

Feb. 28, 1956

R. SEYBOLD

2,736,223

ELECTRIC BELLOW-OPERATED MUSIC INSTRUMENT

Filed Aug. 2, 1951

FIG. 1

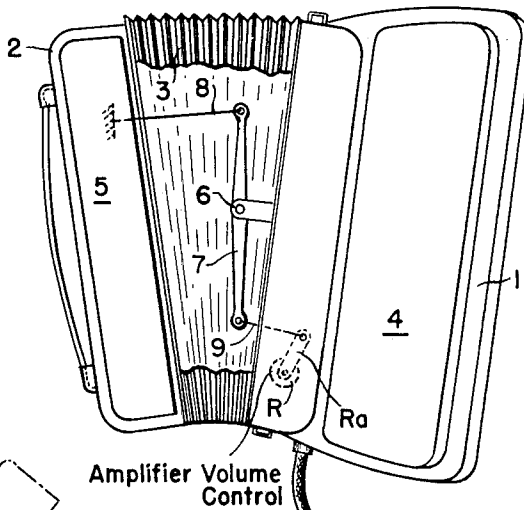


FIG. 2

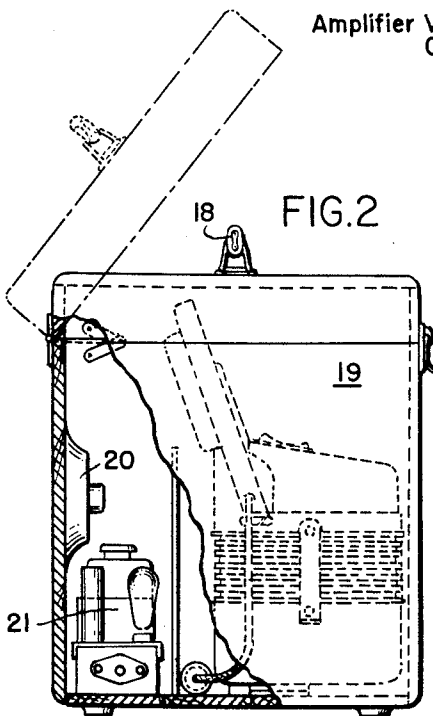


FIG. 3

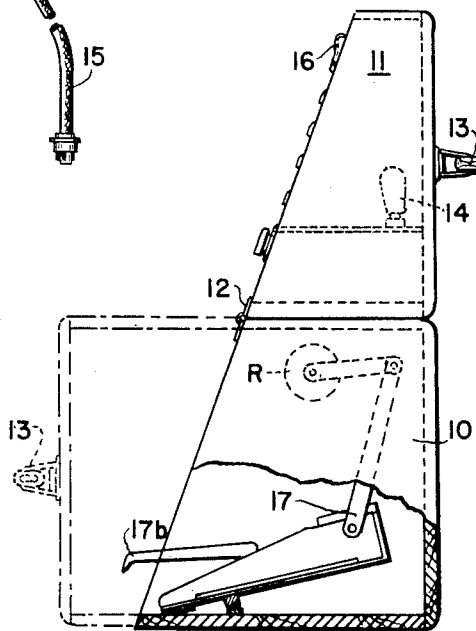
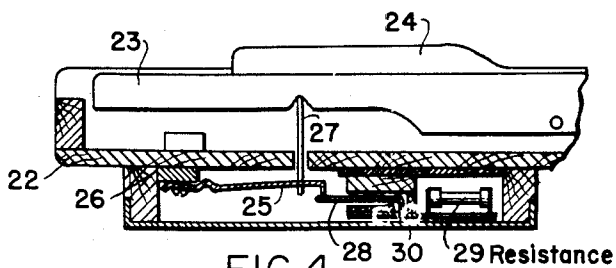


FIG. 4



INVENTOR.
Rene Seybold

BY *Rene Seybold*

ATTORNEY

1

2,736,223

ELECTRIC BELLOW-OPERATED MUSIC INSTRUMENT

René Seybold, Strasbourg, France

Application August 2, 1951, Serial No. 239,888

13 Claims. (Cl. 84-1.10)

The present invention relates to musical instruments in general, and in particular to an accordion, bandonion or the like, which instruments are equipped with a bellows.

It is one object of the present invention to provide a musical instrument having a bellows which comprises an electrical contact device operating a resistance or condenser corresponding with a predetermined tone.

It is another object of the present invention to provide a musical instrument having a bellows in which the tone-modifying device is disposed on the rear side of the keyboard engage coupling members through openings provided in the instrument holding board and act on control contact members being connected, for instance, with resistances that act on the electrical oscillations and define their frequency; the entire structure, namely the contact members as well as the resistances and condensers, if any, are preferably mounted in small flat dismountable casings which permit of a ready mounting and dismantling if such structure is added to a standard accordion, and the casing may be sealed against dust, an important feature for the proper operation and reliability of the structure, particularly of the contact members; the walls may be also protected by means of a conductive coat or a metal sheath, forming an electric and possibly magnetic protective sheath which consequently cuts out any objectionable disturbances during the operation.

It is still another object of the present invention to provide a musical instrument having a bellows, in which the frequency generator is either disposed inside of the bellows or in a separate casing electrically connected with the bellows instrument; any suitable electrical circuit may be in the instrument, although preferably the electrical circuit disclosed in applicant's copending patent application Serial No. 276,122 filed March 12, 1952, may be used.

It is yet another object of the present invention to provide a musical instrument having a bellows in which the electronically produced tone is changed by operation of the bellows.

It is also an object of the present invention to provide a musical instrument having a bellows in which the musical instrument may be played not only through electrical control but also in cooperation with the vibrating reeds, which instrument for this purpose is equipped with a member controlling the electrical intensity and adjusting means, a lever, a key, a rocking handle or the like, on either of the two parts of the frame of the instrument, the member being operated preferably by the player's thumb.

It is still a further object of the present invention to provide an electrical music instrument having a bellows which, in addition to the intensity adjusting means and the volume controlling means, also includes a sound generator, a multi-stage amplifier and a loud speaker, the latter elements being disposed inside the bellows merely by a single cable connected with the source of electrical energy.

It is also an additional object of the present invention to provide a musical instrument having a bellows which

2

is designed not only for operation through electric means but also through the agency of reeds, in which only the intensity means, the volume controls, and the electrical contact means for stops are disposed in the actual instrument, while the remaining elements are disposed in a special separate casing.

I have illustrated by way of example in accompanying drawings, a preferred embodiment wherein certain component parts are housed inside special casing. In said drawings:

Fig. 1 is a diagrammatic view of my improved bellow-instrument.

Fig. 2 illustrates the transportation casing for the instrument, including the amplifier and the loud speaker.

Fig. 3 illustrates a further casing adapted to contain various auxiliaries and control means.

Fig. 4 is a cross section through the keyboard of an improved accordion.

Fig. 1 illustrates a particular bellows instrument the main parts of which are constituted in the usual manner by a frame part 1 carrying the keys for the higher notes, a frame part 2 carrying the keyboard for the lower notes and bellows 3. The keys 23, 24 corresponding to the higher octaves are shown in the drawing on the side facing the observer. To the rear surface of the carrier board 22, turned away from the observer, are provided casings 4 and 5, housing the sound control devices that are thus protected against dust.

The adjustment of the sound intensity or volume in correspondence with the expansion of the bellows may be ensured through various mechanical means. In the example illustrated, there is provided a two-arm lever 7 adapted to rock round a pivot 6. The intensity-adjusting member R is secured to the frame of the keyboard 1 for high notes, while a connecting rod 8 connects the end of the lever 7 with the keyboard for the low notes to which said rod 8 is secured. If bellows are drawn out, the above mentioned adjusting member from the high notes is actuated by the lever 7 and the rod 9 in a predetermined direction. Upon subsequent compression of the bellows, the lever 7 will be moved in opposite direction and accordingly the intensity adjusting member also moved in the opposite direction.

When adjusting the sound intensity in the case of a combined playing under electrical and under reed control, it is possible to provide on the rear surface of the frame of the low note keyboard 2 a control lever (not shown) that may be actuated e. g. by the player's thumb.

The keys 16 controlling the stops may be carried on the board on the side facing the keyboard but also, as in the case of Fig. 3, inside a special casing 10, 11. The latter is illustrated in side view and assumes, when closed, the shape of a four-sided polygon. It is subdivided by a downwardly sloping partition, whereby, when folding the part 11 over the part 10, it is possible to obtain the shape appearing in dot and dash lines in Fig. 3. This folding is provided round the transverse hinge 12 connecting the stationary part 10 of the casing with the cover 11. A handle 13 is provided for carrying the box. The stationary part 10 may include at least part of the amplifier while the cover 11 may contain the oscillation generator 14 controlled by members carried inside the casings 4 and 5 through the agency of a connecting cable (not shown). The oscillator generator casing carries in the example illustrated, the above mentioned stops controlled by the keys 16.

The stationary part 10 of the casing contains a plurality of adjacent pedals 17b of which a selected pedal 17 serves the adjusting of the intensity of the sound. The pedals 17b play parts similar to those played by the stops and define the tone.

The cross-section illustrated in Fig. 4 and passing

through the board that serves for handling the instrument shows the means controlling sound volume. In the bottom surface 22 of said board are mounted in the usual manner the keys 23 and 24. The movable springs 25 of the control contact pieces are carried side by side by the bar 26. These springs 25 carry pusher rods 27 engaging freely corresponding openings in the springs and bearing through their free ends against recesses provided in the keys 23 and 24. This yielding arrangement of the pusher rods 27 provides for an easy and frictionless movement of the entire movable mechanism. The springs 25 providing for contact serve also as compression springs for the keys.

The contact blades 28 lead to predetermined contact elements e. g. resistances 29 that are located directly to the rear so that no connecting cable is required. Similarly, the variable resistances that are required for adjusting the sound, are mounted inside the casings 4 and 5 and are not inserted in the connecting means (not shown) which, according to the invention, feeds directly the grid of the oscillator tube. All these delicate parts are protected by a dustproof cover 30 provided in its turn with a metal cover (not shown). Similarly there are provided protecting covers that are not illustrated, for the parts enclosing the control members. The contact bars 26 and the cover 30 form together with the spring contacts 25, the contact blades 28, the resistances 29 and their supports a unitary block contained inside the casings 4 and 5 of Fig. 1.

What I claim is:

1. In an electrical musical instrument having two frame portions and a bellows movably connecting the said frame portions, a keyboard having a plurality of keys, a frequency generator unit, including a grid, a resistance unit coordinated to each of the said keys, and contact means operated by the said keys for electrically connecting the said corresponding resistance unit, an amplifying unit and a loudspeaker unit, means electrically connecting the said electrical units, and means responsive to the relative movement of the said frame parts for controlling the volume of the sound produced by the said instrument.

2. The instrument, as set forth in claim 1, which includes means for controlling the said sound adjusting means, and in which the said means for adjusting the sound as well as the said control means are disposed on the back side of the said keyboard, and having a dustproof casing secured to the said keyboard receiving the said first and second mentioned means.

3. The instrument, as set forth in claim 1, in which a contact spring is coordinated to each key of the said keyboard, the said contact spring operating simultaneously as compression spring for the said key.

4. The instrument, as set forth in claim 1, which includes in addition a reed instrument.

5. The instrument, as set forth in claim 4, which includes means for shifting the tone production by electronic means to one by reed means.

6. The instrument, as set forth in claim 4, which in-

cludes means for simultaneous tone production by electronic means as well as by reed means.

7. The instrument, as set forth in claim 1, in which the intensity adjusting means is disposed in the said bellows.

8. The instrument, as set forth in claim 1, in which the said volume control means comprises a double armed lever pivotally secured intermediate its ends to one of the said frame parts and disposed in the said bellows, a potentiometer having a rotating arm disposed in the said one of the said frame parts, a first rod connecting one end of the said lever to the said rotating arm, and a second rod connecting the other end of the said lever to the other of the said frame parts, so that upon relative movement of the said frame parts the said potentiometer is operated in predetermined manner through instantaneous operation of the said lever.

9. The instrument, as set forth in claim 1, in which one portion of the electrical apparatus is disposed in a separate casing adapted for the transportation of the accordion.

10. The instrument, as set forth in claim 1, which includes means for selective adjustment of the tone in accordance with a predetermined musical instrument and pedals disposed in a separate casing for operation of the said means.

11. The instrument, as set forth in claim 10, in which the said casing includes also keys for the free combination of different tones.

12. The instrument, as set forth in claim 10, in which a second pedal is disposed in the said casing adapted for operation of an intensity control means.

13. The instrument, as set forth in claim 1, in which the said elements other than those disposed adjacent the said bellows, are arranged in a block-shaped casing, the said casing being divided into two parts through a plane disposed perpendicular to the side faces thereof, the said plane forming an oblique angle to the base of the said casing, the said two parts being hinged together on the top face thereof, so that upon opening the said casing the open faces of both parts are disposed in an inclined plane extending rearwardly from the base of the said casing.

References Cited in the file of this patent

UNITED STATES PATENTS

1,008,722	Kunz	Nov. 14, 1911
1,882,960	Sater	Oct. 18, 1932
1,956,350	Hammond	Apr. 24, 1934
2,226,900	Dickerson	Dec. 31, 1940
2,233,948	Kock	Mar. 4, 1941
2,250,065	Koehl	July 22, 1941
2,262,179	Hammond	Nov. 11, 1941
2,288,463	Kislingbury	June 30, 1942
2,356,368	Zaccagnino	Aug. 22, 1944
2,439,551	Teikowski	Apr. 13, 1948
2,487,420	Brown	Nov. 8, 1949
2,575,142	Sorkin	Nov. 13, 1951
2,577,288	Terlinde	Dec. 4, 1951