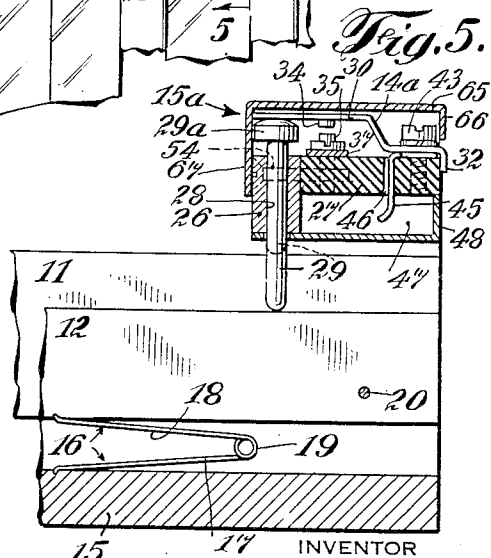
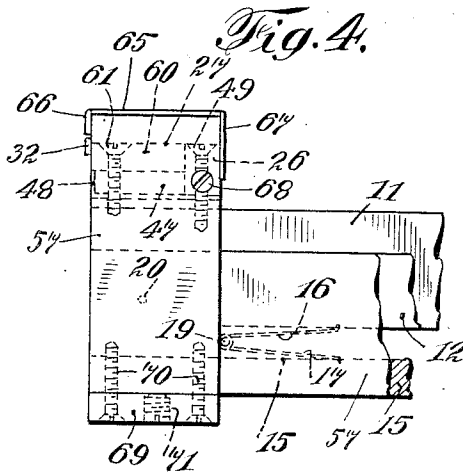
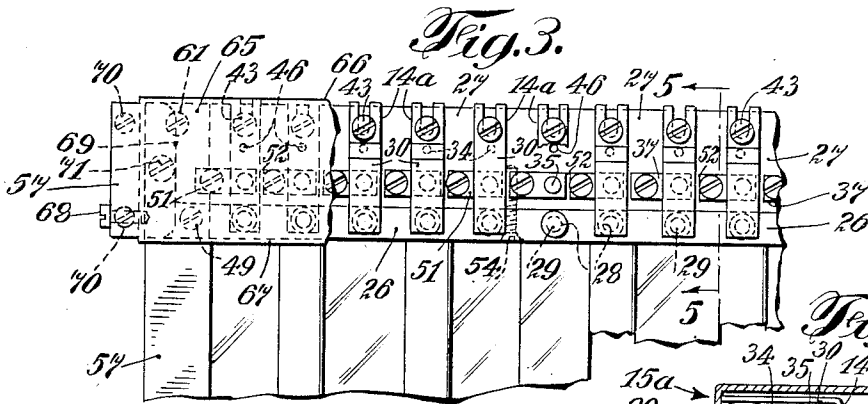
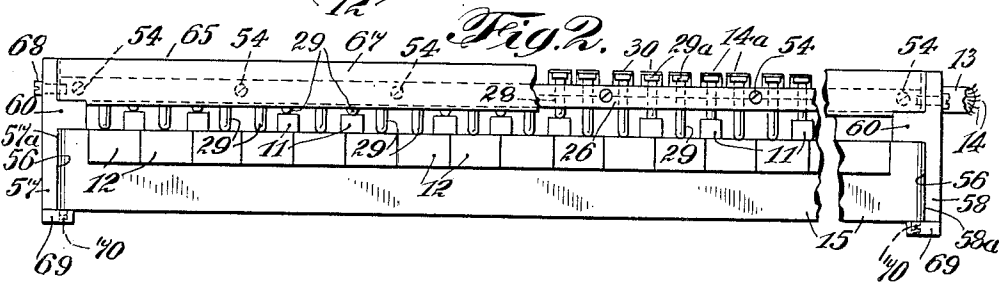
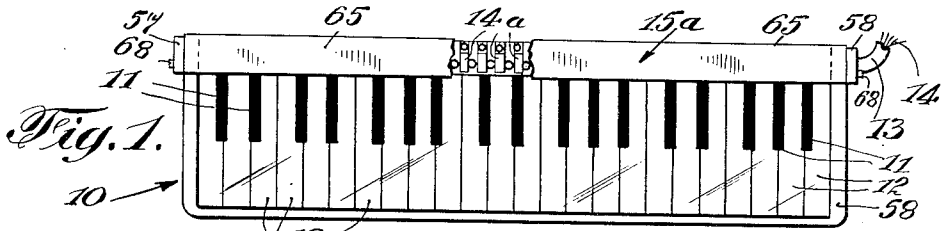


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KEYBOARD ATTACHMENT FOR ELECTRICALLY
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KEYBOARD ATTACHMENT FOR ELECTRICALLY OPERATED MUSICAL INSTRUMENTS

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1 Claim. (Cl. 84—171)

This invention relates to a keyboard attachment for remote control of electrically operated musical instruments, and has for its object to provide a device removably attachable to a keyboard of a piano accordion provided with finger depressed keys which actuate switches to set in operation devices for sounding percussion or other musical instruments.

In the embodiment shown, the keyboard is the usual one as applied to an accordion. The operation of the accordion with the fingers enables the operator to produce the known accordion sounds.

This invention enables such an accordion to be put to another use, namely, to be played jointly with a xylophone, operated by electrical means. While I have heretofore proposed such a joint action, the present invention provides an accessory or attachment which is self-contained, in that it is a unitary structure which can be applied to an accordion keyboard to control an electrically operated xylophone. Such an accessory can be made a temporary or a permanent part of the accordion. When temporarily separated from an accordion, for example, this accessory can be considered as part of such other musical instrument, and then be again attached to a piano accordion.

The invention underlying the accessory or attachment is a switch container, including a continuous length of fiber material, preferably Bakelite, and a continuous length of a conductive material, running parallel with each other, in contact with each other, and secured to each other, from end to end of the regular keyboard having the standard number of keys, with means for securing said assembly to the frame of the piano accordion. The switches in said accessory are actuated when pressure on the keys by the fingers of the player is applied, which keys are arranged below said skeleton support. A conductor casing for the switches extending from end to end of the keyboard is provided.

A dust protecting cover also extends from end to end of the keyboard, which is opened in the event of the necessity of repairing any individual switch. Conductors of each switch in the conductor casing all gather at one end of the accessory, and are then joined in a cable, which leads to the xylophone.

The novel attachment of my invention will be further described hereinafter, a preferred embodiment thereof will be illustrated in the accompanying drawing, and the invention will be finally pointed out in the appended claim.

In the accompanying drawing:

Fig. 1 is a top view of a piano accordion keyboard with the novel attachment operatively connected thereto and its median portion partially broken away;

Fig. 2 is an enlarged front view of the device shown in Fig. 1;

Fig. 3 is a fragmentary top view of Fig. 1;

Fig. 4 is a left end view of Fig. 3; and

Fig. 5 is a vertical section taken on line 5—5 in Fig. 3.

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Referring to the drawing, a known keyboard 10, with black and white keys 11 and 12, is shown in Fig. 1 with a broken away portion showing the switches 14a, more particularly shown in the subsequent figures. Such a keyboard forms part of the piano accordion to enable the accordion to be played, and at the same time cause a xylophone to be operated by solenoids to be actuated by electrical conductors 14 in the cable 13, passing from the accordion to the xylophone.

A xylophone is not shown in this application, as it is shown in my U. S. Patent No. 2,640,385, granted on June 2, 1953.

A base frame 15 of the accordion (Fig. 5) supports freely movable two-legged springs 16, each having one end 17 pressing against the upper surface of said base frame 15, and the other end 18 pressing against the lower surfaces of the black keys 11 and white keys 12. A convolution 19 gives an expanding action to the spring ends 17 and 18 so that they press against the frame 15 and maintain keys 11 and 12 in the position shown in Figs. 4 and 5. The keys are pivoted at 20. The torsion spring is a standard accordion part.

Above the keys, and at the rear thereof, a unitary self-contained switch assembly box extends the length of the keyboard, which includes a continuous uninterrupted bar 26 of aluminum and a continuous bar 27 of insulating fiber material, such as rigid Bakelite extending from end to end of the keyboard 10. Bar 26 is provided with bores 28 for the passage of plungers 29, which extend downwardly to contact the top surfaces of the keys. A flat copper spring 30 for each plunger 29 is fastened at one end by a screw 43, and reaches over the top 29a of the plunger; and has intermediary to the plunger end and its held end a projection 34, which contacts a respective contact member 35 on the bus bar 37 extending the length of the bar 27. The spring 30 has a bent over portion 32 along the insulating fiber material to give a good holding effect, auxiliary to the action of the screw 43. This keeps the flat spring from shifting laterally. A conductor 45 extends from the screw 43 through an opening 46 in the fiber bar 27 into the wire space 47, which is formed by an angular aluminum section 48 held by a screw or otherwise secured to the aluminum bar 26. These conductors are then led from the conductor box in the form of a cable 13, with the conductors 14 individually going to the respective solenoids of the xylophone.

The bus bar 37 is continuous, but the plates 51 supported thereby are separate and detachable for convenient repairing. The contact plates 51 have spaces 52 therebetween, longitudinally of the accessory. These spaced smaller plates do not increase the cross sectional area of the bus bar.

Along the length of the fiber and aluminum bars, attaching screws 54 are provided, say about 6 or 8, along the length of these bars to secure them together, and make substantially one single bar of them, which forms the skeleton for the attachment of the switches, and which switches are above the keys.

Referring to Fig. 2, the usual keyboard of an accordion ends at the end parts 56. The switches, one for each key, extend the length of the keyboard. Clamping bracket members 57 and 58 are provided on the assembly, with the lower parts of said brackets defining inset space 57a and 58a to receive the frame of the keyboard, and screws 70 fasten the frame and bracket together. Above the inwardly extending part 60 of the brackets, the fiber and aluminum integral skeleton of the attachment is supported and fastened by screws 61 and 49. These brackets form part of the accessory.

To prevent dust from entering the switches 14a and

also for concealing the same, a cover 65 is provided which extends from end to end of the bars 26 and 27, and this cover 65 has a shorter side flange 66 and a longer side flange 67. The cover is supported by a swivel screw 68.

A clamping member 69 is secured by screws 70 to the lower part of the bracket, a set screw 71 being provided to insure a fixed relationship.

The forceful depression of the key by the player's fingers overcomes the pressure of spring 18, and the plunger spring 30 presses the plunger 29 downwardly, thus establishing contact between 34 and 35. Lower contacts 35 are on one bus bar 37, and the stiff aluminum bar together with the insulating fiber or Bakelite bar 27, which supports the projections 34, renders the attachment a self-contained unit.

From the foregoing, it is seen that with a piano accordion as part of the embodiment, the usual keyboard thereof has an accessory or attachment 15a, which extends above instead of below the keys. The pressure on the keys closes a corresponding switch, and then the electrical current passes to a xylophone, which is distant from the accordion.

Instead of having the keyboard as part of the accordion, a separate keyboard independent of the accordion, may be used, the keys serving to actuate the corresponding switches, to have current pass to a remote musical device.

The aluminum bar of the attachment prevents expansion and contraction on temperature changes, observable in fiber material, and it also stiffens the fiber bar. Further, the aluminum bar provides a durable bearing surface for the plungers. The attachment is in the form of a long casing extending the full length of the accordion keyboard.

I have described one embodiment of my invention, but obviously various changes may be made in the details disclosed without departing from the spirit of the invention as set out in the appended claim.

I claim:

The combination of a keyboard having a row of depressible parallel keys with an elongated switch compartment and a pair of brackets for connecting the longi-

tudinal ends of said compartment with said keyboard, said compartment including a tubular housing extending the full length of said row of keys and having a removable wall, a reinforcing metallic bar in said housing having a plurality of bores, one for each of said keys, perpendicular to said keys, a plunger member in each of said bores having a first end extending from said housing and in contact with a respective one of said keys, and an enlarged second end in said housing adjacent said removable wall, an insulating member in said housing parallel with said removable wall, connected with and extending the full length of said metallic bar and defining a first and a second chamber in said housing, said first chamber being between said removable wall and said insulating member, a plurality of resilient conductive elements in said first chamber each having a first and a second end, said first ends of said resilient elements being attached to said insulating member and said second ends of said resilient elements being in contact with said second end of a respective one of said plunger members for urging said first ends of said plunger members into contact with said keys, a conduit connected to said first end of each of said resilient elements, said conduits extending into said second chamber and from said housing at one longitudinal end thereof, a bus bar attached to said insulating member in said first chamber and a plurality of contacts on said bus bar each adjacent a respective one of said resilient elements and conductively engaged by said resilient elements when the respective ones of said keys are depressed and said plunger members are moved in said bores by said second ends of said resilient elements.

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