Jan. 1, 1929.

1,696,960

G. F. LIBIEZ

BELL ATTACHMENT FOR ACCORDIONS

Filed June 15, 1925

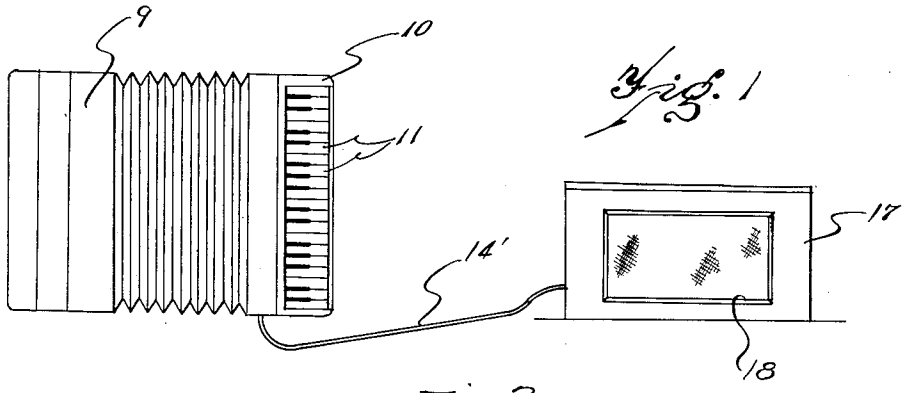


Fig. 1

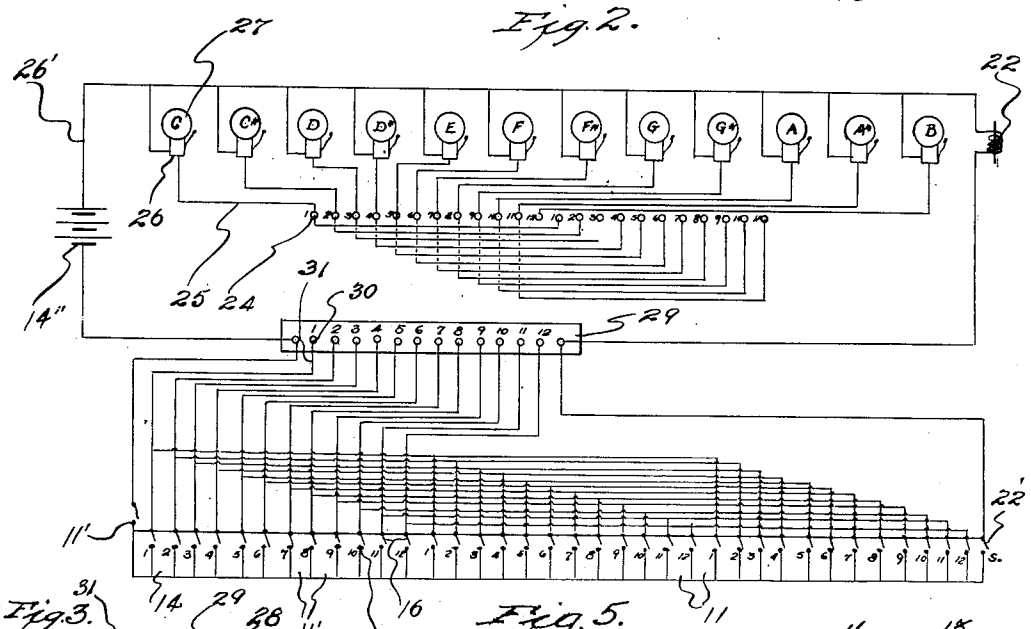


Fig. 2.

Fig. 3.

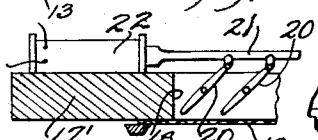


Fig. 5.

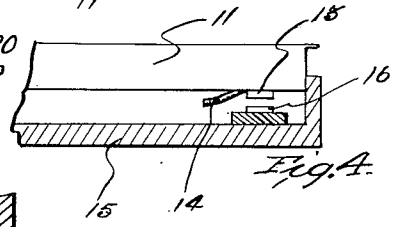


Fig. 4.

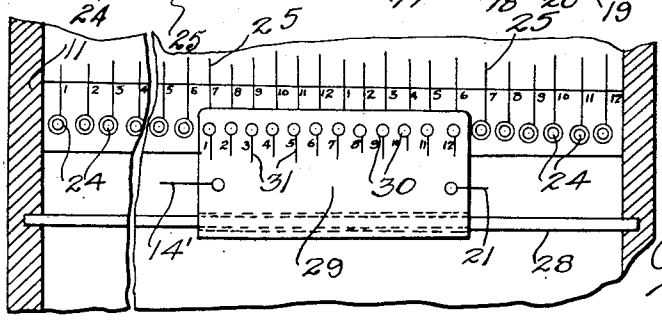


Fig. 6.

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Patented Jan. 1, 1929. 1,696,960

UNITED STATES PATENT OFFICE

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BELL ATTACHMENT FOR ACCORDIONS.

Application filed June 15, 1925. Serial No. 37,119.

My invention relates to a new and useful improvement in a bell attachment for an accordion, which will be electrically operated, so that the one playing the accordion, upon sounding the notes, which are operated by keys, will also energize an electrical mechanism for sounding bells or tubes of varying pitch, so that the player playing the accordion may produce, in addition to the usual music of the accordion, an effect resembling the playing of orchestra bells. To provide a mechanism which will result in this effect is one of the objects of the present invention.

Another object of the invention is the provision of a mechanism of this class, which may be easily and quickly connected to different keys, so that the player, when operating the instrument, will be able to sound the bells in a different scale than that in which the keys of the accordion are played.

Another object of the invention is the provision of a mechanism for regulating the volume of the sound produced by the bells, by a closing of a circuit to a shutter operating mechanism.

Other objects will appear hereinafter.

The invention consists in the combinations and arrangements of parts hereinafter described and claimed.

The invention will be best understood from a reference to the accompanying drawings which form a part of this specification and in which,

Fig. 1 is a top plan view of an accordion, showing the auxiliary box in elevation,

Fig. 2 is a diagrammatic view illustrating wiring used in the invention,

Fig. 3 is a transverse sectional view through the movable contact bearing member,

Fig. 4 is a fragmentary sectional view showing one of the keys of the accordion in elevation and illustrating the contacts operated through a pressing of the accordion key,

Fig. 5 is a fragmentary sectional view illustrating the shutter operating mechanism.

Fig. 6 is a fragmentary top plan view of the device illustrated in Fig. 3.

As shown in the drawings, the invention is adapted primarily with an accordion 9 having a keyboard 10, upon which is rockingly mounted keys 11, which closely resemble the keys of a piano and each of which is adapted for sounding a separate note, when the accordion is played. Mounted on the undersurface of each of the keys 11 is a contact 13, which is suitably wired by the wire 14, which passes through a cable 14′ to the negative pole 14″ of a battery. Any suitable source of electrical energy may be used instead of a battery, as will be evident from the description. Mounted on a supporting board 15, which is carried by the keyboard 10 is a contact 16. This contact 16 is electrically connected by means of the wire 31, as shown in the diagrammatic view to a contact plug 30. This contact 30 is carried on a swingably mounted support 29, which is pivoted on a rod 28, suitably supported in the housing or box 17. The support 29, in addition to being swingably mounted on the rod 28, is also adapted for slidable movement on the rod 28, so that the support 29, which is of less length than the rod 28, may be slid from one end of the rod 28 to the other. The plug 30 is adapted to co-operate with a socket contact 24, which is mounted upon a supporting wall 23, positioned in the housing or box 17. The socket contact 24 is electrically connected by the wire 25 to magnetic coils 26, adapted for operating the hammer to ring the bell 27, which is positioned in the housing or box 17. The specific structure of the magnetic coils 26 and the bells 27 is not set out, inasmuch as this specific structure forms no part of the invention, the operation of this mechanism being of a well known type. In the simplest construction there is intended to be mounted in any desirable manner in the housing or box 17 twelve of these bells 27, which are tuned in the chromatic scale from C to B, either low or high pitch. The arrangement is such that the magnets will cause the hammer to strike the bells, when the circuit is closed through the magnetic coils 26. Instead of the bells 27, it is, of course, evident that metallic tubes properly tuned may be used.

As shown in the diagrammatic view, the magnetic coils 26 are suitably connected by the wire 26′ to the positive pole of the battery, so that, when the key 11 is pressed to bring the contacts 13 and 16 into engagement with each other and the plug 30 is in engagement with the socket contact 24, a circuit will be closed through the magnetic coils 26 to effect an operation of this mechanism.

In operation, the player will move the

contacts 30 into engagement with the contacts 24 preliminarily to playing. The pressing down of the keys 11 will then serve to close the circuit through the magnetic coils 26, to effect a ringing of the bells, or a sounding of the tubes, as the case may be.

On the keyboard of accordions, there should be at least twenty-five keys and each of the keys is provided with a contact terminal to co-operate with another contact terminal carried by the keyboard, these terminals being arranged and constructed as described. In the diagrammatic view, I have shown a wiring for a keyboard of thirty-six keys, although the number of keys on the keyboard will not materially affect the use or operation of the invention. The greater the number of keys, of course, the more contacts there should be with an increased amount of wiring. In the diagrammatic view, the keys have been indicated by sets of twelve, the twelve keys indicating the twelve notes in the chromatic scale. On the slidable contact bearing member 29, I have illustrated but twelve contacts, which is ample in the simple structure where only twelve bells or brass tubes are used. Should it be desirable, as undoubtedly would be the case in more elaborate structures, to have more than twelve bells mounted in the housing or box 17, the number of contacts on the slidable contact bearing member 29 would have to be correspondingly increased, the number of these contacts on the contact bearing member 29 being equal to the number of bells or tubes mounted in the housing or box 17. As shown in the diagrammatic view, each key of each set of twelve is electrically connected to the corresponding key of every other set of twelve, so that a closing of the contact of one of the keys of either of the sets of twelve would have the same effect as the closing of the contacts of either of the other corresponding keys of the other sets of twelve, the wiring being a connection in series. In operation, the one playing the instrument would, before plugging the contacts 30 into the contacts 24, select the scale in which he desires the bells to be played. For instance, if the contact at No. 1, which is carried by the contact support 29, should be plugged into the contact 24 at No. 1, the keys 11, when played, would cause to be rung a bell tuned accordingly. However, should the contact No. 1 on the contact support 29 be plugged into the contact socket 24 at No. 5, the bells would be played in a different scale than the scale of the keys, so that the player would be playing the piece of music on the keys 11 in one scale and playing the same piece on the bells in another scale. In this way, with the simple structure shown in the drawings, the player has a selection of twelve scales in which to operate the bells, only one of the scales being the same as the scale in which the piece would be played on the keys of the accordion.

The switch 11′ is positioned between the keys 11 and the pole 14″ of the battery, so that the player may call into action at will the mechanism for operating the bells, or may play the pieces of music on the accordion keys alone. The switch 11′ may be positioned at any desirable point on the keyboard 10.

The box 17 should be constructed so as to provide a desirable sounding chamber, but the specific structure of this box also forms no part of this invention, and therefore is not set forth in detail. The box 17, however, is provided with an opening 18, over which is positioned a suitable screen 19. Mounted on the wall 17′ of the housing, or box, 17 is a solenoid 22, which is connected electrically, as shown in the diagrammatic view, a suitable switch 22′ being provided to permit the operator to energize the solenoid 22 at will. The cord 21 is connected to operate swingingly mounted shutters 20 which are positioned in the opening 18. These shutters 20 and their specific connection to the solenoid are of a well known type and their detailed structure forming no part of this invention, is consequently not shown. The operator may, at will, open or close the switch 22′, so that the shutters may be opened or closed to increase or diminish the volume of sound emanating from the box or housing 17, when the bells are sounded.

The structure, as illustrated, is a simple one to produce the effect desired, and the arrangement shown affords the operator a large range of scales in which to play the bells.

While I have illustrated and described the preferred form of structure, I do not wish to limit myself to the precise form of structure shown, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

What I claim is:

1. In combination with a piano accordion having a plurality of sonorous bodies associated with electrically operated means for effecting a sounding of the same, said bodies being relatively tuned; a plurality of individual means, one corresponding to each of said keys, operable upon the playing of said keys for closing a circuit to said electrical means for effecting the sounding of said sonorous bodies individually; and selective means for determining the sequence of sounding of said sonorous bodies relatively to the sequence of playing of said keys.

2. In combination with an accordion, a plurality of sonorous bodies, adapted for being sounded individually by electrically operated means; a plurality of keys on said

accordion; contacts on each of said keys adapted, upon the playing of said keys, for closing a circuit to said electrically operated means for effecting a sounding of one of said bodies upon the closing of each of said contacts; and means for selectively electrically connecting said contacts to said electrically operated means, for varying the sequence of sounding of said bodies relatively to the sequence of playing of said keys.

3. In combination with an accordion, having a plurality of keys, a plurality of relatively tuned sonorous bodies adapted for being sounded by electrically operated means; individual make and break means, operable upon the playing of each of said keys, said make and break means being normally open and adapted for closing, upon the playing of said keys, the closing of said make and break means effecting a circuit to said electrically operated means individually; and slidably mounted means for determining the sequence of the sounding of said sonorous bodies relatively to the sequence of closing said make and break means.

4. In combination with an accordion: a plurality of sonorous bodies; electrically operated means for sounding said bodies individually; a plurality of keys on said accordion, the number of said keys being in excess of the number of said sonorous bodies; a source of electrical energy; an individual circuit connecting each of said sonorous bodies individually to said source of electrical energy; a plurality of switches in each of said individual circuits; a contact member on each of said keys; means for closing a number of said switches corresponding to the number of said sonorous bodies, said contacts on said keys being adapted upon playing of said keys for closing said circuits individually, each of said keys closing one of said circuits, the circuit closed depending upon the position of said switch closing means relatively to said switches, when in operative position relatively thereto.

In testimony whereof, I have signed the foregoing specification.

GASTON F. LIBIEZ.