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A. HILL

2,115,773

PORTABLE ELECTRIC AUTOMATIC PHONOGRAPH

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Fig. 3.

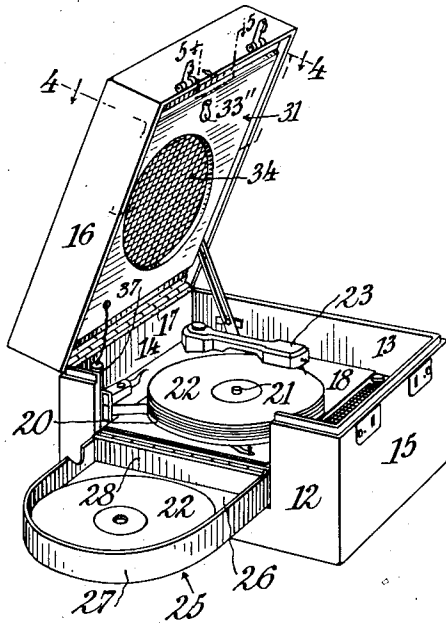


Fig. 1.

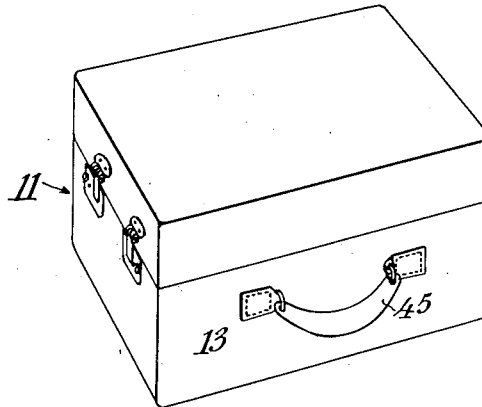


Fig. 2.

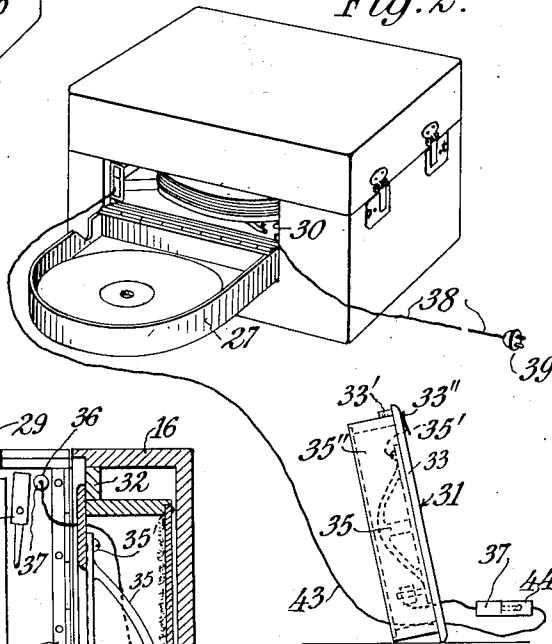
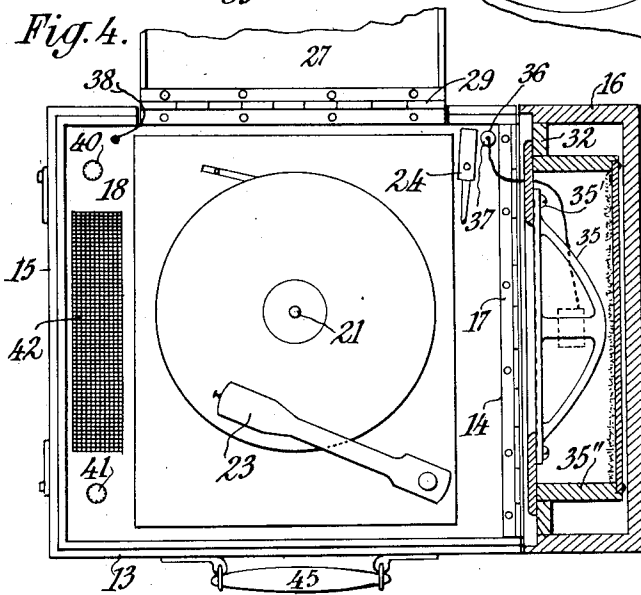


Fig. 5.



Fig. 4.



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PORTABLE ELECTRIC AUTOMATIC PHONO-
GRAPH

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2 Claims. (Cl. 181—31)

My present invention relates to sound reproducing devices and more particularly to electric automatic phonographs, i. e. those adapted to automatically play a plurality of records in succession and aims to provide certain improvements therein.

Such automatic phonographs usually comprise a cabinet with a compartment for receiving the records as they are discharged from the turntable and where said phonographs are of the portable type, i. e. contained in a cabinet of a size to be conveniently carried from place to place they are usually provided with a record receiving tray which is housed within the cabinet when the phonograph is not in use.

In all electric phonographs, sound reproduction is obtained by a reproducer pick-up which is connected with thermionic amplifying means to an electrically operated loud speaker unit and it has been found that in order to obtain the best sound reproduction, free from extraneous noises, especially those produced by the engagement of the pick-up stylus with the moving record, the lid or cover of the phonograph cabinet should be closed during the playing of the records. Because of this fact, the loud speaker unit has been invariably positioned within the contour of the cabinet so as to permit operation of the mechanism including the discharge of the records while the lid of the cabinet is closed. In the furniture or stationary types of automatic phonographs this was accomplished by having the loud speaker unit mounted within the cabinet, usually below the phonograph mechanism. In the portable types the loud speaker was mounted within the cabinet and usually located in front of the phonograph mechanism, a form of construction which materially added to the size of the portable cabinet.

In the use of such instruments occasions arise where it is desired to have the phonograph music at a point remote from the stationary cabinet housing the phonograph, for example, in an adjoining room or on a porch for dancing and the cabinet is too large to be conveniently moved to such desired location, or such music is desired where no electric outlet is available for connection with the instrument even if such could be readily brought to the desired location as in the case of a portable type instrument.

To overcome the deficiencies in automatic electric phonographs as hereinabove set forth I have provided in a device of the character described a removable loud speaker unit, which in the portable type of instrument I preferably fit into

the cover of the cabinet so as not to add to the size of the carrying case. Preferably the loud speaker unit will be of a form which will be held in the cabinet either frictionally or by quickly operable latches so as to be readily removed and replaced and such as will be able to stand upright on its own base when removed from the cabinet. To provide for electrical operation of the loud speaker unit at a place remote from the phonograph, either the electrical conductor which is connected to the loud speaker unit is made sufficiently long, or a supplemental extension conductor may be used. The invention and the advantages thereof will be readily understood from the detailed description which follows when considered in connection with the accompanying drawing, wherein:

Figure 1 is a perspective view of the portable cabinet in which the invention is embodied.

Fig. 2 is a perspective view of the invention in record playing position and showing the loud speaker unit in operative position outside of the cabinet.

Fig. 3 is a perspective view of the invention with the cabinet in open position showing the loud speaker unit in its normal relation within the lid of the cabinet.

Fig. 4 is a section taken substantially along the plane of the line 4—4 of Fig. 3.

Fig. 5 is a section taken along the plane of the line 5—5 of Fig. 3.

Referring to the several figures of the drawing, wherein the same reference characters are employed to designate the corresponding parts, the numeral 11 designates a portable substantially rectangular cabinet comprising a body portion consisting of a bottom, side walls 12 and 13, end walls 14 and 15 and a lid 16 hingedly connected to the end wall 14 by a piano hinge or the like 17. The side walls 12 and 13 and the end wall 15 have their top edges rabbeted to form upstanding ribs or flanges which are adapted to seat within the rabbeted free edges of the depending walls of the lid 16.

Within the body of the cabinet below the top edges of the side walls thereof is a supporting panel 18 upon which is mounted an automatic phonograph of any approved design and herein shown as comprising a turntable 20 having a central pin 21 of a length to accommodate a stack of disk sound records 22 in superposed relation, a tone arm 23 and automatic mechanism comprising a pivoted record discharge arm 24 adapted to successively remove the topmost record from the stack on the turntable after it

has been played. The specific construction of the automatic phonograph does not constitute a part of the present invention but is of the type that comprises an electric motor and operative record discharge mechanism (not shown) which will remove each record in succession after having been played by raising the topmost record clear of the top of the pin 21 and giving to it a motion of translation which will discharge it laterally from the turntable. Such automatic phonograph mechanism is shown and described in the United States patent to Mitchell et al. No. 1,936,335, November 21, 1933.

To receive the records 22 as they are discharged by the automatic mechanism I provide a record receiving tray 25 which has a flat bottom 26 herein shown of somewhat greater than semi-circular form and an upstanding surrounding wall consisting of a substantially semi-circular portion 27 and a flat portion 28. The flat portion 28 of the wall preferably constitutes a part or a section of the side wall 12 and is hinged to the main section of said side wall by a piano hinge or the like 29 along the line which is parallel to and preferably below the plane of the turntable 20. The tray 25 when in record receiving position, e. g. in the position shown in Figs. 2 and 3 with the tray extending laterally from the side wall 12 is braced in its horizontal laterally extending relation to the cabinet by engagement of the wall 28 with the outer face of the side wall 12. With the tray 25 in its record receiving position and the lid of the cabinet closed as shown in Fig. 2, the side wall 12 will have a lateral opening 30 therein through which the records from the turntable may pass in the course of being discharged into the receiving tray so that the phonograph may be operated with the parts in said relation. Preferably the tray 25 is of such dimensions with respect to both area and depth as will adapt it when moved inwardly about the hinge 29 to extend over the stack of records 22 on the turntable and down into encircling relation to the turntable and thus serve as a guard for the record when the device is carried from place to place.

The automatic phonograph is of the type which employs electric current for its operation and wherein the pick-up of the reproducer 23 is connected through electronic means (not shown) to a loud speaker unit 31 of the electro-magnetic type. To reduce the overall dimensions of the carrying cabinet of the phonograph to a minimum I mount the loud speaking unit 31 within the lid of the cabinet 16. In all electric phonographs it is a recognized fact that the best reproduction effects of music are obtained when the lid of the cabinet is closed so that the extraneous noises incident to the movement of the pick-up stylus over the record will not be heard. In order that these desirable effects may be realized with my present invention, I mount the loud speaker unit so as to be readily removable from the lid while yet remain operably connected with the reproducing mechanism so that the phonograph may be played with the lid closed. To accomplish this the loud speaker unit is removably mounted in the lid of the cabinet by forming the latter with a supporting frame or panel 32 adjacent the inner edge of the lid and into which frame the loud speaker unit snugly fits. Preferably the loud speaker unit 31 consists of a baffle board 33 of an area slightly larger than the opening in the frame 32 so as to overlie the same and has a central circular opening 34 through which

the sound from the electro-magnetic loud speaker 35, which is preferably of the cone type, may issue forth. The cone speaker may be of any approved type and is suitably mounted on the back of the baffle board 33 by fastening elements 35'. Preferably the cone speaker is housed within a box-like casing 35'' mounted on the back of the baffle board, which casing in conjunction with the baffle board will render the loud speaker unit self supporting in upright position when removed from the lid as will be apparent from an inspection of Fig. 2. To hold the loud speaker unit in its normal position within the lid of the cabinet and at the same time provide for quick removal thereof, the frame 32 and the baffle board 33 are provided with complementary latching means 32', 33'. To facilitate handling of the loud speaker unit and particularly the withdrawal thereof from the lid, the baffle board adjacent its top at the center line thereof may be provided with a tab 33'.

For establishing the electrical connection between the electronic means within the cabinet and the loud speaker unit, the supporting panel 18 adjacent the walls 12 and 14 is provided with a plug-in socket 36 adapted to receive a connecting plug 37 at the free end of a conductor leading through the baffle board 33 to the electro-magnetic means of the loud speaker.

For supplying operating current to the electric phonograph it is provided with an electrical conductor 38 carrying a plug 39 at its free end adapted for insertion in any convenient electrical outlet. Mounted on the supporting panel 18 adjacent the wall 15 is a pair of control knobs 40 and 41, one controlling a switch for the current supplied to the phonograph by the conductor 38 and the other controlling the current supply to the loud speaker unit for regulating the loudness thereof. The internal connections leading to these switches have not been shown as they are well known and per se do not constitute a part of this invention. To provide for the dissipation and radiation of the heat generated by the electronic tubes within the cabinet the supporting panel 18 where it overlies said tubes is formed with an open section which is covered with a grille or netting 42.

When in the use of the device it is desired to play the phonograph with its lid closed and the loud speaker unit disposed at a point remote from the phonograph, and it is found that the connecting conductor leading from the loud speaker unit to the plug-in socket 36 is not sufficiently long, a supplemental connecting conductor 43 may be employed. This supplemental conductor is provided at one end with a male plug corresponding to the plug 37 adapted to engage in the plug-in socket 36 and at its opposite end with a female socket connector adapted to cooperate with the plug 37 of the loud speaker unit. For conveniently carrying the automatic phonograph about from place to place and thus lend to its portable character, the cabinet is provided with a carrying handle 45 mounted on the outside of the side wall 13.

From the foregoing detailed description it will be apparent that I have provided an electric automatic phonograph possessing the characteristics and advantages set forth in the opening statement of the specification, and although I have shown and described a preferred embodiment of my invention it is to be understood I do not wish to be limited to the precise details of construction disclosed since changes may be made therein within the realm of mechanical skill without

departing from the spirit of the invention as claimed.

What I claim is:

5 1. An electrical sound reproducing device comprising a cabinet consisting of a box-like body portion and a box-like lid portion hingedly connected to the body portion, a loud speaker unit normally confined wholly within the lid portion when in either open or closed position and bodily
10 removable therefrom for use at a point remote from the cabinet, said loud speaker unit comprising a baffle board having a framework mounted on the rear thereof, an electrically operable sound reproducing instrumentality mounted on
15 said baffle board within said framework, said lid portion having a supporting panel therein formed

with an opening and a bearing portion for accommodating the framework and the baffle board respectively of said loud speaker unit, cooperating means on the lid portion and on the loud speaker unit for detachably holding the loud speaker unit within the lid portion, and the framework being
5 disposed at an angle to the baffle board so that a portion of the framework may cooperate with an edge of the baffle board to support the loud speaker unit in upright position upon a substantially horizontal surface. 10

2. A sound reproducing device according to claim 1 wherein the framework mounted on the rear of the baffle board is a box-like casing.

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