacts 52, 54 and 204, 206 of said relay are closed.

Opening the contacts 196, 198 disconnects the energizing circuit for the solenoid of the phonograph play control relay whereby so long as the relay 42 is actuated the juke box will remain idle. This insures that the juke box will not operate during the delivery of a commercial message and, further, that the timer motor 32 will not be cut off during such delivery and permit a succession of commercial messages to be delivered. Closure of the pair of contacts 204, 206 will shunt the A.C. switch 216 for the juke box so that during the period that the message is being delivered the juke box cannot be shut off deliberately.

Closure of the pair of contacts 52, 54 will start movement of the tape loop 20 and consequent delivery of a commercial message through the loud speaker 12. Almost immediately after the commercial message starts, the condenser 150 will be charged up sufficiently to fire the thyatron 160. This will energize the solenoid 176 and close the normally open pair of contacts 182, 184 which shunt the timer contacts and provide a holding circuit for the solenoid 56.

The timer contacts are only closed for a comparatively short period, for example, in the order of ten seconds. This period is sufficient so that when added to the delay period for release of the switch 38, it will provide a period at least equal to the dead period (time required to traverse the unrecorded space) between commercial messages. Hence before the timer contacts are opened the shunting holding circuit provided by the contacts 182, 184 will have been closed and they will remain closed for the duration of the commercial message, even if the message has short quiet lapses when no sound is forthcoming. Thus the control relay 42 will remain actuated until the end of the commercial message and for a short period of time thereafter, for example, four or five seconds, whereby when the commercial definitely ceases the control relay 42 opens. Opening the control relay idles the capstan drive for the tape player, recontacts the solenoid of the phonograph play control re-

lay and opens the jump circuit for the switch 216. It also recloses the contacts 200, 202. The adjunct now waits for the next closure of the timer contacts to move the tape through the remaining portion of the idle space between recorded messages.

Consider what takes place in the energy charging and storage bank 40 when the contacts 200, 202 are open (the relay 42 is actuated). As long as these contacts are closed the condenser 234 continuously discharges through the solenoid 222 and is not permitted to build up a charge. But when the contacts 200, 202 open at such time as the solenoid 56 is energized the condenser 234 is charged through the rectifier 220 and the charge is not allowed to leak off. This is a high capacity condenser as indicated previously. Hence when the contacts 200, 202 reclose at the end of a commercial message, the timer contacts at this time being open, a pulse of energy will be delivered by the condenser 234 to the solenoid 222. This pulse has sufficient energy to actuate the accrediting relay 224, i.e. to pull up the armature thereof so as momentarily to close the normally open contacts 226, 228. Temporary closure of these contacts places one credit in the credit storage circuit of the automatic record player. Furthermore actuation of the armature of the accrediting relay 224 will add one count to the counter 232.

Since the timer contacts now are open the adjunct will stand by idling with the tape motor 26 running and with the timer motor 32 operating only if the juke box is not playing so as to complete the idle cycle of the timer whereupon the adjunct recycles.

Each of the commercial messages impressed on the continuous loop of magnetic tape 20 is composed by the sponsor or its advertising agency and is of the usual sort except that at its end there is included, in accordance with my invention, an appended section to the effect that through the courtesy of the sponsor the audience is entitled to a free play of any record that may be selected, thus making known to the listeners that the sponsor, implicitly in return for the audience listening to the message, is entitled to a free play of the juke box.

It will be observed that the delay time of the relay 38 must be less than the idle period between commercial messages on the tape 20 or else the commercial messages never would cease. It also would be apparent that the sum of the delay period and the period of closure of the time contacts preferably should exceed the idle period between commercial messages or else the timer contacts would open during an idle period before a commercial message commenced and, therefore, before the contacts 182, 184 closed to hold the solenoid 56 energized. However even if this latter condition should not be fulfilled my adjunct nevertheless will function since then the adjunct simply will not be rendered operative to deliver the message on every closure of the timer contacts but rather upon successive closures of the inner contacts the cumulative period of which plus the holding period of the switch 38 is equal to or greater than the time delay between commercial messages on the tape 20.

It is to be observed that because an audio actuated switch is used to hold the control switch closed the adjunct is self-synchronizing to the end of the commercial message and thereby is automatically self-accommodating to commercial messages of varying lengths.

Although it is believed that the operation of my adjunct is amply clear from the foregoing description, in order to amplify the disclosure I have set forth below by way of example the values or types of the various components of the circuit. This has been done in comparative columns, the components being identified by reference numerals in the left hand column and the value or type in the right hand column.

Input coupling condenser 66 -----mfd--- 0.01
Resistance winding 68 -----megohms--- 5

	Double triode 76 -----	12AX7
	Cathode resistors 82 -----ohms---	1,000
	Neutralizing condenser 86 -----mmfd---	100
	Load resistor 92 -----ohms---	470K
5	Interstage condenser 96 -----mmfd---	500
	Neutralizing condenser 102 -----mmfd---	100
	Load resistor 108 -----ohms---	47K
	Resistors 118, 120 -----do---	10K
	Rectifier 122 -----	1N1083
10	Resistor 124 -----ohms---	2.2K
	Resistor 126 -----do---	2.7K
	Resistor 128 -----do---	8.2K
	Filter condensers 130-136 -----mmfd. each---	20
	Coupling condenser 138 -----mfd---	0.05
15	Rectifier 142 -----	1N34
	Leak resistor 144 -----megohms---	1
	Resistor 146 -----do---	1
	Changing condenser 150 -----mfd---	2
	Resistor 152 -----megohms---	1
20	Resistor 156 -----do---	2
	Thyratron 160 -----	2D21W
	Cathode resistor 168 -----ohms---	1K
	Grid leak resistor 170 -----megohms---	2.7
	Grid condenser 172 -----mfd---	0.005
25	Resistor 174 -----ohms---	50K
	Condenser 178 -----mfd---	8
	Resistor 218 -----ohms---	4.7K
	Rectifier 220 -----	2E4
	High capacity condenser 234 -----mfd---	500

It thus will be seen that I have provided an adjunct which achieves the several objects of my invention and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

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

1. An adjunct for an automatic record playing machine having a credit storage unit and a power control switch, said adjunct including: a playing unit having a plurality of successive recordings of commercial messages having idle periods therebetween, each commercial message including a terminal portion advising that upon conclusion of the message a free play of the machine is available, a reproducing head for picking up said messages, a drive element for moving said recordings past said head so as to reproduce the same, and means controlling operation of said drive element; a timer having a pair of contacts that are closed for a short period during each timer cycle and are connected to thereupon actuate the control means so as to energize the drive element, said period of closure being shorter than the length of a commercial message; an audio actuated switch connected to be energized responsive to delivery of the messages and having a pair of contacts that are closed upon energization of the audio actuated switch and are connected to hold the control means actuated after opening of the timer contacts so that upon termination of each commercial message and consequent opening of the audio switch contacts the drive element will be idled until closure of the timer contacts upon a succeeding time cycle; accrediting means operated by opening of the audio switch contacts for supplying a credit to the credit storage unit so as to provide a free play of the record playing machine upon termination of each commercial message; and a pair of contacts for connection across the power control switch and controlled by the timer contacts and the audio actuated switch contacts for shunting the power control switch until the audio actuated switch contacts are opened.

2. An adjunct for an automatic record playing machine

having a credit storage unit, said adjunct including: a playing unit having a plurality of successive recordings of commercial messages having idle periods therebetween, each commercial message including a terminal portion advising that upon conclusion of the message a free play of the machine is available, a reproducing head for picking up said messages, a drive element for moving said recording past said head so as to reproduce the same, and means controlling operation of said drive element; a timer having a pair of contacts that are closed for a short period during each timer cycle and are connected to thereupon actuate the control means so as to energize the drive element, said period of closure being shorter than the length of a commercial message; an audio actuated switch connected to be energized responsive to delivery of the messages and having a pair of contacts that are closed upon energization of the audio actuated switch and are connected to hold the control means actuated after opening of the timer contacts so that upon termination of each commercial message and consequent opening of the audio

switch contacts the drive element will be idled until closure of the timer contacts upon a succeeding time cycle; and accrediting means operated by opening of the audio switch contacts for supplying a credit to the credit storage unit so as to provide a free play of the record playing machine upon termination of each commercial message, the accrediting means including an energy charging and storage bank which accumulates energy while the control means is actuated and delivers energy for supplying a credit to the credit storage unit when the audio actuated switch contacts are opened.

References Cited in the file of this patent

UNITED STATES PATENTS

2,421,835	Durant	June 10, 1947
2,519,567	Handschin	Aug. 22, 1950
2,627,415	Rasmussen	Feb. 3, 1953
2,757,772	Killian	Aug. 7, 1956
2,960,577	Pray et al.	Nov. 15, 1960