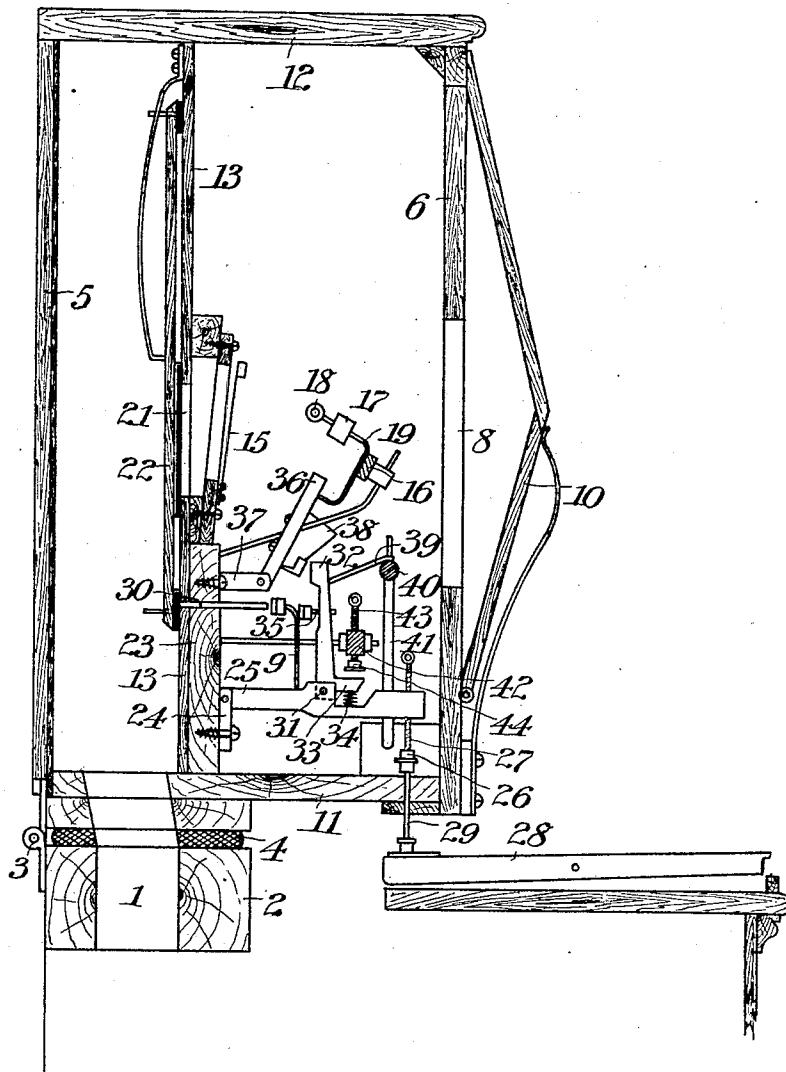


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 REED ORGAN.
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934,161.

Patented Sept. 14, 1909.



Witnesses

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REED-ORGAN.

934,161.

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To all whom it may concern:

Be it known that I, GUSTAV ADOLF BUSCHMANN, a citizen of Hamburg, and resident at No. 173 Hamburgerstrasse, Hamburg, in the Empire of Germany, have invented a new and useful Reed-Organ, of which the following is a specification.

The present invention relates to an improved reed organ distinguished musically by its extraordinary pureness and fullness, as well as great body of tone, and structurally by the fact that the reeds, which are adapted to be struck by key-actuated hammers, are mounted on a vertical sound board dividing into two compartments the interior of a case containing the action, and the front and back of which case also constitute sound boards.

In the annexed drawing I have shown, by way of example, one mode of carrying into practice my invention, the organ being illustrated in a vertical section to render intelligible the internal construction and the improved percussion-action.

Above the channel mouth 1 of a suction-wind chest 2, adapted to be exhausted by a bellows of any suitable known construction, is arranged the case for housing the action. According to my invention said case is pivotally connected to the wind chest 2 by hinges 3 and is thus enabled to be turned around in a vertical plane. At the junction elastic packing material 4 is inserted to obtain a hermetic closure. By means of hooks or the like the case may be firmly locked in place. The case is closed at the rear by a detachable board 5, which may be taken off when it is desired or required to inspect, clean and repair the interior of the case. The construction of the back wall of the case in the shape of a sound board improves the tone in sound and volume, and renders possible, organ effects unrivaled by other reed instruments of similar size.

The front of the case consists of a detachable plate 6, having a sound opening 8, which is covered by a swell box 10. By means of springs this swell box 10 is normally closed tightly on its seat, but it may be opened as required by drawing stop-knobs or by actuating knee stops.

The space inclosed between the bottom 11, the lid 12, the rear sound board 5 and the front plate 6 of the case is divided into two chambers by the insertion of a membrane-

action sound board 13. In the front chamber is glued to the sound board 13, or otherwise secured thereto, a wedge-shaped wooden reed-carrying bar of known construction. Said bar carries the reeds 15 upright, their fixed base being situate at the lower end, so that the deposit of dust on the reeds is prevented. In consequence thereof the reeds cannot get out of tune, a drawback the reeds of ordinary wind instruments suffer from to a great extent.

The valve opening 21 in the sound board 13, which leads into the rear chamber, is hermetically closed by the aid of the flap valve 22, the latter being made of wood and covered with leather on the bearing surface. An adjustable spring arrangement secures the hermetic closure of the flap valve 22 on its seat.

To enable artistic play with uniform ease, it is essential to provide a percussion action having heavy hammers for the bass reeds and light hammers for the treble reeds, thus rendering the action uniform. According to this invention I employ a novel hammer construction, in which, by the application of an adjustable weight 17 an improved percussion and speedy return of the hammers is attained, without the use of springs or other accessories. The weight 17 is attached and adjustable on the stem 19 of each of the hammers adjacent to the hammer head 18, the stem 19 being cranked or of angular form to admit of the weight being adjusted approximately along the line of motion of the hammer head. The percussion action is carried by the wooden frame 23, which is secured to the sound board 13.

In suitable bearings 24 of the carrier frame 23 are journaled wippens or jack levers 25. These jack levers 25 receive at their front end an adjustable screw spindle 27, which rests with a cushioned button 26 upon the push rod 29, the latter normally engaging one of the keys 28 and actuated thereby. The jack lever 25 supports the pressure arm 9. The bent rear end of this pressure arm 9, which terminates in a cushioned knob, rests against the push rod 30, which penetrates the frame 23 and the sound board 13 and which serves for opening the valve for sounding the respective reed. The jack lever 25, further, carries pivoted on a pin 31, a jack 32, the front arm 33 of which is acted upon by a spring 34. For regulating the position of rest of the jack 32 a set screw 35

is employed, which is pressed against the pressure arm 9 by the force of the spring 34.

The hammers 18, which normally rest upon a rail 16 longitudinally running through the casing and suitably supported therein, are attached with their stems 19 to brass rods 36, which are pivoted in flanges 37 so as to be rotatable in a vertical plane, and which are provided with cushioned abutments 38 for receiving the impulse from the jack 32.

In order to be enabled to put the percussion action in and out of play as desired, each of the jacks 32 is connected by a silk cord 39 to a rod 40 carried by the arms 41. The rotary movement of these arms 41, which causes the throwing in and out of action of the jacks 32 can be effected in any convenient manner.

A rail 42 carried by the frame 23 is fitted with set screws 43 terminating at their lower ends in cushioned buttons 44 for regulating the escapement of the jacks 32.

On depressing a key of the manual, the respective push rod 29 is raised, causing the jack lever 25 to act by means of its jack 32 against the corresponding hammer, the jack 32 being returned to its initial position the moment it abuts against the button 44 of the set screw 43. The hammer acted upon, returns automatically and instantaneously to its position of rest on the rail 16 after it has sounded the corresponding reed, the return movement of the hammer being governable by adjusting the weight 17 along the stem 19. If the weight 17 be adjusted away from the hammer head 18, then in the position in which the hammer is in contact with the reed 15, the weight 17, owing to its relationship to the pivot of the arm 36, acts with a greater effective leverage and will therefore more quickly return the hammer than would be the case if the weight were adjusted toward the hammer head 18. Obviously if the weight 17 be positioned to favor a speedy return, the same adjustment will render the hammer more sluggish in its approach to the reed 15. The upward movement of the jack lever 25 caused by actuating the key, moves the pressure arm 9, connected to the lever 25, in such a way, that the corresponding valve is opened, whereupon the suction wind passes through the valve aperture and sounds the reed in front of same in the well-known way. Should it be desired to actuate the instrument by pressure wind, the blow channel for the latter, the bellows and accessory parts have to be connected with the front chamber housing the percussion action and the reeds.

For gaining access to the interior of the instrument, either the swell box at the front is removed, which renders accessible the percussion action and the reeds, or the rear board 5 is detached, as when the valves are

to be inspected and regulated. After thus opening the case, the internal construction of the instrument is accessible in all its parts without further manipulations and the reeds can be tuned without the necessity of taking them off. While tuning, the bellows may be set to work and the keys may be actuated. These advantages will be properly estimated and greatly appreciated by those versed in the art.

While I have shown in the accompanying drawings the preferred form of my invention, it will be understood that I do not limit myself to the precise form shown, for many of the details may be changed in form or position without affecting the operativeness or utility of my invention, and I therefore reserve the right to make all such modifications as are included within the scope of the following claims, or of mechanical equivalents to the structure set forth.

I claim—

1. In a reed organ the combination of a case the front and rear walls of which constitute sound boards, a vertical partition dividing the interior of the case into two compartments and also constituting a sound board, reeds, means for percussively operating said reeds, and a support for said reeds and said means in one of said compartments adjacent said partition.

2. In a reed organ the combination of a case the front and rear walls of which constitute sound boards, a vertical partition dividing the interior of the case into two compartments and also constituting a sound board, reeds, means for percussively operating said reeds, a support for said reeds and said means in one of the compartments adjacent said partition, a wind chest, a passage communicating between the other one of said compartments and the said wind chest, openings in said partition opposite the reeds, and controlling valves for said openings operatively connected with said means.

3. In a reed organ the combination of a case the front and rear walls of which constitute sound boards, a vertical partition dividing the interior of the case into two compartments and also constituting a sound board, reeds, means for percussively operating said reeds, and a support for said reeds and said means in one of said compartments adjacent said partition, a wind chest, and horizontal hinge connection between the case and the wind chest, openings in said partition opposite the reeds, and controlling valves for said openings operatively connected with said means.

4. In a reed organ the combination of a case the front and rear walls of which constitute sound boards, a vertical partition dividing the interior of the case into two compartments and also constituting a sound board, reeds, means for percussively operat-

ing said reeds, a support for said reeds and said means in one of said compartments adjacent said partition, openings in the partition opposite said reeds, valves normally closing such openings, and key-actuated devices adapted to simultaneously open the reed valves and operate the said percussion means.

5. In a reed organ the combination of a case the front and rear walls of which constitute sound boards, a vertical partition dividing the interior of the case into two compartments and also constituting a sound board, reeds, a support for said reeds adjacent the partition, percussion hammers adapted to strike the reeds, and a weight adjustable on each percussion hammer approximately along the line of motion of the hammer head for regulating the speeds of its forward and backward movements.

6. In a reed organ the combination with each reed and a percussion hammer head adapted to strike the reed, of an angular pivotal stem supporting said head and a weight adjustable on a part of the stem approximately along the line of motion of the hammer head, for regulating the speeds of forward and backward movements of the said hammer head.

7. In a reed organ the combination of a case the front and rear walls of which constitute sound boards, a vertical partition dividing the interior of the case into two compartments and also constituting a sound board, reeds and reed valves, supports for the said reeds and reed valves on the partition, percussion hammers adapted to strike the reeds, push rods adapted to open the

reed valves, key-actuated jack levers, arms on these jack levers in operative relation to the push rods, jacks on the jack levers adapted to actuate the hammers, and screws adjustable in the jacks and adapted to bear on the arms.

8. In a reed organ of the nature set forth and in combination, keys, hammers, jack levers actuated by the keys, arms on these jack levers, push rods in operative relation to the aforesaid arms, reed valves to be opened by the said push rods, jacks on said levers for driving the hammers against the reeds, set screws on said jacks, and cushioned buttons on said screws normally resting against the aforesaid push rods.

9. In a reed organ of the nature set forth and in combination reeds, keys, valves and hammers for said reeds, jack levers actuated by the keys, arms on these jack levers, push rods in operative relation to the aforesaid arms, reed valves to be opened by the said push rods, jacks on said levers for driving the hammers against the reeds, set screws on said jacks, cushioned buttons on said screws normally resting against the aforesaid push rods, a rail running through the case, set screws adjustable in the rail, and cushioned buttons on said screws, the said cushioned buttons limiting the movement in one direction of the jacks.

In witness whereof I have hereunto signed my name this 17th day of August 1908, in the presence of two subscribing witnesses.

GUSTAV ADOLF BUSCHMANN.

Witnesses:

ERNEST H. L. MUMMENHOFF,
OTTO W. HELLMRICH.