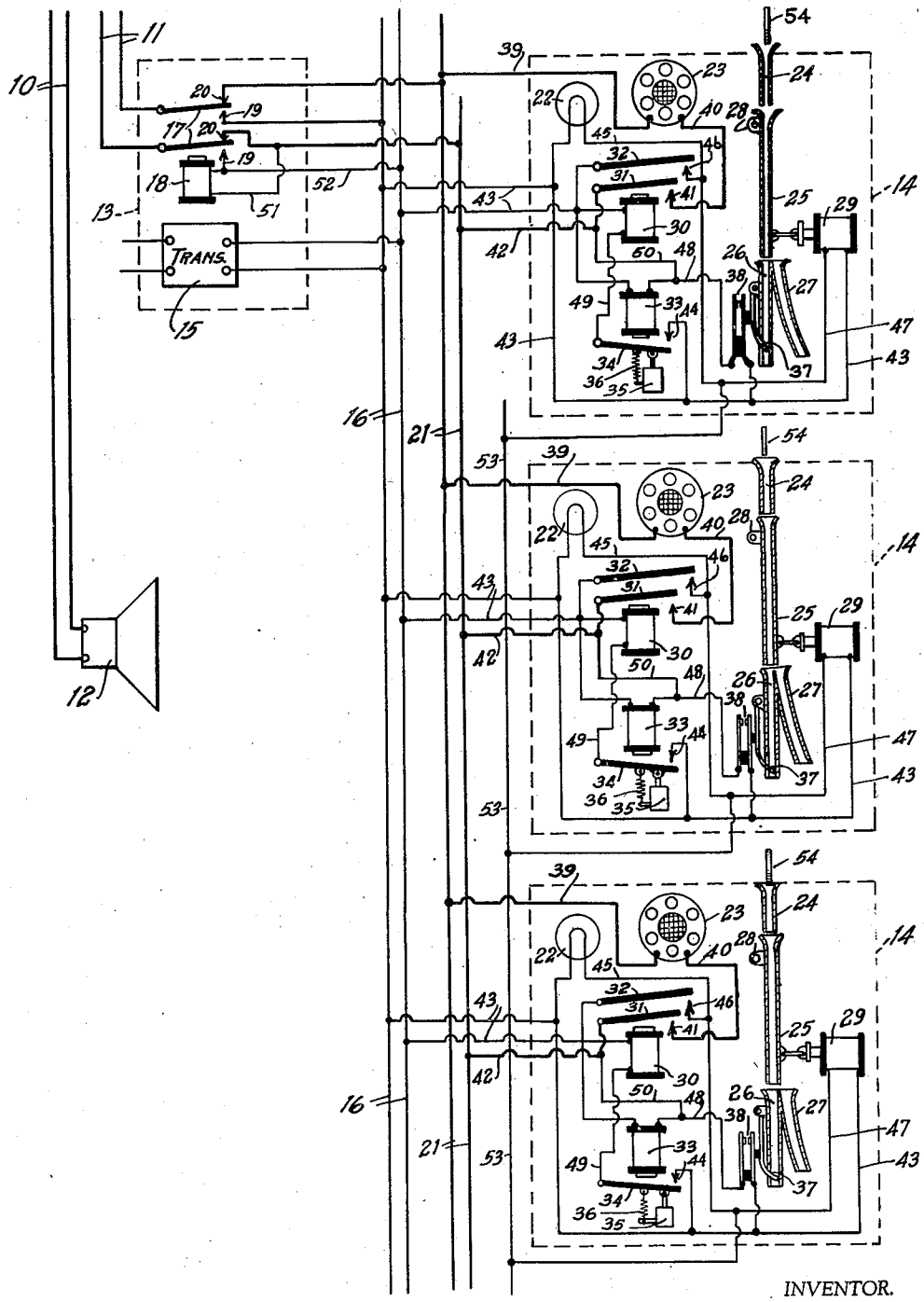
March 2, 1943. L. STONE, JR 2,312,680

WIRED MUSIC SYSTEM

Filed Jan. 13, 1941



INVENTOR.
LAWRENCE STONE, JR.
BY
R. H. Galbreath
ATTORNEY.

Patented Mar. 2, 1943 2,312,680

UNITED STATES PATENT OFFICE

2,312,680

WIRED MUSIC SYSTEM

Lawrence Stone, Jr., Denver, Colo.

Application January 13, 1941, Serial No. 374,165

9 Claims. (Cl. 179—6.3)

This invention relates to a wired music distributing system and more particularly to the type of system known as an "automatic hostess." In such a system, customer cabinets are placed in restaurants, hotels, cocktail bars, etc. about a city. These are all connected by the telephone lines to a central station. When a coin is dropped into the cabinet, a signal is shown at the central station. The operator then inquires over the line and a loud speaker at the cabinet what selection is desired. The patron then names the selection, the operator places a record on a reproducing machine, and the music is transmitted electrically to a speaker in the cabinet at the calling station.

One obstacle in the complete commercial operation of such a system is that it requires the patrons to leave their places at the tables and in the booths and walk to the cabinet in order to make their selection. The principal object of this invention is to provide a system which will enable coin boxes and transmitters to be placed at a plurality of different points at each cabinet location, for instance, in the refreshment booths, along the bars, etc., and which will act to prevent interference with the call by other patrons at the same location. With this invention, the first patron to drop a coin is temporarily connected exclusively with the central station. Should others then deposit coins in their boxes, these coins will be returned until the first patron has completed his informational conversation.

Other objects and advantages reside in the detail construction of the invention, which is designed for simplicity, economy, and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention reference is had to the accompanying drawing which forms a part hereof. Like numerals refer to like parts in all views of the drawing and throughout the description.

The drawing illustrates a typical circuit diagram illustrating the circuits employed at a single cabinet location, having a plurality of operating stations. Various parts of typical coin control mechanisms are illustrated diagrammatically in section.

A wired music system of the type to which this invention applies usually employs two telephone lines for each customer location. These lines are indicated and designated by numeral in the drawing as music circuit 10 and talking and signal circuit 11. The music circuit is usually used exclusively for conveying electrical impulses from the reproducing mechanism at the central station to one or more loud speakers 12 positioned at the customer's location.

With this invention, a main relay box, indicated in broken line at 13, and a plurality of station coin boxes, indicated in broken line at 14, are placed at convenient points throughout a customer's establishment. The main relay box contains a suitable transformer 15 or other source of operating power. The transformer supplies a comparatively low voltage power supply to all of the station boxes through the medium of power mains 16.

The talking and signal circuit 11 leads into the main relay box 13 and terminates in two relay armatures 17 therein. These armatures are actuated by means of a relay magnet 18 which, when energized, draws the armatures against two power contacts 19 which connect the signal circuit 11 directly to the power output of the transformer so as to throw a serge of power to the central station for signal purposes. When the magnet 18 is de-energized, the armatures 17 close contacts 20 and connect the talking signal circuit 11 directly to a station talking circuit 21 which leads to all of the station boxes 14.

Each of the station boxes 14 contains a signal lamp 22, a combined microphone and speaker 23, a coin slot 24, a movable coin channel 25; a coin receiving passage 26; a coin return chute 27. The movable channel 25 is pivoted at 28 so that it may be swung into alignment with either the passage 26 or the chute 27 so that the coin may be directed either to a suitable receiving receptacle in the box or directed outwardly for return to the customer. The swinging of the coin channel 25 is accomplished through the medium of a solenoid 29 which when energized pulls the channel into alignment with the return chute 27. A swinging lever 37 is positioned in the path of the falling coin in the passage 26. When a coin strikes this lever, it swings the latter outwardly to cause it to close a pair of coin contacts 38.

The station boxes 14 also contain a first relay magnet 30, which operates two circuit closing armatures 31 and 32 and a second relay magnet 33 which operates a circuit closing armature 34. The opening action of the armature 34 is delayed by means of any suitable delay mechanism, as for instance, a dash pot 35 which retards the action of an opening spring 36 to cause the circuit to be held closed for a predetermined interval.

The wiring in each of the station boxes 14 is identical. Each is provided with a first micro-

phone lead 39 connecting the microphone 23 with the station talking circuit 21. A second microphone lead 40 connects the other side of the microphone with a microphone contact 41 in the path of the armature 31. The microphone circuit is completed through a conductor 42 leading to the other side of the station talking circuit 21. Thus, when the first relay magnet 30 is energized, the microphone and speaker 23 of that station are connected across the talking and signal circuit 11.

Two power leads 43 connect each box with the power mains 16. One of these leads communicates directly with the signal lamp 22, with a contact 44 in the path of the armature 34, with one of the coin contacts 38, and with the solenoid 29. The other power lead communicates directly with the armature 32, with the first relay magnet 30 and with the second relay magnet 33. The other side of the circuit to the lamp 22 is completed through a lamp conductor 45 and a contact 46 in the path of the armature 32 so that whenever the first relay magnet 30 is energized, the contact 46 will be closed to light the signal lamp 22. The contact 46 is also connected through the medium of a coin return lead 47 with the solenoid 29 so that whenever the first relay magnet 30 is energized, a circuit will be completed to the solenoid 29 to cause it to deflect incoming coins to the coin return chute 27.

The circuit to the second relay magnet 33 is completed through a coin-circuit conductor 48 leading to the contacts 38 so that whenever the latter contacts are closed the second relay magnet 33 will be energized to attract its armature 34 and close the contact 44 so as to complete a circuit through a conductor 49 with the first relay magnet 30.

Thus, it can be seen that whenever a coin passes through the passage 26 it will cause the second relay magnet 33 to close the contact 44 and the contact will be held closed for an interval depending upon the setting of the delay mechanism 35. This will, through conductor 49, cause the first relay magnet 30 to attract its armatures so as to complete circuits: through the lamp conduit 45 to light the lamp 22, through the microphone lead 40 to connect the microphone and speaker 23 with the talking circuit; and through the coin return lead 47 to swing the coin channel 25 to temporarily deflect and return any coins inserted during the delay period.

The coin return lead 47 and the lamp conductor 45 of each box 14 are connected to the coin return lead 47 and the lamp conductor 45 of every other box, by means of an intercommunicating conductor 53, so that simultaneously, at every station at that location, the coin deflector channels 25 will be swung to return inserted coins and the signal lights 22 will be illuminated. Thus all other patrons will be notified that the talking circuit is in use and that contact cannot be established until the circuit to the first user's station has been broken, at which time the signal lights will be extinguished.

The coin contacts 38 serve a function in addition to energizing the magnet 30 in that they cause a short serge of power to flow over a bridging conductor 50 and through the conductor 42 to one side of the signal circuit and through a magnet conductor 51 to the magnet 18. The other side of the magnet 18 is connected directly to the other power main 16, as shown at 52. Therefore every time the coin contacts 38 close under the influence of a coin the magnet 18 will be energized to snap the two armatures 17 downwardly against the power contacts 19 to directly connect the power mains 16 to the talking circuit 11 so as to give a signal at the central station. The armatures instantly resume their former position against the contacts 20 of the station talking circuit 21.

Operation

It is believed the operation will be easily understood from the above. Briefly, however, if a patron at one of the station boxes desires to hear a musical selection over the speaker 12, he inserts a coin, such as indicated at 54, into the coin slot 24. This coin drops through the channel 25 into the passage 26 strikes the lever 37 and closes the contacts 38. This sends a signal to the central station notifying the operator that service is desired. It also causes the second relay magnet 33 to close a circuit to energize the magnet 30 so as to connect the patron's microphone and speaker 23 with the talking circuit of the operator. The operator now inquires over the station speaker 23 the name or number of the selection desired and the patron names the selection over the same microphone and speaker 23.

During all of this conversation, the delay mechanism 35 is holding the contact 44 closed so that current is flowing to the intercommunicating conductor 53 and from thence to the solenoids 29 and the lamps 22 of all the boxes. Thus, the coin deflectors and the signal lights at all the other stations on the same location are operating to prevent interference. At the termination of the pre-set interval, the station circuits resume their normal condition and a second patron can insert a coin, establish contact with the central station, and hold conversation over the talking circuit 11 through his mocrophone and speaker 23 while the selection of the first user is being reproduced over the main speaker 12.

If desired, a small speaker can be installed in each station box and connected in series with the second microphone lead 40 if, and when, desired. As illustrated in the diagram, however, the microphone 23 is of the magnetic type and serves both as a transmitter and receiver. For all ordinary purposes this is satisfactory unless a greater volume of sound is required.

While a specific form of the improvement has been described and illustrated herein, it is desired to be understood that the same may be varied, within the scope of the appended claims, without departing from the spirit of the invention.

Having thus described the invention, what is claimed and desired secured by Letters Patent is:

1. In any wired music system of the type in which electrical, musical impulses are conveyed from a central station to a customer's location by wire, means for conveying information to the central station from a plurality of boxes at the customer's location comprising: a single talking circuit from the customer's location to the central station; a plurality of station boxes at the customer's location; a coin operated contact at each of the boxes; a microphone at each of the boxes; means operable from the coin operated contact of each box for placing the microphone of that box in circuit with the talking circuit; and means operable from the coin contact of a box for diverting coins which are inserted in any of the other boxes while the microphone of the former box is in circuit with the talking circuit.

2. In any wired music system of the type in which electrical, musical impulses are conveyed

from a central station to a customer's location by wire, means for conveying information to the central station from a plurality of boxes at the customer's location comprising: a single talking circuit from the customer's location to the central station; a plurality of station boxes at the customer's location; a coin operated contact at each of the boxes; a microphone at each of the boxes; means operable from the coin operated contact of each box for placing the microphone of that box in circuit with the talking circuit; means operable from the coin contact of a box for diverting coins which are inserted in any of the other boxes while the microphone of the former box is in circuit with the talking circuit; and means for rendering the first two mentioned means inoperative after a time interval has elapsed so as to restore all means to their original condition.

3. In a wired music system of the type in which electrical, musical impulses are conveyed from a central station to a customer's location by wire, means for conveying information to the central station from a plurality of boxes at the customer's location comprising: a talking circuit from the customer's location to the central station; a plurality of individual stations at said location; a coin receiving passage at each individual station; a coin contact closed by the movement of a coin through the passage; a first electro-magnet energized by the closing of the coin contact; a second electro-magnet; an armature operable by the first electro-magnet for closing a circuit to the second electro-magnet; a second armature operable by the second electro-magnet for placing the microphone of that station in circuit with the talking circuit; a third electro-magnet operatively connected to divert the coin from the passage so as to return later inserted coins, said third electro-magnet being in circuit with the first armature so that both said second and third electro-magnets will be simultaneously energized; and means for delaying the opening of said first armature to maintain said third electro-magnet energized for a predetermined time interval.

4. In a wired music system of the type in which electrical, musical impulses are conveyed from a central station to a customer's location by wire, means for conveying information to the central station from a plurality of boxes at the customer's location comprising: a plurality of station boxes at a location; a signal device in each box; a microphone associated with each box; a coin receiving slot in each box; a movable coin channel in each box; a coin receiving passage in each box; a coin return chute in each box, said channel being movable to convey a coin either to said passage or to said chute; electrically-operated, coin diverting means in each box associated with the coin channel, the diverting means in all boxes being in a common electrical circuit to operate simultaneously; a first relay in each box; a coin actuated contact in each box for closing a circuit to the first relay; an armature operable by the first relay of each box to close the common electrical circuit to all of the coin diverting means; and means for delaying the opening of said armature.

5. In a wired music system of the type in which electrical, musical impulses are conveyed from a central station to a customer's location by wire, means for conveying information to the central station from a plurality of boxes at the customer's location comprising: a plurality of station boxes at a location; a signal device in each box; a microphone associated with each box; a coin receiving slot in each box; a movable coin channel in each box; a coin receiving passage in each box; a coin return chute in each box, said channel being movable to convey a coin either to said passage or to said chute; electrically-operated, coin diverting means in each box associated with the coin channel, the diverting means in all boxes being in a common electrical circuit to operate simultaneously; a first relay in each box; a coin actuated contact in each box for closing a circuit to the first relay; an armature operable by the first relay of each box to close the common electrical circuit to all of the coin diverting means; means for delaying the opening of said armature; a talking circuit between the central station and each box; a microphone circuit in each box; and a second relay in each box energized by the armature of the first relay for closing the box microphone circuit to the signal circuit.

6. In a wired music system of the type in which electrical, musical impulses are conveyed from a central station to a customer's location by wire, means for conveying information to the central station from a plurality of boxes at the customer's location comprising: a plurality of station boxes at a location; a signal device in each box; a microphone associated with each box; a coin receiving slot in each box; a movable coin channel in each box; a coin receiving passage in each box; a coin return chute in each box, said channel being movable to convey a coin either to said passage or to said chute; electrically-operated, coin diverting means in each box associated with the coin channel, the diverting means in all boxes being in a common electrical circuit to operate simultaneously; a first relay in each box; a coin actuated contact in each box for closing a circuit to the first relay; an armature operable by the first relay of each box to close the common electrical circuit to all of the coin diverting means; means for delaying the opening of said armature; a talking circuit between the central station and each box; a microphone circuit in each box; a second relay in each box energized by the armature of the first relay for closing the box microphone circuit to the signal circuit; a signal circuit in each box operating a signal therein, the signal circuits of all boxes being inter-connected to operate all signals simultaneously; and a contact operable by the second relay for closing the signal circuit to all boxes from any given box.

7. In a wired music system of the type in which electrical, musical impulses are conveyed from a central station to a customer's location by wire in response to phoned instructions and in return for a coin inserted in a coin receiving slot at the customer's location, means for preventing additional coins from being inserted until the instructions have been delivered relating to first coin comprising: a movable coin channel; a coin receiving passage for receiving coins from said channel when the latter is in one position; a return chute for receiving coins from said channel when the latter is in another position; electro-magnetic means adapted when energized to move said channel so as to deliver coins to said chute; and a coin actuated contact in circuit with said electro-magnetic means.

8. In a wired music system of the type in which electrical, musical impulses are conveyed from a central station to a customer's location by wire in response to phoned instructions and in return

for a coin inserted in a coin receiving slot at the customer's location, means for preventing additional coins from being inserted until the instructions have been delivered relating to first coin comprising: a movable coin channel; a coin receiving passage for receiving coins from said channel when the latter is in one position; a return chute for receiving coins from said channel when the latter is in another position; electro-magnetic means adapted when energized to move said channel so as to deliver coins to said chute; a relay for closing an operating circuit to said electro-magnetic means; a coin actuated contact in circuit with said relay for energizing the latter; and means for delaying the opening cycle of said relay to maintain said electro-magnetic means energized for a predetermined interval after the initial operation.

9. In a wired music system of the type in which electrical, musical impulses are conveyed from a central station to a customer's location by wire in response to phoned instructions and in return for a coin inserted in a coin receiving slot at the customer's location, means for preventing additional coins from being inserted until the instructions have been delivered relating to first coin comprising: a movable coin channel; a coin receiving passage for receiving coins from said channel when the latter is in one position; a return chute for receiving coins from said channel when the latter is in another position; electro-magnetic means adapted when energized to move said channel so as to deliver coins to said chute; a relay for closing an operating circuit to said electro-magnetic means; a coin actuated contact in circuit with said relay for energizing the latter; means for delaying the opening cycle of said relay to maintain said electro-magnetic means energized for a predetermined interval after the initial operation; and means operable from said relay for giving a signal indicating that said electro-magnet is energized.

LAWRENCE STONE, JR.