

Dec. 31, 1963

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3,115,803

ELECTRICALLY OPERATED MUSICAL DEVICE

Filed July 8, 1960

FIG. 1.

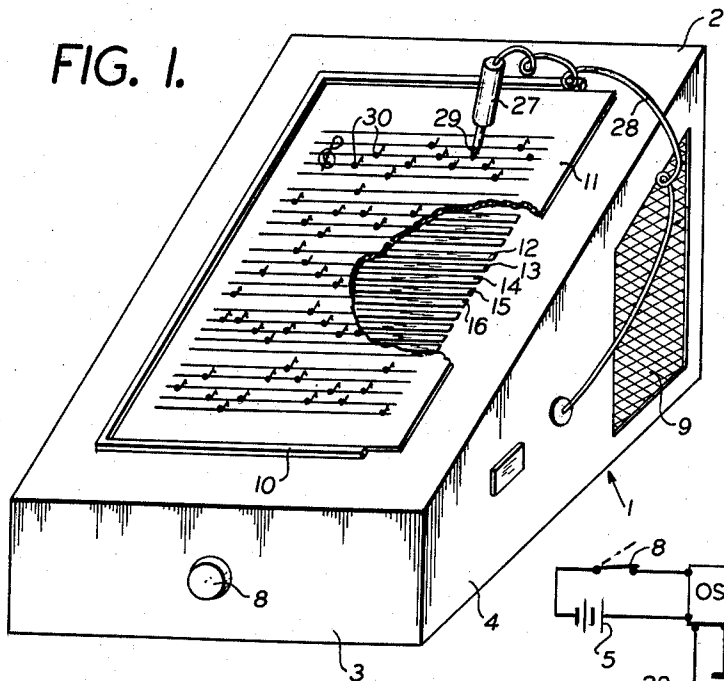


FIG. 3.

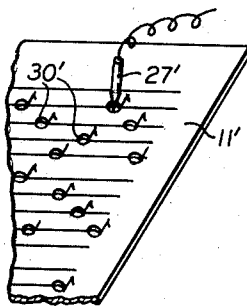


FIG. 5.

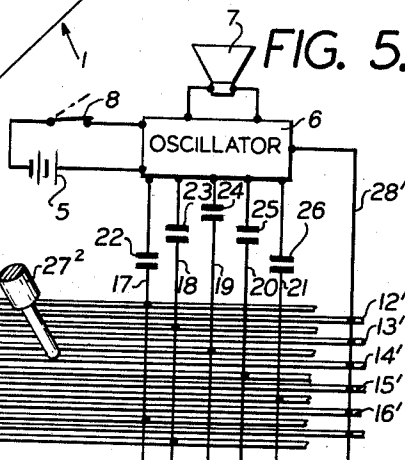


FIG. 2.

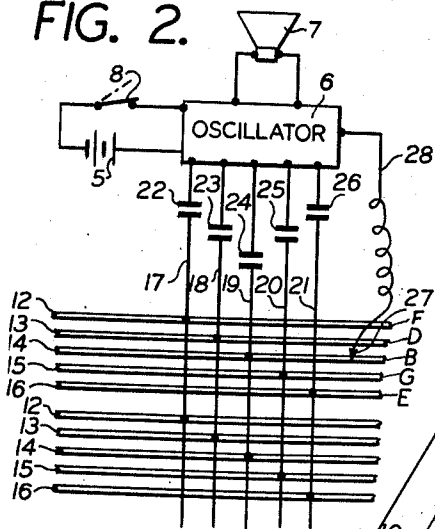
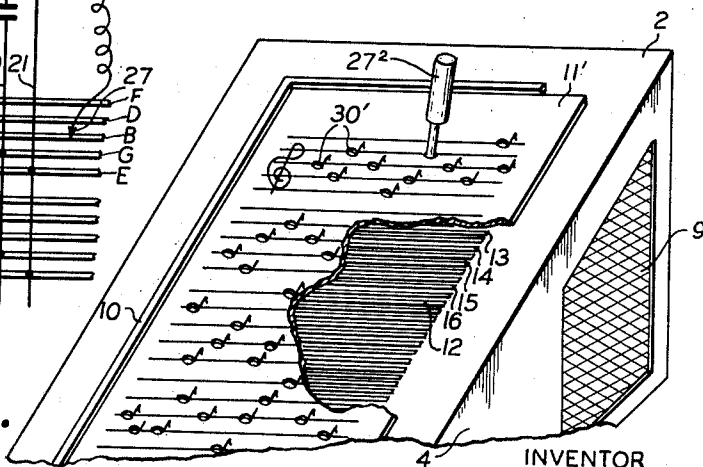


FIG. 4.



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3,115,803

ELECTRICALLY OPERATED MUSICAL DEVICE

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Filed July 8, 1960, Ser. No. 41,647

1 Claim. (Cl. 84-470)

The present invention relates to an electrically operated musical device which by manual operation closes one of a plurality of possible circuits to produce a predetermined sound.

Instruments of this type are already known to be used, for instance, as toys designed and intended for use by children and are operated either by a piano action or by employing a series of electro-magnets in the form of solenoids associated with xylophone bars, or by resonating sound producing elements and electro-magnetically operated units for striking and vibrating the elements.

It is one object of the present invention to provide an electrically operated musical device which permits the playing of simple tunes or musical compositions, to be readily played by children or adults without musical experience or training, by means of a printed music sheet or a particularly prepared music card.

It is another object of the present invention to provide an electrically operated musical device which comprises an oscillator circuit connected with a plurality of capacitors, each of the capacitors to be connected in parallel with one of a series of five bars, each of the latter being complementary to one of the five lines of a conventional music sheet or a specially prepared music card bearing musical notes, and a loudspeaker electrically connected with said oscillator, so that, depending upon the particular capacitor put into the oscillator circuit by a manually operated member, the capacitor circuit is closed to the oscillator and a predetermined sound is produced.

It is still a further object of the present invention to provide an electrically operated musical device of the type as set forth above, in which a second bar is coordinated to each bar which corresponds with one of the five music lines and in which a contact member which is loose and has no wire connection is set on the particular bar which bridges the latter to the adjacent coordinated bar, in order to close the oscillator circuit through the capacitors, each of the coordinated bars being connected in parallel to a return conduit leading to the oscillator.

With these and other objects in view which will become apparent in the following detailed description, the present invention will be clearly understood in connection with the accompanying drawing, in which:

FIGURE 1 is a front perspective view of the electrically operated musical device, designed in accordance with the present invention;

FIG. 2 is a diagrammatic showing of the oscillator circuit in connection with one embodiment of the present invention;

FIG. 3 is a fragmentary perspective view of a music sheet card;

FIG. 4 is a fragmentary perspective view of a second embodiment of the present invention; and

FIG. 5 is a circuit diagram of another embodiment of the oscillator circuit.

Referring now to the drawings, and in particular to FIGS. 1 and 2, the electrically operated musical device comprises a casing 1 having a bottom wall (not shown), a preferably, forwardly inclined top wall 2, a front wall 3 and preferably parallel side walls 4.

The casing 1 is equipped with a source of electrical energy, for instance, a battery 5, an oscillator 6, one branch circuit of which leads to a loudspeaker 7, and a switch 8 which is preferably attached to and operated by a knob secured to the outside face of the front wall 3. At least one side wall has a cut-out or perforation 9 dis-

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posed opposite the loudspeaker 7 in order to provide the possibility to transmit the sounds produced upon closing respective circuits, as set forth below, outside of the casing 1. The top wall 2 is equipped with a frame 10 providing an inner open face of a size complementary to the conventional size of a printed music sheet 11. A series of five bars 12, 13, 14, 15 and 16 are each disposed crosswise within the frame 10 to be disposed below the music sheet 11, in aligned arrangement respectively with the series of five lines F, D, B, G and E of the music sheet, the corresponding bars 12, 13, 14, 15 and 16 being connected by respective electrical conduits 17, 18, 19, 20 and 21 with the oscillator 6. Each of the conduits 17, 18, 19, 20 and 21, being connected with the oscillator 6, includes in series capacitors 22, 23, 24, 25 or 26, and each capacitor is designed to create a predetermined sound equivalent to the note appearing on any of the lines of the music sheet, if such capacitor is put in a closed circuit with the oscillator 6 and the loudspeaker 7.

A contact member 27 is connected by means of the wire 28 to the oscillator 6, as clearly indicated in FIGS. 1 and 2.

In the embodiment shown in FIG. 1 a conventional printed music sheet 11 is disclosed, in which case the contact member 27 has at its free end a pin 29 which perforates the music sheet at the place where the particular note is printed, so that upon contacting the pin 29 with the corresponding one of the bars 12, 13, 14, 15 or 16, one of a plurality of circuits is closed leading from the oscillator 6 to the corresponding one of the capacitors 22, 23, 24, 25 or 26, and then to the respective bars 12, 13, 14, 15 or 16 and through the contact member 27, through the wire 28, back to the oscillator, thereby producing a sound as long as the contact member 27 will engage the corresponding one of the bars.

Referring now to FIG. 3, a music sheet card 11' is shown which is arranged in a manner similar to that of the printed music sheet, however, instead of providing the printed notes 30 on the printed music sheet 11, the five conventional lines of the key of the music sheet have, instead of the printed notes, perforations 30', and in this case the contact member 27' has a diameter substantially equal or slightly smaller than the perforations 30' denoting the note on the musical card 11'. It is undoubtedly apparent that in this instance the contact member 27' is inserted through the respective perforations 30' of the music card, thereby closing one of a plurality of electrical circuits through the capacitors 22 to 26, to the oscillator 6 and thereby also to the loudspeaker 7.

Referring now to FIGS. 4 and 5, another embodiment of the electrically operated musical device is disclosed, in which the contact member 27² is merely a cylindrical body of conducting material. This embodiment is substantially equal with that shown in FIGS. 1 and 2 and thus comprises again a casing 1 having a top wall 2, a front wall 3, and side walls 4, and an opening on the latter for the loudspeaker 7. The top wall 2 is again equipped with a frame 10 to receive a music sheet 11 or a music card 11', which is provided with a series of five conventional lines each for the respective notes 30. Below the sheet 11 or card 11' there are again arranged the bars 12, 13, 14, 15 and 16 and conduit bars 12', 13', 14', 15' and 16' are coordinated to each of the bars 12, 13, 14, 15 and 16. The bars 12', 13', 14', 15' and 16' are disposed adjacent and close to the corresponding bars 12 to 16, so that upon engaging the respective bars with the contact member 27², the front end thereof bridges from the bar 12 to the bar 12' or from the bar 13 to the bar 13', and so on, which contact bars 12' to 16' are connected to a return wire 28'. This embodiment has the advantage that no return wire extends from the casing 1 to the contact member 27² and the respective five cir-

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cuits can be closed through the corresponding capacitors 22, 23, 24, 25, 26, by means of the conduits 17, 18, 19, 20 and 21 to the oscillator 6 which is equipped again with a loudspeaker 7. The return wire 28' is connected with each of the return bars 12' to 16' in order to close one of the respective circuits. In this embodiment a needle operation would not be possible, as shown in FIG. 1, because the contact member must have a minimum diameter, capable of providing a contact bridge between each of the bars 12 to 16 to the corresponding bars 12' to 16'.

While merely for simplification the bars 12 to 16 have been only shown which correspond to the five lines, E, G, B, D, F of the scale, it is to be understood that intermediate bars can also be provided with corresponding capacitors which are likewise connected to the oscillator 6, in order to play also the conventional intermediate notes.

It should be further emphasized that the same circuit arrangement cannot only be used for circuits which include capacitors to create the respective musical sounds, but the same circuit closing arrangement can also be applied to the known solenoid and electro-magnetic arrangement which operate a vibrating element to create the respective sounds.

While I have disclosed several embodiments of the present invention, it is to be understood that these embodiments are given by example only and not in a limiting sense, the scope of the present invention being determined by the objects and the claim.

I claim:

An electrically operated musical device comprising a casing having a top wall and side walls, a frame disposed on said top wall, said frame being adapted to receive a member carrying five musical lines and a plurality of musical notes thereon, a series of groups of bars disposed

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parallel to and below said musical lines, one bar of each group of said series being in parallel electrical connection with one of a plurality of capacitors, each of the latter being in circuit connection with an oscillator having a loudspeaker connected thereto, and each of said capacitors being set to produce in conjunction with said oscillator a musical sound equivalent to the musical note disposed above each bar of said series, a contact member, said contact member engaging selectively any one of said bars disposed below the corresponding of said notes, in order to close one of a plurality of circuits to produce the corresponding selected sound, said note carrying member comprising a music sheet having a plurality of perforations denoting said notes, a second bar coordinated to and disposed slightly spaced apart from each of said first mentioned bars, all said second bars being connected with said oscillators to close a circuit to the latter through said respective, first mentioned bars, said contact member comprising a body having a flat end face of a diameter sufficient to bridge each pair of said coordinated bars by inserting said contact member through said perforation for engaging and electrically connecting each pair of coordinated bars, to close a circuit for creating a sound complementary to the note defined by said perforation receiving said contact member.

References Cited in the file of this patent

UNITED STATES PATENTS

30 2,792,738 Donahue ----- May 21, 1957

FOREIGN PATENTS

646,212 Great Britain ----- Nov. 15, 1950
35 673,027 Great Britain ----- May 28, 1952