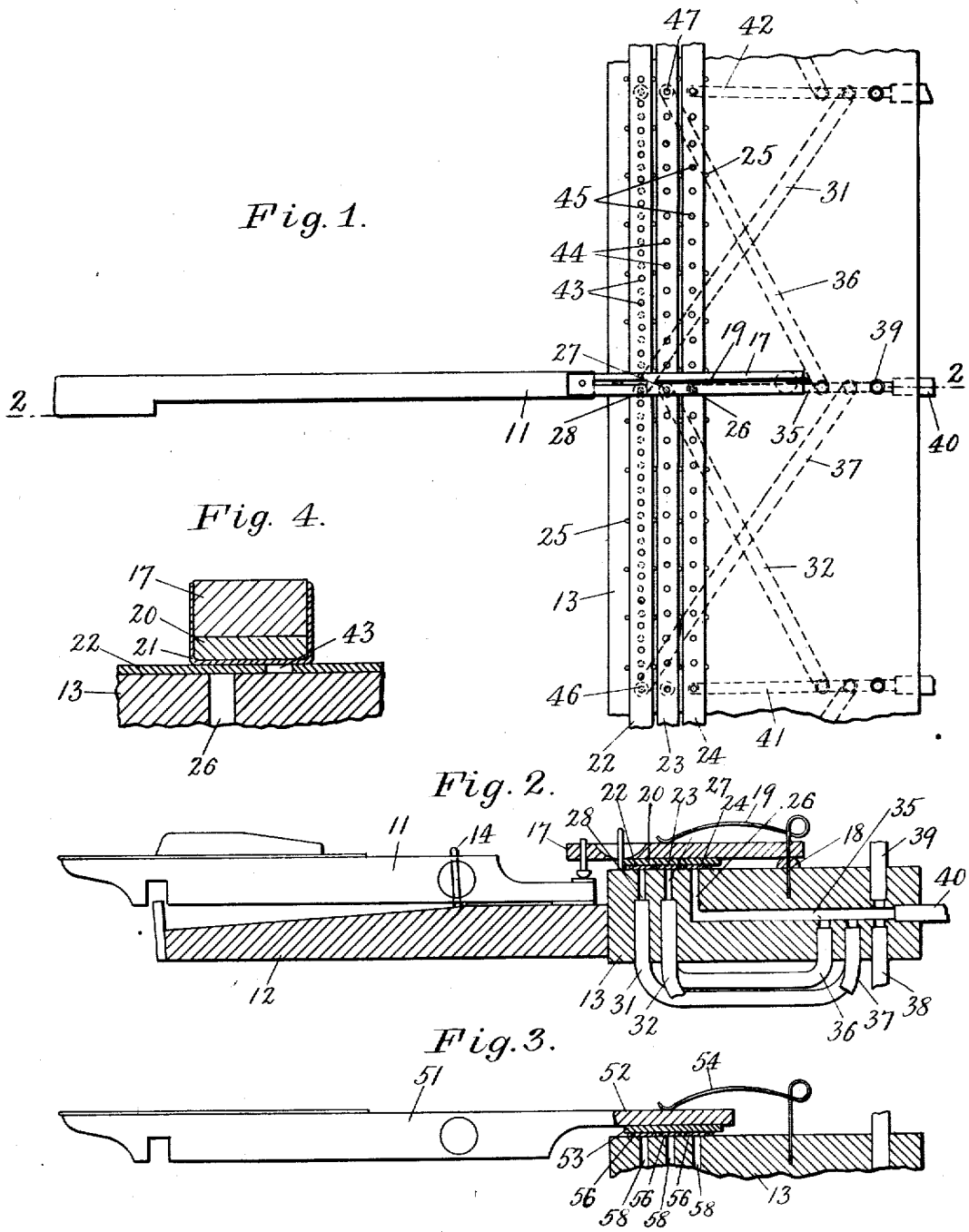


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J. T. AUSTIN.  
ORGAN ACTION.

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Witnesses:  
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# UNITED STATES PATENT OFFICE.

JOHN T. AUSTIN, OF HARTFORD, CONNECTICUT, ASSIGNOR TO AUSTIN ORGAN COMPANY, OF HARTFORD, CONNECTICUT, A CORPORATION OF MAINE.

## ORGAN-ACTION.

No. 847,636.

Specification of Letters Patent.

Patented March 19, 1907.

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*To all whom it may concern:*

Be it known that I, JOHN T. AUSTIN, a citizen of the United States, and a resident of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Organ-Actions, of which the following is a full, clear, and exact specification.

This invention relates to pipe-organs and similarly-operated instruments, and consists in an improved construction and arrangement of the key-operated devices and the coupler parts associated therewith.

Figure 1 is a plan view of an organ-key, showing it connected with devices embodying this invention. Fig. 2 is a sectional side view of Fig. 1, taken on the line 2 2. Fig. 3 is a side view showing a modified form of the key and valve. Fig. 4 is a front view of the valve in section through the center of the slide 22.

In the embodiment of this invention herein shown the key-valves which control the individual notes and the sliders which control the different ranges of stops or pipes are on the open or atmosphere side of the actions, instead of being located in a wind-chest or vacuum-chest. This arrangement enables these important parts to remain always open for ready inspection and repairs without having to open the air-tight joints of inclosed chests, and it also enables connection to be made between the manual-keys and the key-valves without passing through wind-chest walls.

Each manual-key 11 is supported on the base 12 by a pivot-pin 14 or in any convenient way. Extending along the inner ends of the keys is the duct-bar 13, in which are formed the ports for each key and the connecting passages for the couplers. The key 11 is assumed to be one of the keys of the swell-organ, controlling the ports 26, 27, and 28, although the invention is equally applicable to any of the manual or pedal keys of the organ or to any desired number of ports. Each port 26 leads to a "mixing" or combining passage 35, connected in this case by means of the tube 40 with the operating devices of the regular or "unison" series of pipes controlled by the key 11. The port 27 is connected, through the pipe 32, with the combining-passage 41 of the superoctave, and the port 28 is connected by the tube 31

with the combining-passage 42 of the suboctave. Pipes 36 and 37 lead from the passage 35 to the ports 46 and 47, respectively, of the sub and super octave keys. The pipes 38 and 39 lead, respectively, to ports controlled by the corresponding keys of other keyboards—as, for example, the keys of the great and pedal organs. The arrangement of the keys and pipes is best shown in Fig. 1, where, for the sake of clearness, only one set of key connections is completely shown. It will be understood, however, that each key of the series has a set of ports and connections similar to that shown for the key 11. By this arrangement the duct-bar 13 is universal to all the keys of one manual, and the coupler connections of each key are made direct from one port in the duct-bar to another without the intervention of the additional duct-bar or "mixer," heretofore used for joining the coupler connections, this construction and arrangement being cheaper, more compact, and less liable to leakage.

All the ports in the range or longitudinal series of ports represented by the port 28 are simultaneously opened or closed by means of a slider 22 of a well-known type, furnished with apertures 43, so disposed as to be thrown into and out of register with the range of ports 28 when the slider 22 is moved endwise. The slider may be moved by hand or by any of the well-known devices for this purpose. Similar sliders 23 and 24 operate to open and close the two ranges of ports represented by the ports 27 and 26. The sliders are guided in their respective paths by pins 25 in the top of the duct-bar 13 or in any other well-known way. In Fig. 1 the slider 22 is shown in its "off" position, with the apertures 43 out of register with the ports 28, while the two sliders 23 and 24 are shown in their "on" position, with the apertures 44 and 45 coinciding with the ports 27 and 26. Sliders of this kind are commonly inclosed on all sides in a casing, the top and bottom walls of which are apertured in coincidence with the slider-apertures when the slider is in its on position, and the key-valves controlling the apertures close against the outer sides of the casing, or at any rate do not bear directly against the sliders themselves. These casings and the sliders, being commonly made of wood, are liable to shrink and warp, thereby forming

openings through or along which the air can leak either through the casing, thereby wasting the pressure, or along the slideway from one aperture to another, thus rendering the notes liable to be sounded incorrectly. In the present invention the sliders are not inclosed in a casing, but lie against an outer surface of the duct-bar 13, where they can readily be inspected, removed, and replaced. The key-valves when in their closed positions rest directly against the outer sides of the slideways. The latter, being quite flexible, conform to the surface of the duct-bar under the pressure of the key-valves, which in closing the apertures serve at the same time to press the sliders to their seats on the duct-bar, thereby stopping all leakage that might otherwise occur. Moreover, the seats for the sliders, being in the atmosphere and not incased, may be readily examined and repaired whenever needed.

Each key 11 operates a valve 17, which in the form shown in Figs. 1 and 2 is hinged at 18 on the bar 13. The valve is pressed downward by the spring 19 upon the sliders 22, 23, and 24 and covers the three apertures 43, 44, and 45, corresponding to the key 11, whether the sliders are in either their off or on position. The valve 17 is preferably provided on its under side with a cushion 20, of felt or other suitable material, faced with leather 21, Fig. 4.

It will be seen that with the above-described arrangement it takes the coöperation of both the slider and the key to uncover any one of the ports, thus forming a dual control for each port. If the key be operated while the slider is in the off position, the port will be covered by the slider, and if the slider be moved to the on position and the key not operated the port will be closed by the valve which still covers the aperture in the slider. The series of valves, each pressed independently by its spring upon the sliders, holds the latter in close contact with its seat around the ports despite any inequalities or variations due to the swelling and shrinking of the wood, of which the associated members are usually composed.

In Fig. 3 the key 51 is made long enough to serve the purpose of a valve as well as a key by providing it with an extension 52, to which is attached the cushion 53. The spring 54 holds the end of the key down upon the slides 56 and the ports 58, thus also providing a dual-control arrangement for the ports which operates similarly to that shown in the other figures.

In Fig. 4 is shown in enlarged scale the location of the port 28 at one side of the center line of the valve 17. This permits a maximum of movement for the slide and a maximum size for the port for a given width of valve and precludes all danger of the leakage which would result when shifting the slider

if one edge of the aperture were to pass from beneath the valve, and thus become uncovered while the other edge still overlapped the port.

It is obvious that the duct-bar arrangement herein shown and described may be made to provide for other properly-related combinations of notes—such as thirds, fifths, &c.—as well as for the super and sub octaves. Also the combining-passages of the notes need not be connected with the pipes of their respective unison series, but may be connected to other passages or actuating devices according to the skill and fancy of the organ designer. The term "range" as used in connection with a series of ports may consist of a longitudinal line of ports for only a portion of one keyboard, as well as for the whole of it.

I claim as my invention—

1. In an organ, the combination with a key, of a port, an apertured slider for opening and closing the port, and means operated by the key for opening and closing the slider-aperture, and pressing the slider to its seat.

2. In an organ, the combination with a key, of a plurality of ports, a plurality of apertured sliders for independently opening and closing the ports, and means operated by the key for opening and closing the slider-apertures, and pressing the sliders to their seats.

3. In an organ, the combination with a key, of a plurality of ports, a plurality of apertured sliders for independently opening and closing the ports and a self-closing valve operatively connected with the key for closing the slider-apertures, and pressing the sliders to their seats.

4. In an organ, the combination with a key, of a series of ports, a series of apertured sliders for independently opening and closing the ports, a valve for the slider-apertures, operatively connected with the key and bearing directly against the sliders, and resilient means for closing the valve.

5. In an organ, the combination of a port, an apertured slider to open and close the port and a valve having an extended surface bearing directly against the slider to cover the slider-aperture while the latter is in communication with its port.

6. In an organ, the combination of a plurality of ports, a plurality of apertured sliders for independently opening and closing the ports, and a valve for the slider-apertures, the ports being located at one side of the longitudinal center of the valve.

7. In an organ, the combination of a series of keys, a plurality of corresponding series of ports, a plurality of sliders each provided with a series of apertures corresponding with one of the series of ports, and a series of valves bearing directly against the sliders, each valve being operatively connected with

a key of the said series, and controlling the slider-apertures corresponding with that key.

8. In an organ, a duct-bar universal to a plurality of key-actions and having a combining-passage and a plurality of ports for each key-action, each of the said combining-passages being connected to one of the ports of its own key-action, connections joining the other parts of each key-action to the combining-passages of other key-actions, and means for opening and closing the ports, comprising apertured sliders resting against the ports, and key-valves resting against the sliders and covering the apertures thereof.

9. In an organ, a duct-bar universal to a plurality of key-actions and having formed within it a plurality of ports for each key-action, a combining-passage for each key-action also formed within the bar and extending into one of the ports, passages connecting the other ports of each key-action to the combining-passages of other key-actions, and means for opening and closing the ports, comprising apertured sliders resting against the ports, and key-valves resting against the sliders and covering the apertures thereof.

10. In an organ, a duct-bar universal to a plurality of the key-actions of one manual and having a combining-passage and a plurality of ports for each of the said key-actions, each of the said combining-passages being connected to one of the ports of its own key-action, connections joining the other ports of each key-action to the combining-passages of other key-actions of its own and other manuals, and means for opening and closing the ports, comprising apertured sliders resting against the ports, and key-valves resting against the sliders and covering the apertures thereof.

11. In an organ, a duct-bar universal to a plurality of key-actions, and having formed within it a plurality of ports for each key-action, a combining-passage for each key-action also formed within the bar and extending into one of the ports, passages connecting the other ports of each key-action to the combining-passages of other key-actions, and dually-controlled means for opening and

closing the ports, comprising sliders resting against the ports, and key-valves resting against the sliders, and covering the apertures thereof.

12. In an organ, a duct-bar universal to a plurality of the key-actions of one manual, and having a combining-passage and a plurality of ports for each of the said key-actions, each of the said combining-passages being connected to one of the ports of its own key-action, connections joining the other ports of each key-action to the combining-passages of other key-actions of its own and other manuals, and dually-controlled means for opening and closing the ports, comprising sliders resting against the ports, and key-valves resting against the sliders and covering the apertures thereof.

13. In an organ, a duct-bar universal to a plurality of key-actions and having a combining-passage and a plurality of ports for each key-action, each of the said combining-passages being connected to one of the ports of its own key-action, connections joining the other ports of each key-action to the combining-passages of other key-actions, a plurality of apertured sliders opening and closing the ports, and a key-valve resting against a plurality of sliders and opening and closing the slider-apertures.

14. In an organ, a duct-bar universal to a plurality of key-actions and having formed within it a combining-passage and a plurality of ports for each key-action, each of the said combining-passages being connected to one of the ports of its own key-action, connections joining the other ports of each key-action to the combining-passages of other key-actions, a plurality of apertured sliders for opening and closing the ports, and a plurality of key-valves crossing and resting against the plurality of sliders, and closing their respective apertures therein.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN T. AUSTIN.

Witnesses:

JAS. W. GREEN,  
W. H. HONISS.

Correction in Letters Patent No. 847,636.

It is hereby certified that in Letters Patent No. 847,636, granted March 19, 1907, upon the application of John T. Austin, of Hartford, Connecticut, for an improvement in "Organ-Actions," an error occurs in the printed specification requiring correction, as follows: In line 10, page 3, the word "parts" should read *ports*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 9th day of April, A. D., 1907.

[SEAL.]

E. B. MOORE,  
*Acting Commissioner of Patents.*