Nov. 12, 1946. E. C. OSENBERG 2,410,897

ACCORDION TREBLE SHIFT MECHANISM

Filed March 2, 1944

FIG. 1

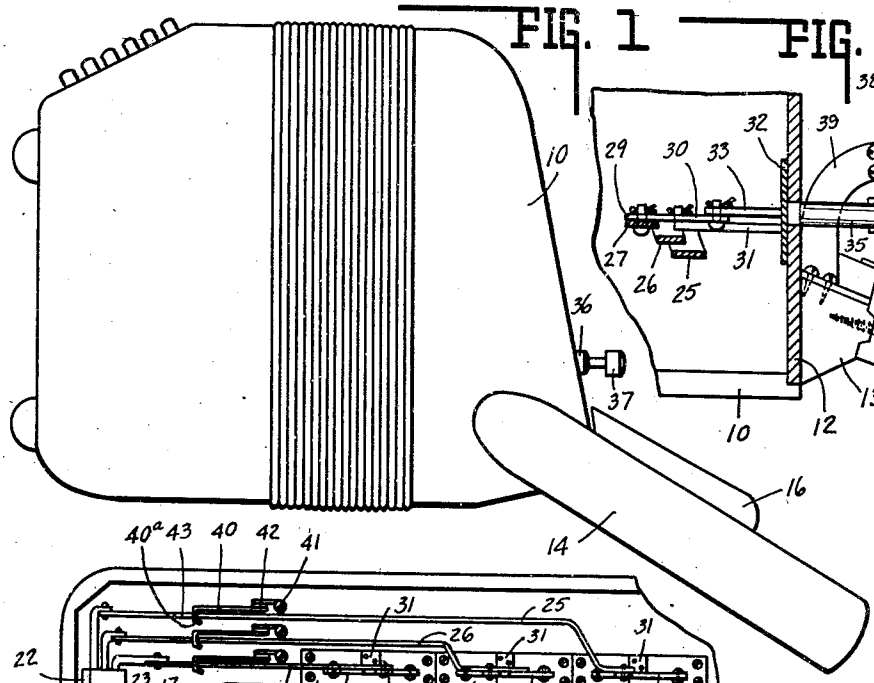


FIG. 2

FIG. 4

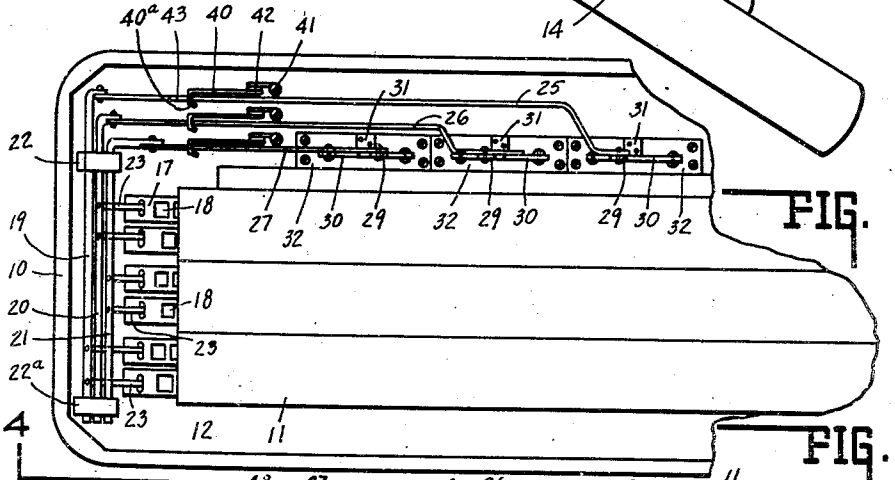
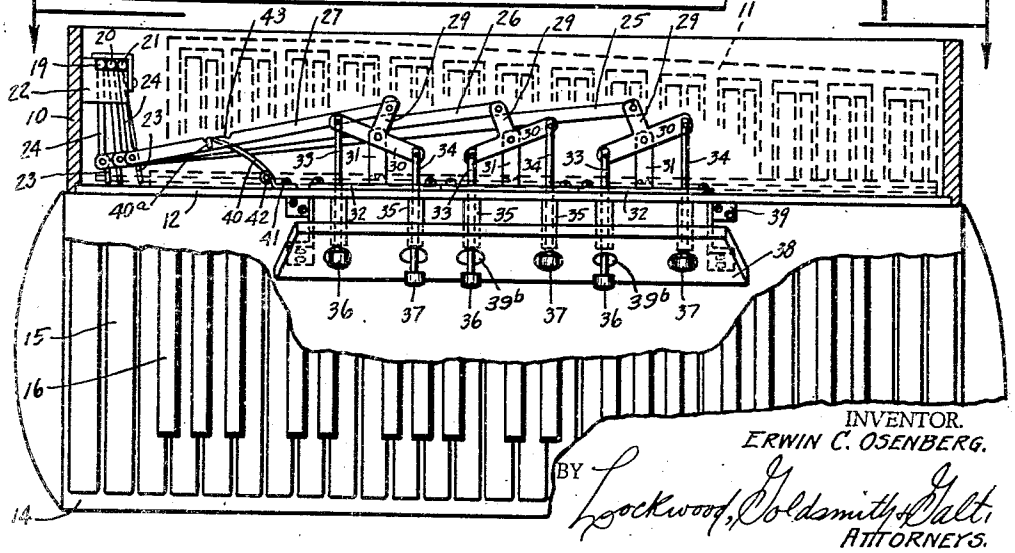


FIG. 3



INVENTOR.
ERWIN C. OSENBERG.

BY Lockwood, Goldsmith & Galt
ATTORNEYS.

Patented Nov. 12, 1946

2,410,897

UNITED STATES PATENT OFFICE

2,410,897

ACCORDION TREBLE SHIFT MECHANISM

Erwin C. Osenberg, De Kalb, Ill., assignor to The Rudolph Wurlitzer Company, Chicago, Ill., a corporation

Application March 2, 1944, Serial No. 524,663

6 Claims. (Cl. 84—376)

1

This invention relates to a shift mechanism for operating the slide valves in the treble reed blocks in an accordion.

It is the object of this invention to provide a shift mechanism which, by reason of its construction, may be operated with a light touch, but wherein the slide valves will be restrained from moving out of position without positive operation of the shift buttons. Also the location of the shift buttons and the direction of their movement enables the player to operate them regardless of the position of his hand on the keyboard.

A further object of the invention is to provide a shift mechanism which is easy to construct, assemble and install, and yet strong enough to withstand any reasonable amount of hard and rapid handling.

A feature of the invention resides in the arrangement of a pair of associated buttons, each operatively connected to a slide valve and so positioned with respect to the gallery of the accordion that only one of the pair of buttons will be exposed for operation at a time, the operated button being flush with the gallery and out of sight of the player. Thus the player is aware at all times of the position of the slide and has simply to actuate the exposed button to effect the shift to the other position.

The full nature of the invention will be understood from the accompanying drawing and the following description and claims:

Fig. 1 is an end view of an accordion showing the relative position of the buttons with respect to the keyboard. Fig. 2 is a section through a portion of the accordion showing the mounting of the buttons thereon. Fig. 3 is a front view of a portion of the accordion with the gallery removed. Fig. 4 is a view taken on the line 4—4 of Fig. 3.

In the drawing there is illustrated an accordion having the usual treble box 10, valve blocks 11 and valve plate 12. Secured to the treble box through the block 13, and extending angularly therefrom, there is a keybed 14 carrying the usual natural keys 15 and sharp and flat keys 16. The valve plate 12 is provided with the usual valve openings controlled by finger key valves manipulated by the keys 15 and 16, which valves and openings are of the usual character, but for the sake of clearness are not shown in the drawing.

In addition to the usual key actuated valves, each of the reed blocks 11 is provided with a slide valve 17 for opening and closing the valve openings controlled by the keys. Said slide valves are of the usual character and of the usual arrangement in respect to the reed blocks and keys, having spaced ports 18. Also, in the usual manner said valves are controlled by a series of transversely extending rock shafts, 19, 20 and 21, supported for oscillation by the bracket supports 22 and 22a.

2

Each of said rock shafts is provided with a pair of shift pins 23 extending therefrom into operative engagement with the ends of their respective slide valves 17. The end of each of said rock shafts terminates in a laterally-extending arm portion 24, which arm portions are pivotally connected with the connecting rods 25, 26 and 27 for oscillating the rock shafts 19, 20 and 21, respectively. The opposite ends of said connecting rods are each pivotally connected with a tongue 29 extending from a T-shaped rocker bar 30.

Said rocker bars are pivotally supported intermediate their opposed ends upon the respective brackets 31 extending outwardly from a supporting plate 32 secured to the inner surface of the valve plate 12. The opposed operating ends of each of the rocker bars are pivotally connected with the actuating rods 33 and 34 respectively. Each of said rods extends through and is slidable in a bushing 35 supported by the plate 32 and protruding from and beyond the valve plate 12. Said bushings provide a close fitting support in which the rods slide with only sufficient tolerance to permit free sliding movement while preventing the escape of air therethrough. The pivoted ends of each of said rods has a sloppy fit pivotal connection with thier respective rocker bars 30, so as to actuate said bars without becoming misaligned with their respective bushings. Each rod 33 carries on the free end thereof a push button 36, and each rod 34 carries on its free end a push button 37.

Spaced from the valve plate there is provided a bearing plate 38 which is secured to the keybed block 13 by the supporting brackets 39 over which the gallery 39a extends for housing the valve plate and the key actuated valves (not shown). The gallery and bearing plate are provided with a series of openings 39b through which the rods 34, 35 extend, and which openings are of slightly larger diameter than the push buttons 36, 37 so that one or the other may be moved to retracted position and embraced therein.

From the foregoing it will be observed that each pair of push buttons 36, 37 will actuate their respective connecting rods 25, 26 and 27. When button 36 of either pair is operated, it will swing its rock bar 30 clockwise, moving its connecting rod to the right to rock its shaft 19, 20 or 21 to

move the associated slide valve to one position. Said push button **36** is then flush with the gallery and out of the way, its companion push button being exposed. To shift the valve, the exposed push button **37** is pressed inwardly, whereupon the valve is shifted to the opposite position and correspondingly the button **37** is then flush with the gallery while its companion button **36** is exposed. Thus the player need only press in the protruding button and shift the valve from its present playing position to its other position, each of the several buttons being in convenient location for such operation with respect to the keybed.

The shift mechanism is provided with holding snap action springs **40**, each spring having one end anchored at **41** to its valve plate **12** and the free end slidably engaging a recessed portion of one of the connecting rods. One of said springs is provided for each connecting rod **25**, **26** and **27** and is provided intermediate its ends with a spring coil **42**. The free end of the springs **40** is hooked at **40***a* to engage and bear down upon a humped cam surface **43**. Said surface is humped intermediate its ends, camming downwardly on each side. As a push button is operated, it slides the connecting rod against the tension of the spring **40** riding upwardly toward the hump. After the button is pressed inwardly far enough to cause the spring to ride over the hump, the spring tension snaps the rod to its opposed extreme position.

Thus the spring holds each of the mechanisms under spring tension in one or the other position after being operated. This insures positive operation of the slide valves to and from their complete effective positions.

The invention claimed is:

1. In an accordion, a piano type keybed having a plurality of piano keys, a treble reed box, a valve plate mounted thereon, a reed block in said box, a sliding valve associated with said block slidable into open or closed position, a rocker arm pivotally mounted on said valve plate, an operative connection between said rocker arm and valve, and a pair of push buttons extending through said valve plate and slidably mounted therein, said push buttons being connected to opposite ends of said rocker arm in opposed relation for rocking said arm to move said valve to one position upon one of said push buttons being actuated and to the opposition position upon the other of said push buttons being actuated.

2. In an accordion, a piano type keybed having a plurality of piano keys, a treble reed box, a valve plate mounted thereon, a reed block in said box, a sliding valve associated with said block slidable into open or closed position, a rocker arm pivotally mounted on said valve plate, an operative connection between said rocker arm and valve, a gallery extending over and spaced outwardly from said valve plate, and a pair of push buttons extending through said valve plate and gallery slidably supported for reciprocation in opposite directions with their inner ends connected to opposite ends of said rocker arm in opposed relation, said buttons being operable to an innermost position substantially flush with said gallery for rocking said arm to move said valve to a predetermined position.

3. In an accordion, a piano type keybed having a plurality of piano keys, a treble reed box, a valve plate mounted thereon, a reed block in said box, a sliding valve associated with said block slidable into open or closed position, a rocker arm

pivotally mounted on said valve plate, a connecting rod operatively connected to said rocker arm and valve, a pair of push buttons extending through said valve plate and slidably mounted therein, said push buttons being connected to opposite ends of said rocker arm in opposed relation for rocking said arm to move said valve to one position upon one of said push buttons being actuated and to the opposite position upon the other of said push buttons being actuated, and a snap action spring engaging said connecting rod tending to move it and hold it in extreme operated position under spring tension.

4. In an accordion, a piano type keybed having a plurality of piano keys, a treble reed box, a valve plate mounted thereon, a reed block in said box, a sliding valve associated with said block slidable into open or closed position, a rocker arm pivotally mounted on said valve plate, a connecting rod operatively connected to said rocker arm and valve, a pair of push buttons extending through said valve plate and slidably mounted therein, said push buttons being connected to opposite ends of said rocker arm in opposed relation for rocking said arm to move said valve to one position upon one of said push buttons being actuated and to the opposite position upon the other of said push buttons being actuated, a humped oppositely cammed bearing surface on said rod, and a tension spring secured at one end of said valve plate with its free end bearing upon said surface under spring tension to provide a snap action holding member for said rod.

5. In an accordion, a piano type keybed having a plurality of piano keys, a treble reed box, a valve plate mounted thereon, a reed lock in said box, a sliding valve associated with said block slidable into open or closed position, a rocker arm pivotally mounted on said valve plate, a connecting rod operatively connected to said rocker arm and valve, a pair of push buttons extending through said valve plate and slidably mounted therein, said push buttons being connected to opposite ends of said rocker arm in opposed relation for rocking said arm to move said valve to one position upon one of said push buttons being actuated and to the opposite position upon the other of said push buttons being actuated, oppositely directed camming surfaces on said rod, and a spring mounted to slidably engage said camming surfaces under pressure for holding said rod in one or the other of its extreme positions resisting initial movement and facilitating final movement thereto.

6. In an accordion, a piano type keybed having a plurality of piano keys, a treble reed box, a valve plate mounted thereon, a reed block in said box, a sliding valve associated with said block slidable into open or closed position, a rocker arm pivotally mounted on said valve plate, an operative connection between said rocker arm and said valve, a pair of push rods each connected with said rocker arm, a pair of supporting sleeves mounted on and extending outwardly from said valve plate through which said push rods extend for slidable reciprocation, a gallery mounted on said valve plate substantially flush with the forward ends of said sleeves, and a button on the end of each push rod, said push rods and buttons being operable to opposed positions wherein one of said buttons is substantially flush with said gallery and the other of said buttons extends outwardly therefrom.

ERWIN C. OSENBERG.