

Sept. 22, 1931.

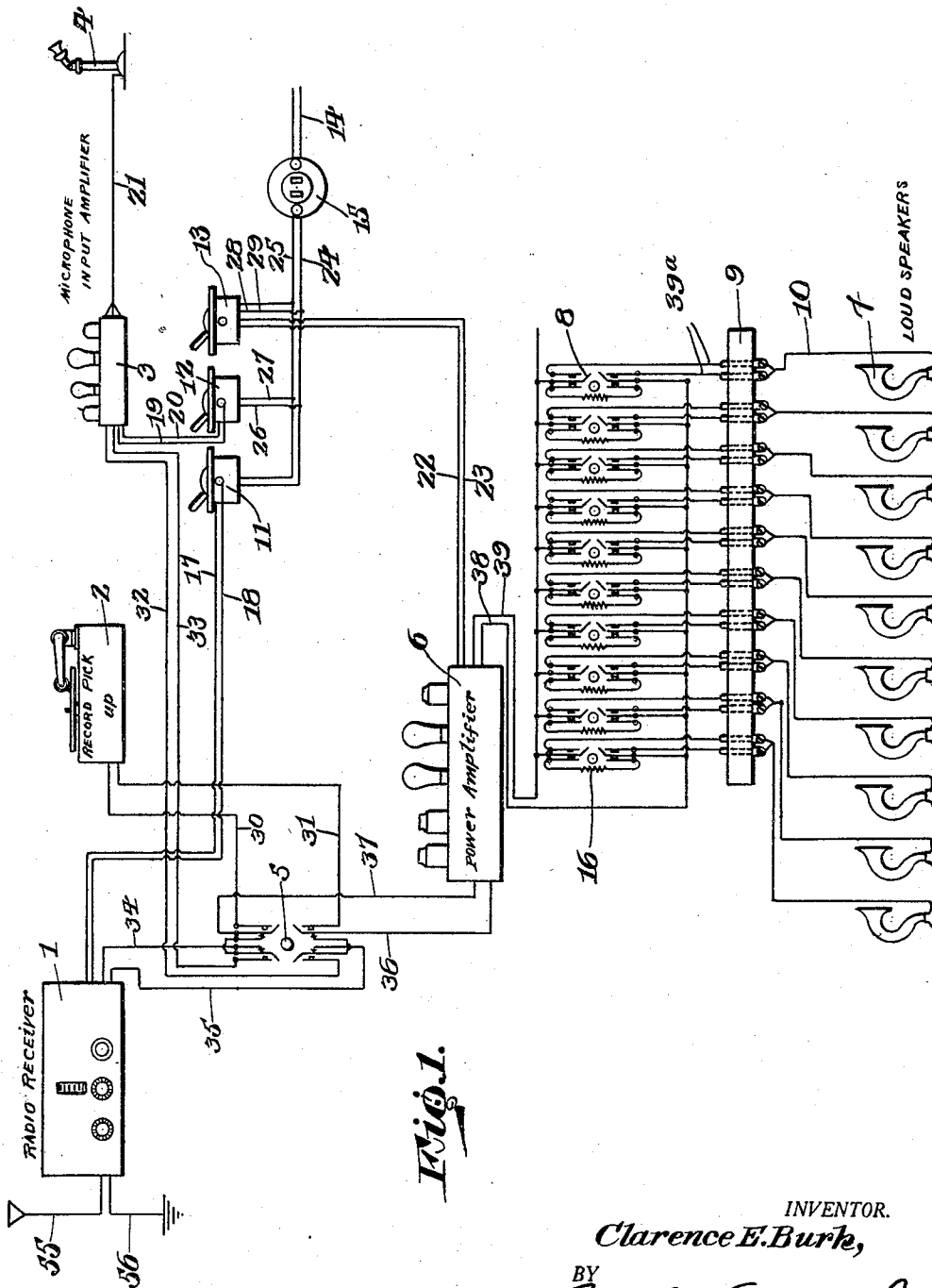
C. E. BURK

1,824,655

COMBINED REPRODUCTION AND SENDING UNIT

Filed May 29, 1929

3 Sheets-Sheet 1



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Fig. 2.

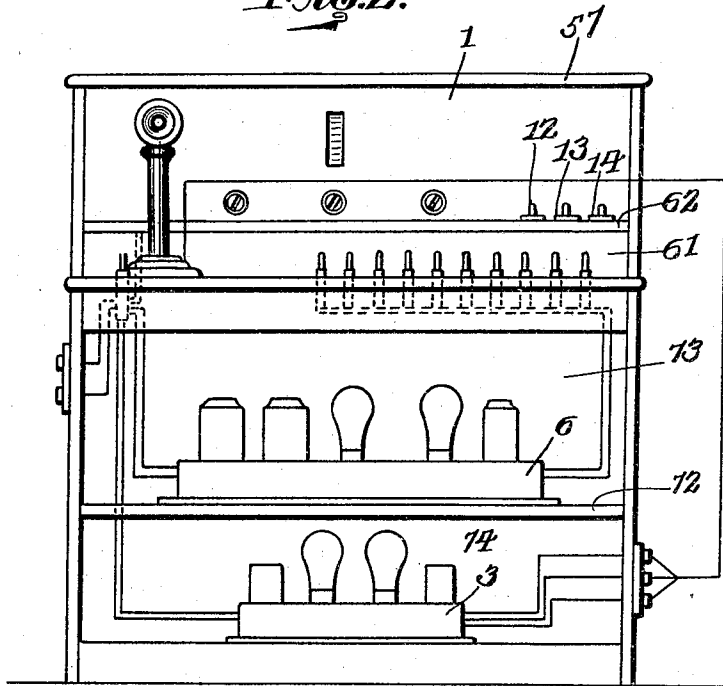
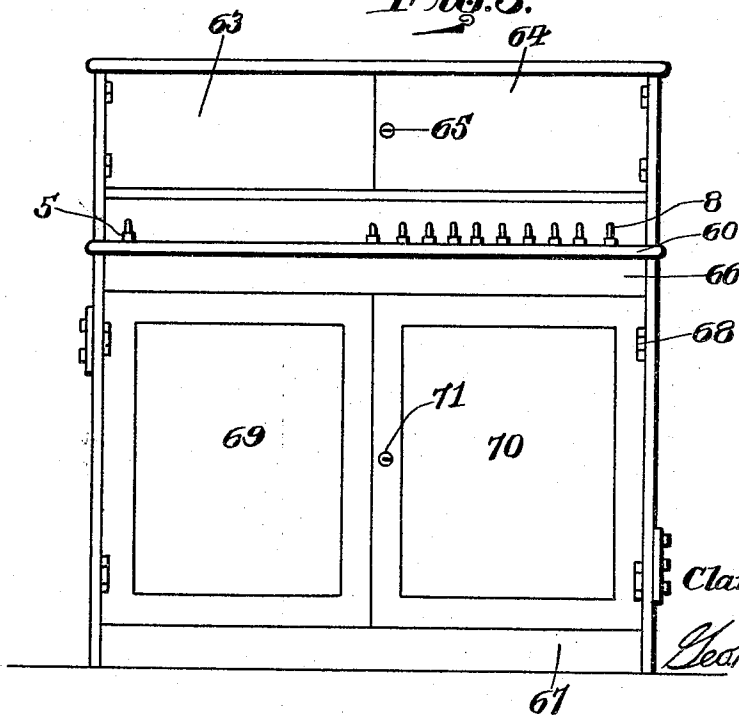


Fig. 3.



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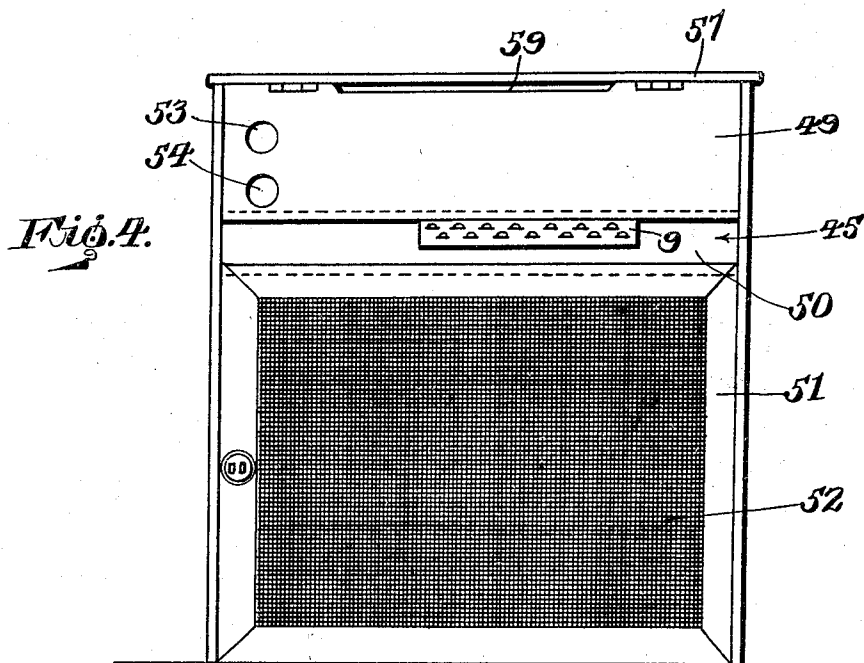
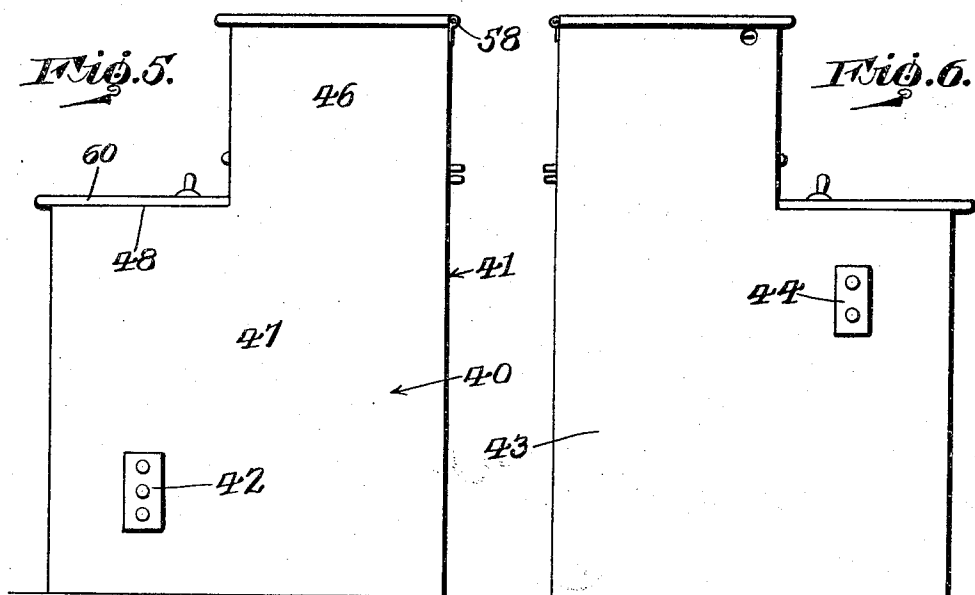
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UNITED STATES PATENT OFFICE

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COMBINED REPRODUCTION AND SENDING UNIT

Application filed May 29, 1929. Serial No. 366,970.

This invention relates to a combined reproduction and sending unit for a radio receiver, address system and record reproduction and has for its object to provide, in a manner as hereinafter set forth a unit of and combining in a single cabinet a radio receiver, a power amplifier, a microphone input amplifier, a controlling means for selectively cutting in one or more loud speaker circuits with respect to the power amplifier and a controlling means common to a record pick up, the radio receiver and the microphone input amplifier for selectively cutting in one of such elements with respect to the power amplifier.

A further object of the invention is to provide, in a manner as hereinafter set forth, a unit of the class referred to including a radio receiver, a microphone input amplifier and a power amplifier housed in a normally locked cabinet whereby it is impossible to operate the receiver without unlocking the cabinet under such conditions preventing the operation of the unit by one not authorized.

Further objects of the invention are to provide, in a manner as hereinafter set forth, a unit of the class referred to which is simple in its construction and arrangement, strong, durable, compact, thoroughly efficient in its use, conveniently operated, readily assembled and comparatively inexpensive to manufacture.

With the foregoing and other objects in view, the invention consists of a novel construction, combination and arrangement of parts as hereinafter more specifically described, and illustrated in the accompanying drawings, wherein is shown an embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which fall within the scope of the claims hereunto appended.

In the drawings wherein like reference characters denote corresponding parts throughout the several views:

Figure 1 is a diagrammatic view illustrating the circuit arrangement when the unit is installed with respect to a radio receiver, an input microphone, a phonograph and a series of loud speakers.

Figure 2 is a front elevation of the unit with the front of the cabinet removed.

Figure 3 is a front elevation of the cabinet when closed.

Figure 4 is a rear elevation of the cabinet.

Figure 5 is an elevation looking towards one end of the cabinet.

Figure 6 is an elevation looking towards the other end of the cabinet.

Referring to Figure 1 of the drawings 1 indicates a radio tuner or receiver set for tuning in radio programs, 2 indicates a record pick up which is attached to a phonograph, 3 designates a microphone input amplifier for amplifying the signal of a microphone 4, the latter being in the form of a desk transmitter microphone. A switch or controller key is indicated at 5 and which is common to and employed for cutting in the output from the receiver 1, record pick up 2 and microphone 4 to the power amplifier 6 which is associated with a series of loud speakers 7. A bank of keys or switches is indicated at 8 and is employed for selectively controlling the loud speakers 7 with respect to the amplifier 6, so that one or more or all of the loud speakers can be made active simultaneously. A terminal strip is indicated at 9 and is employed for connecting the speaker keys or switches to conductors 10 leading to the loud speakers 7. Circuit connections 11 lead from the switches 8 to the terminal strip 9. The loud speakers are adapted to be located at different points, by way of example, in different rooms throughout a building. The switches 11, 12 and 13 are for the purpose of selectively cutting in the receiver 1, power amplifier 6, microphone input amplifier 3 to the power line 14. The switch 11 is associated with the receiver 1, switch 12 with the microphone input amplifier 3 and switch 13 with the power amplifier 6. An outlet is indicated at 15 which is interposed in the power line 14. Each switch 8 has as a part thereof a resistance 16 connected when the circuit is open to keep the circuit balanced at all times and the impedance of all the circuits balanced at all times.

Circuit conductors 17, 18 lead from the

switch 11 to the receiver 1. Circuit conductors 19, 20 lead from the switch 12 to the microphone input amplifier 3. Circuit connections 21, including inner and outer portions, lead from the microphone to the input amplifier 3. Circuit conductors 22, 23 lead from the switch 13 to the power amplifier 6. Circuit conductors 24, 25 lead from the outlet 15 to the switch 11. Circuit conductors 26, 27 lead from the switch 12 to the circuit conductors 24, 25 respectively. Circuit conductors 28, 29 lead from the switch 13 to circuit conductors 24, 25 respectively. Circuit conductors 30, 31, including inner and outer portions, lead from the record pick up 2 to the switch 5. Circuit conductors 32, 33 lead from the microphone input amplifier to the switch 5. Circuit conductors 34, 35 lead from the receiver 1 to the switch 5. Circuit conductors 36, 37 lead from the switch 5 to the power amplifier 6 and circuit conductors 38, 39 lead from the power amplifier 6 to the keys or switches 8.

The unit includes a cabinet 41 having its left hand end 40 provided with a connector plate 42 and its right hand end 43 with a connector plate 44. The cabinet 41 has installed therewith the radio receiver 1, the microphone input amplifier 3, the power amplifier 6, the switch 5, switches 11, 12 and 13, the bank of keys or switches 8, the outlet 15 microphone 4, circuit connections 39^a, inner portion of circuit connections 21 which are attached to connector plate 42 and inner portion of circuit connections 30, 31 which are attached to connector plate 44. The power line 14 is connected to the outlet 15. The outer portion of the circuit connections 21 leading from the microphone 4 are plugged in the connector plate 42. The outer portion of the circuit connections 30, 31 leading from the record pick up 2 are plugged in the connector plate 44. The circuit connections or wires 10 which lead to the loud speakers 7 project from the strip 9 which is arranged at the back of the cabinet. The back of the cabinet 41 is indicated at 45. The outlet 15 is connected to the back 45 of the cabinet.

The circuit connections 17, 18, 19, 20, 22, 23, 24, 25, 26, 27, 28, 29, 32, 33, 34, 35, 36, 37, 38, 39, are installed within the cabinet 41.

Each end of cabinet 41 has a narrow portion 46 and a wide portion 47 to provide a shoulder 48 which projects forwardly of the narrow portion 46. The wide portion 47 is of greater height than the narrow portion 46 and the latter extends upwardly from the portion 47. The rear edges of the portions 40, 46 are flush with each other. The back of the cabinet comprises an upper portion 49, an intermediate portion 50 and a lower portion 51 the latter being of greater height than the other portions of the back. The lower portion 51 consists of a frame having the opening provided thereby closed by

a reticulated panel 52. The upper portion 49 is provided with openings 53, 54 for the passage of antenna and ground leads 55, 56 respectively. The strip 9 is secured to the intermediate portion 50 of the back 45.

The cabinet further includes a top 57 which seats upon the top edges of the portions 46 of the ends of the cabinet. The top 57 is hinged to the portion 49 of the back 50, as at 58. The portion 49 of back 45 is notched as at 59 to provide a vent opening. The top 57 projects laterally from the portions 46 of the ends of the cabinet and also from the front edges of the portions 46.

Secured upon the shoulders 48 formed by the top edges of the portions 47 at the ends of the cabinet 41 is a board 60 providing a platform or a desk and which projects forwardly from the front edges of the portion 47 of the ends of the cabinet.

Arranged between the portions 46 of the ends of the cabinet and projecting above the rear of the desk 60 is a closure strip 61 which is flush with the front edges of the portions 46. Positioned upon the top edge of the strip 61, and arranged between the portions 46 and the ends of the cabinet is a sill member 62 carrying the switches 11, 12 and 13. Arranged within the cabinet 41 between the sill member 62 and top 57 is the receiving set 1.

Hinged to the portions 46 of the ends of the cabinet are doors 63, 64 which when closed are interposed between the top 57, portions 46 and the sill member 62. The doors when closed are adapted to be locked and a lock for such purpose is indicated at 65. The bank of keys or switches 8 are carried by the desk 60 in proximity to the closure strip 61. The microphone 4 is supported by desk 60. The switch 5 is carried by the platform 60 in proximity to one end thereof.

Arranged between the portions 47 of the ends of the cabinet and flush with the shoulders 48 and the front edges of portions 47 is a front closure strip 66 of suitable height and which is fixedly secured in position. Secured between the portions 47 of the ends of the cabinet and flush with the bottom edges of such portions, as well as the front edges thereof is a front closure strip 67 of appropriate height. Interposed between the strips 66, 67 and hinged as at 68 to the portions 47 of the ends of the cabinet is a pair of doors 69, 70 for closing the lower portion of the front of the cabinet. When the doors 69, 70 are in closed position they are locked in such position and the lock for such purpose is indicated at 71. That portion of the cabinet 41 below desk 60 provides a chamber divided by a horizontally disposed partition 72 into a pair of compartments 73, 74. Mounted on the partition 72 is the power amplifier 6 supported within the compartment 74 is the microphone input amplifier 3.

The cabinet is normally locked and the unit cannot be made active until the cabinet is unlocked.

The switch 5 is of such type that when the handle thereof is in a perpendicular position the receiver 1 is connected to the power amplifier 6 and the radio program from the receiver can be sent to the loud speakers. When the switch 12 is closed the microphone input amplifier can be connected to the power amplifier 6 by shifting the handle of switch 5 forwardly and one can then talk through the unit to any or all of the loud speakers. It being assumed that one or all of the switches may be closed. Switch 11 is closed when receiver 1 is connected to the power amplifier 6. Switch 13 is closed when the power amplifier 6 is to be active. When the handle of the switch 5 is pushed backward the record pick up is connected with the power amplifier 6. When the handle of any of the switches 8 is perpendicular the speaker circuit is open and the resistance cut in, when the switch handle is pushed back the speaker circuit is closed. When the record pick up is cut in music or voice therefrom is sent to any one or all the loud speakers, depending upon the number of switches 8 which is or are shifted to close a circuit or circuits.

It is thought that the many advantages of a reproduction sending unit in accordance with this invention and for the purpose set forth can be readily understood, and although the preferred embodiment of the invention is as illustrated and described, yet it is to be understood that changes in the details of construction can be had which will fall within the scope of the invention as claimed.

What I claim is:—

1. In a centralized switchboard control and impedance matching system for reproduction and sending units, the combination with a radio receiving set, a transmitter, an input amplifier, a power amplifier, means for selectively cutting in said set, input amplifier to a power circuit and power amplifier, a record pick-up, normally open circuits leading respectively from said pick-up, set and input amplifier to said power amplifier, and controlling means common to said normally open pick-up, set and input amplifier circuits for selectively closing them to said power amplifier, of a plurality of independent, normally open and selectively closable loud speaker circuits leading from said power amplifier, each circuit including a switch for selectively closing it, each switch having as a part thereof a resistance connected when the circuit is open to keep the circuit balanced at all times and the impedance of all the circuits balanced at all times, and a combined supporting and enclosing cabinet common to said set, transmitter, amplifiers, circuit connections and circuits, said controlling means and switches be-

ing located on a switchboard at the front of the cabinet.

2. In a centralized switch board control and impedance matching system for reproduction and sending units, a transmitter, an input amplifier in circuit therewith, means for cutting in a power line to said amplifier, a power amplifier normally open to said input amplifier, means for cutting in said input amplifier to said power amplifier, means for cutting in a power line to said power amplifier, and a plurality of independent, normally open and selectively closable loud speaker circuits leading from said power amplifier, each circuit including a switch for selectively closing it, each switch having as a part thereof a resistance connected when the circuit is open to keep the circuit balanced at all times and the impedance of all the circuits balanced at all times.

3. In a centralized switch board control and impedance matching system for reproduction and sending units, a radio receiving set, a transmitter, an input amplifier in circuit with said transmitter, means for selectively cutting in said set and amplifier to a power line, a power amplifier normally open to said input amplifier, means for selectively cutting in said set and input amplifier to said power amplifier, means for cutting in said power amplifier to a power line, and a plurality of independent, normally open and selectively closable loud speaker circuits leading from said power amplifier, each circuit including a switch for selectively closing it, each switch having as a part thereof a resistance connected when the circuit is open to keep the circuit balanced at all times and the impedance of all the circuits balanced at all times.

4. In a centralized switch board control and impedance matching system for reproduction and sending units, a transmitter, an input amplifier in circuit with said transmitter, means for cutting in said amplifier to a power line, a record pick-up, a power amplifier normally open to said input amplifier and pick-up, means for cutting in said input amplifier and pick-up to said power amplifier, means for cutting in a power line to said power amplifier, and a plurality of independent, normally open and selectively closable loud speaker circuits leading from said power amplifier, each circuit including a switch for selectively closing it, each switch having as a part thereof a resistance connected when the circuit is open to keep the circuit balanced at all times and the impedance of all the circuits balanced at all times.

In testimony whereof, I affix my signature hereto.

CLARENCE E. BURK.