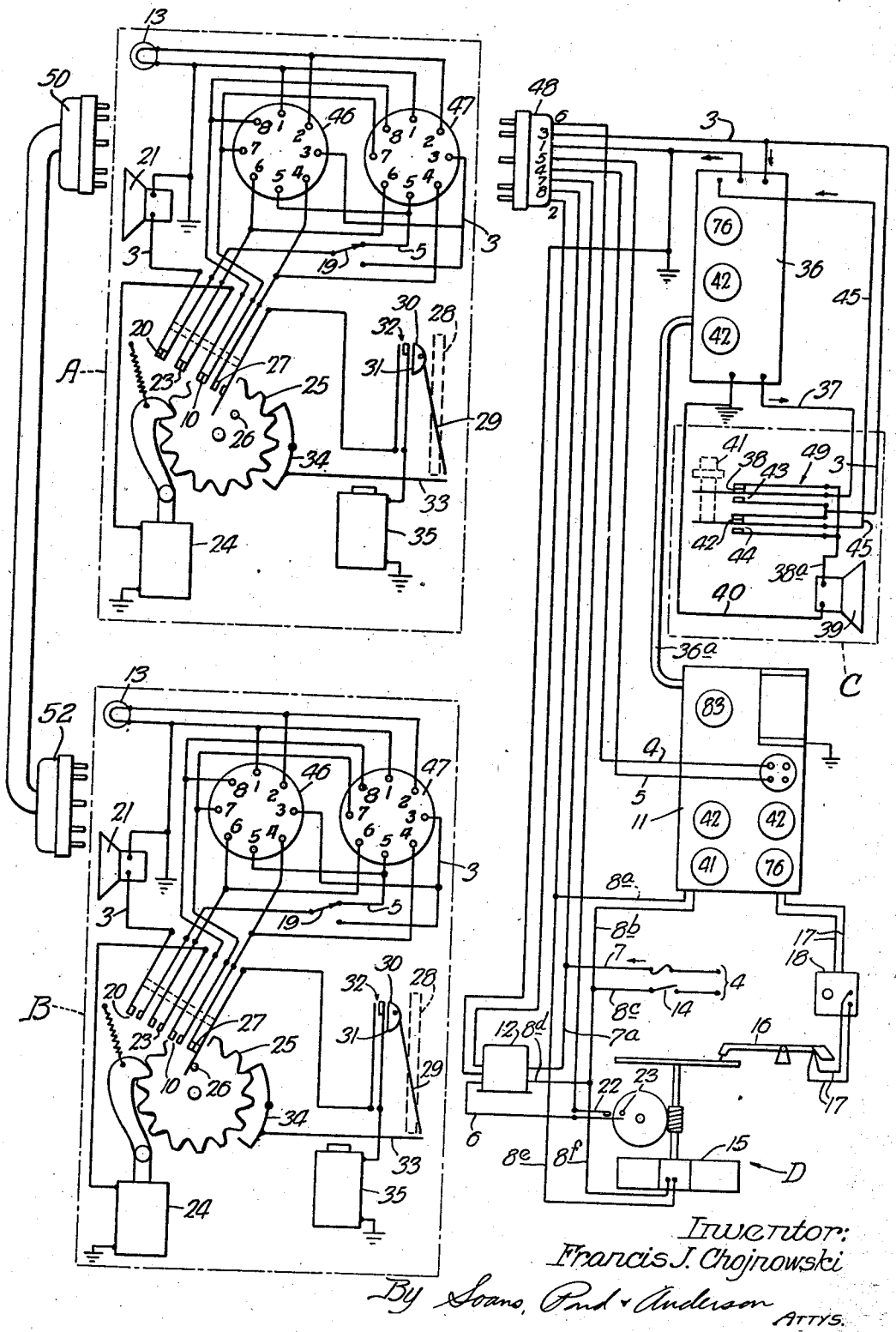
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AUTOMATIC PHONOGRAPH CONTROL

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AUTOMATIC PHONOGRAPH CONTROL

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This invention relates to automatic phonograph control and it has particular reference to the control of an automatic phonograph from so-called booth or wall boxes. The present invention also contemplates in connection with the remote control of the automatic phonograph a communication system whereby a patron in a booth or the like may employ the wall box speaker as a microphone to communicate with a counter attendant for ordering of such service as may be desired. The communication system further contemplates an arrangement in which the counter attendant may also talk to the patron.

A typical installation may be in a restaurant where a number of booths are provided. Each booth will be equipped with a wall box or unit and all of the wall units will, of course, be connected to an automatic phonograph and also to a counter speaker-microphone unit. The latter is not, however, connected to the automatic phonograph. It may therefore be said that the object of the present invention is to provide an automatic phonograph control embodying an arrangement whereby the speaker unit through which the phonograph music is received may also be employed as a microphone to transmit orders to an attendant who will receive them through a speaker-microphone located at a convenient place.

The invention herein contemplated involves no new mechanisms per se but has to do primarily with electrical circuits and connections employed.

A typical installation circuit is diagrammatically illustrated in the accompanying drawing wherein certain elements of mechanism are also diagrammatically illustrated.

In the diagram, two booth or wall units are represented at A and B. A counter speaker-microphone units is represented at C. Each wall unit such as A and B embodies a coin slot mechanism 28, a switch 32, and a star wheel mechanism including the star wheel 25 and an escapement 34. The star wheel controls a multi-unit switch embodying switch units indicated at 10, 20, 23 and 27. A speaker-microphone 21 preferably of the permanent magnet dynamic type is also embod'ed in the wall unit.

Each wall unit is also preferably provided with a pair of multi-contact sockets represented at 46 and 47 to facilitate connection of the unit to an automatic phonograph and also to another wall unit.

In the diagram the phonograph mechanism is represented at D, the same including a phonograph motor 15, an electric pick-up 16, a phonograph amplifying unit 11, a transformer 12, a volume control 18 and an electric switch 22 controlled by the phonograph mechanism. There is also mounted in the phonograph unit an auxiliary amplifying unit 36 which is employed for amplifying the current developed when the wall unit speaker 21 is employed as a microphone.

As shown, the various electrical lines from the phonograph mechanism are carried to a multi-contact plug 48 which is designed to be insertable in either of the sockets 46 and 47 of the wall unit to thereby connect the latter to the phonograph.

The counter unit C embodies a speaker-microphone 39 similar to the speaker-microphone 21 and it also includes a manually actuatable multiple switch indicated in its entirety at 49.

In the wall units A and B, the sockets 46 and 47 are connected in parallel. Assuming that the phonograph plug 48 is inserted in the socket 47 of unit A, the socket 46 of unit A may receive a multi-contact plug 50 of an extension cord 51, the other end of which may be equipped with a similar plug 52 for engagement with either of the sockets 46 or 47 of the wall unit B. In this way the wall unit B may be connected to the phonograph without providing a separate set of connections from the wall unit B to the phonograph. It will, of course, be understood that it is not essential that the sockets 46 and 47 actually be in the form of sockets and that the plugs 48, 50 and 52 be in the form of plugs since these may be reversed or alternated as may be found most practicable. Furthermore, it is not essential that disengageable plug connections be employed and it will be readily understood that these connections may be made in any desirable manner. In the diagram the phonograph plug 48 is shown separated from the sockets 46 and 47 but the connections established are indicated by reference numerals which identify the lines or points which are inter-connected.

The main power line is represented as an input of 110 volts alternating current at 4. Assuming that the current flows in the direction indicated by the arrow along the line 7, it will be seen that the current passes through the switch 10, through the line 8 and a branch 8a into a phonograph amplifier unit 11, then out of the amplifier 11 into a branch 8b and into the line 8c of the main power supply. Current also flows from the main power line 7 through a branch 7a to a transformer 12 and back through a line 8d to the side 8c of the main power source. The transformer 12 supplies a six-volt current through the line 2 to a pilot light 13 in the booth unit, the current

returning through the line 1 to the transformer 12. The transformer 12 and pilot light 13 are on at all times that the main switch 14 is closed by the operator of the establishment.

Current flowing from the power line 7 through the switch 10 and line 8 as above explained also flows through an extension 8e of the line 8 through a phonograph motor 15 and back through a line 8f to the line 8c of the power supply.

The motor 15 serves, of course, to actuate the phonograph turn-table and an electrical pickup 16 acts on the record and develops an output current in a line 17 which conducts it to the amplifying unit 11. A suitable volume control 18 is incorporated in the circuit 17, the volume control being a part of the automatic phonograph mechanism.

The phonograph current output leaves the amplifying unit 11 in line 5 and passes through a switch 19 and a switch 20, through the loudspeaker 21 of the booth unit and thence back through the ground to the amplifier unit 11. Upon completion of the playing of a record, a switch 22 is actuated by a crank pin 23 or other suitable means constituting part of the phonograph mechanism. The switch 22 is closed upon completion of the playing of a record so as to establish a circuit in a line 6 from the transformer 12 through the switch 22 and through a switch 23 and a solenoid 24 and the grounded line 1 to the transformer 12.

When the solenoid 24 is energized, it operates to turn the star wheel 25 back one step. Assuming that the star wheel 25 had been advanced only one step, its return of one step will serve through a crank pin or other suitable means indicated at 26 to open the switches 10, 20 and 23 so as to thereby interrupt the circuits controlled thereby. Another switch 27 is closed when the star wheel 25 is returned to its starting position. The condition of the switches when the star wheel 25 is in starting position is represented in the diagram of unit B.

To initiate the reproduction of a record, from a wall unit in the condition in which the unit A is illustrated, a coin is deposited in the coin slot 28. During the descent of the coin, it engages an arm 29, which depends from a pivoted member 30 in such position that the member 30 will incidentally be rocked to cause its lower corner 31 to engage one of the contacts of a switch 32 to move it into engagement with the other contact thereof. Closing of the switch 32 by the coin will not in this instance, however, result in the passage of an electric circuit since the switch 32 is in series with the switch 27 which is at that time open. In its descent, the coin, after leaving the arm 29, engages an arm 33 which is secured to an escapement member 34. Downward rocking of the arm 33 by the coin results in rocking of the escapement 34 to thereby permit the star wheel 25 to move one step (in a clockwise direction as herein shown) under the influence of a suitable spring provided for that purpose.

Looking for the moment at unit B and assuming that unit A is in the position illustrated incident to the previous deposit of a coin, it will be seen that the dropping of a coin in unit B will first close its switch 32 and complete a circuit through its switch 27 and a magnet 35. The current for the magnet 35 is preferably a low voltage, direct current delivered by the rectifying section of the amplifier 11, through the line 4, the switch 27 and the switch 32 to the magnet 35, and through ground connections back to the amplifier 11. The magnet 35 acts on the escapement arm 33 to permit the star wheel 25 of unit B to move one step under the influence of its spring. When the coin deposited in unit B next engages the escapement lever 33, it will for the second time rock the escapement 34 and thereby permit the star wheel 25 of unit B to move a second step.

The purpose of the described double action of the coin is to insure that the user of a second booth unit will secure the reproduction of a complete phonograph number in the event that a coin is deposited in such second booth unit while a number is being reproduced as a result of a coin previously deposited in another booth unit. It will be observed that a coin is operative to cause two steps of advancement of the phonograph control element 25 only from the initial or starting position in which the unit B is illustrated, and that when coins are deposited in a unit in which the element 25 is already in an advanced position as shown for the unit A, the control element 25 will be advanced only one step.

When the switch 22 is closed upon completion of the playing of a record, the circuit to the solenoid 24 is completed and all of the solenoids 24 in all of the booth units which have coins deposited in them will be energized and result in one step of return movement of the star wheel 25. The star wheel 25 of unit B having previously been advanced two steps will therefore (after one step of return movement), be in the position illustrated for unit A, with the result that a complete phonograph selection will be reproduced in unit B. It may be noted that unit B will receive the reproduction of that portion of the record paid for by unit A which remains to be played after a coin is deposited in unit B.

The star wheel 25 of each booth unit is an element of a known coin control mechanism whereby a number of coins may be deposited at one time so as to secure substantially continuous operation of the phonograph for a corresponding number of selections.

The intercommunicating system, that is the two-way communication provision between the wall speaker or booth unit and the counter unit employs an independent amplifying unit designated 36, which is supplied with energizing current by suitable cable connections indicated at 36a to the amplifier unit 11.

The circuit for employing the speaker 21 in the booth unit as a microphone is completed by moving the switch 19 so that a circuit will flow through the line 3 starting at the speaker-microphone 21, through the switch 20, the switch 19 and into the amplifier unit 36. The circuit is completed from the amplifier 36 to the ground and back to the speaker-microphone 21. The amplified output of the amplifier 36 is through a line 37, through a switch 38, and branch 38a to the speaker 39 and back to the amplifier 36 through a line 40. When the counter attendant wishes to answer, he presses a button indicated at 41 to open switches 38 and 42 and close switches 43 and 44. The attendant may then speak into his speaker-microphone and thereby sets up a current flowing through the branch 38a, the switch 44, the line 45 into the amplifier 36 and through the ground back to the speaker-microphone 39. The amplified output then flows through the line 37, the switch 43 and line 3, through the switches 19 and 20 to the speaker-microphone 21 and back through the ground to the amplifying unit.

When two or more booth units are energized and are receiving music from the phonograph, each unit may establish communication with the counter speaker by actuating the switch 19. It is thus possible for two or more customers to attempt a conversation with the counter attendant at the same time. However, this presents no serious problem because of the fact that in the usual installation of around 20 booth or wall units, there is, as a practical matter, but little, if any, conflict in respect of the timing of orders. In order that the counter attendant may deliver the order to the proper booth, each unit will, of course, be numbered or otherwise identified and such identification will of course be transmitted to the counter attendant.

In the present amplifying (and rectifying) units 11 and 36, radio tubes identified commercially by the numbers 41, 42, 46, 76 and 83 are employed as indicated, in a known manner but amplifying units employing other tubes may, of course, be substituted.

The described arrangement is desirable, first in that it places the control of the phonograph directly available to patrons in a booth so that they need not leave the booth to operate the phonograph.

Secondly, it is desirable in that the volume of music reproduced in each booth or wall unit may be such that it will not disturb the occupants of an adjacent booth or table.

From the viewpoint of the proprietor of the establishment in which the installation is made, it is desirable in that it enables the patrons to transmit their orders without waiting to secure the attendance of a waiter or waitress, at the occupied table or booth.

Other advantages of the invention will also be apparent to those skilled in this art, and changes in the described arrangement may be made without departing from the spirit of the invention, the scope of which should be determined by reference to the following claims, which should be construed as broadly as possible consistent with the state of the art.

I claim:

1. In apparatus of the class described a wall unit comprising a loud speaker, an electric switch, coin-actuated mechanism for mechanically actuating said switch, a coin actuated switch in series with said first mentioned switch, and electrical means controlled by said switches for also actuating said coin-actuated mechanism.

2. In apparatus of the class described, the combination of an automatic phonograph, a remote speaker-microphone connected to said phonograph and normally serving as a phonograph speaker, a counter speaker remote from both said phonograph and said phonograph speaker-microphone, and electrical connections including switches between said phonograph speaker-microphone and said counter speaker for permitting temporary use of said phonograph speaker as a microphone connected to said counter speaker.

3. In apparatus of the class described, the combination of an automatic phonograph, a plurality of speaker-microphone units remote from and electrically connected to said phonograph and normally serving as phonograph speakers, a counter speaker, and means whereby said remote phonograph speaker-microphones are independently connectable to said counter speaker, said means including electrical circuits and switches for permitting temporary use of said phonograph speakers as microphones connected to said counter speaker.

4. In apparatus of the class described, the combination of an automatic phonograph, a remote speaker-microphone connected to said phonograph, a counter speaker-microphone remote from both said phonograph and said phonograph speaker, and wiring connecting said speakers and including switching means for temporarily and independently converting both of said speakers into transmitters for permitting two-way communication between the same.

5. In apparatus of the class described, a control unit comprising an element which is adjustable from an initial or starting position to progressively advanced positions in accordance with the number of coins deposited in the unit, a pair of electric switches connected in series, one of said switches being normally open and adapted to be momentarily closed incident to the deposit of a coin, and the other of said switches being operatively connected to said movable element so as to be held closed when the latter is in starting position, the last mentioned switch being opened when said element is adjusted to an advanced position, means for effecting a preliminary unit of movement of said element from starting position upon closing of said normally open switch, and additional means for effecting a supplementary unit of movement of said element incident to the deposit of the coin which initiated such preliminary movement and also incident to the deposit of each additional coin, the open position of said initially closed switch serving to prevent advancement of said element incident to the closing of said normally open switch by such additional coins.

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