

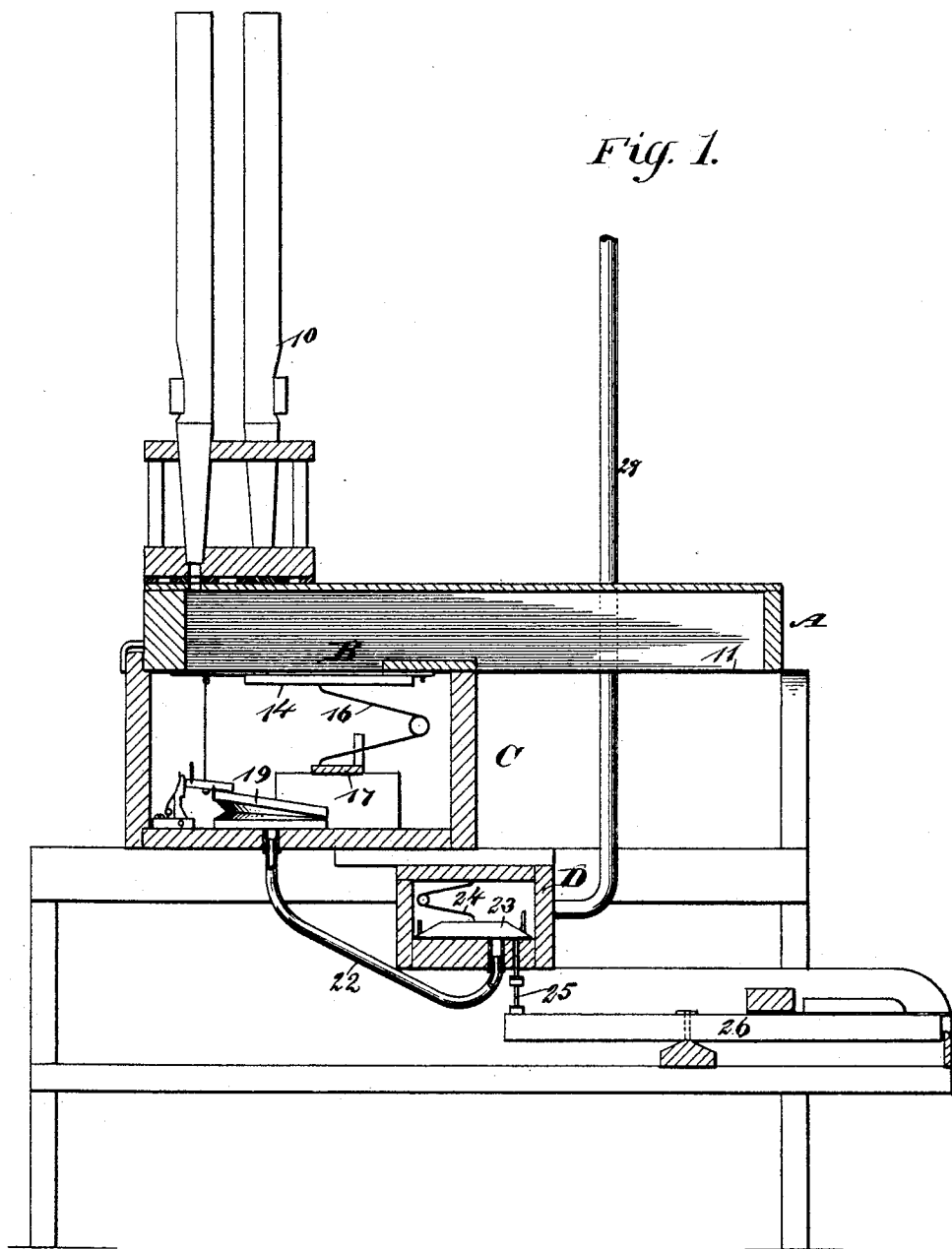
(No Model.)

2 Sheets—Sheet 1.

W. SCHWARZE.
ORGAN ACTION.

No. 498,086.

Patented May 23, 1893.



WITNESSES:

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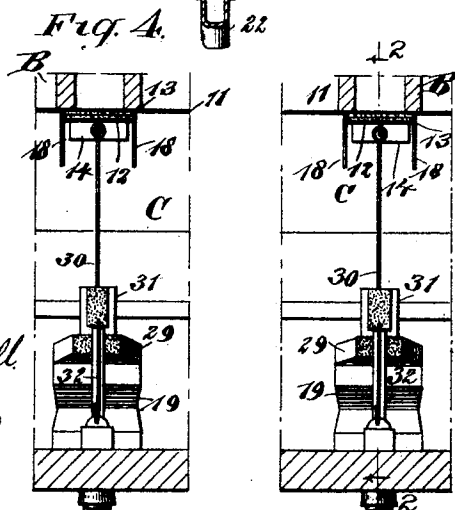
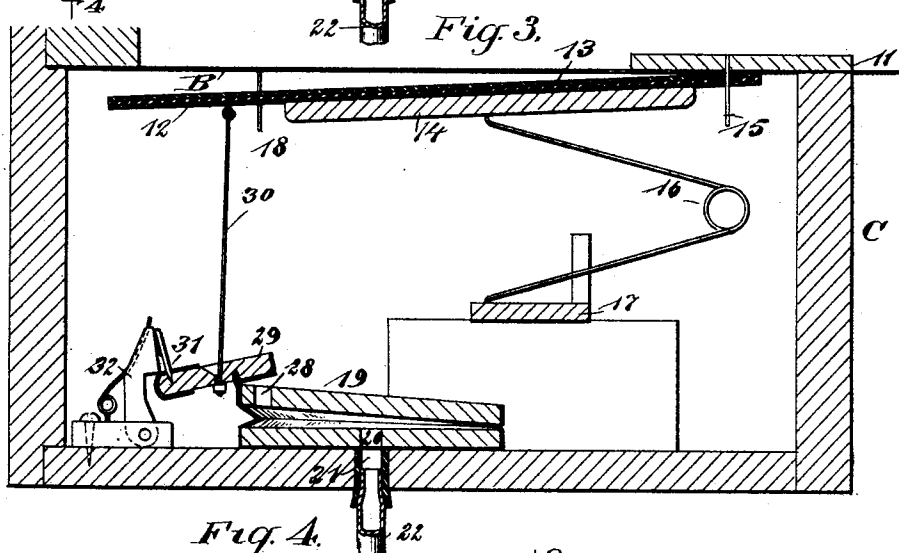
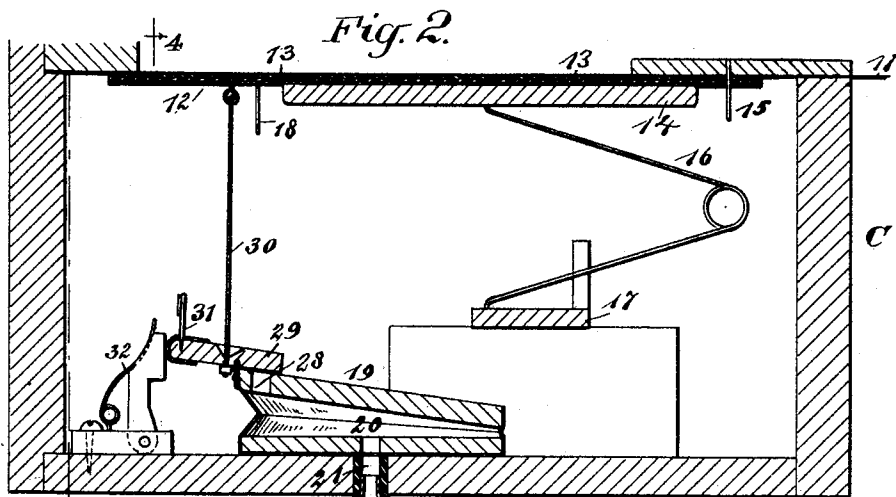
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2 Sheets—Sheet 2.

W. SCHWARZE.
ORGAN ACTION.

No. 498,086.

Patented May 23, 1893.



WITNESSES :

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UNITED STATES PATENT OFFICE.

WILLIAM SCHWARZE, OF BROOKLYN, NEW YORK.

ORGAN-ACTION.

SPECIFICATION forming part of Letters Patent No. 498,086, dated May 23, 1893.

Application filed June 29, 1892. Serial No. 438,439. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM SCHWARZE, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful
5 Improvement in Organ-Actions, of which the following is a full, clear, and exact description.

My invention relates to an improvement in the actions of organs, and has for its object to provide an action mechanism through the
10 medium of which a quick response will be had from the pipes or reeds of an organ through the action of the key or keys.

Another object of the invention is to so construct the action of an organ that immediately upon pressing a key, even to a slight
15 degree, the tone belonging to that key will be immediately sounded.

It is another object of the invention to construct the action in a most simple, durable
20 and economic manner, and further to so construct the action that it may be readily and conveniently applied to an organ of any description.

The invention consists in the novel construction and combination of the several
25 parts, as will be hereinafter fully set forth and pointed out in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar figures and letters of reference
30 indicate corresponding parts in all the views.

Figure 1 is a central view of a portion of an organ, illustrating the application of the improved action thereto. Fig. 2 is an enlarged
35 transverse section through the pressure box, the section being taken practically on the line 2—2 of Fig. 4, the bellows in the pressure box being shown in its inflated condition. Fig.
40 3 is a section similar to Fig. 2, the bellows being shown in its compressed condition and the pallet open; and Fig. 4 is a vertical section taken practically on the line 4—4 of Fig. 2, illustrating a portion of the interior of the
45 pressure box, and illustrating further the rear of two bellows located therein.

In carrying out the invention the sounding board A, is of the usual construction, and likewise the pipes 10, the pipes being in ordinary communication with the sounding
50 board; and the lower portion of the sounding board is covered by canvas 11, or any ma-

terial ordinarily employed for such purpose, and the pallets B of the sounding board are located within the pressure box C in the usual
55 manner, but the construction of the pallets is different from that ordinarily used in organs, and the pallet is thinner, more flexible, and therefore quicker in its response to the movement of a key than are pallets of the old
60 style.

The improved pallet consists of a body 12, of steel or other flexible material, capable of being made quite thin and yet remaining very strong; and in addition to the body an upper
65 covering, coating or facing 13 of felt, sheep skin or felt and sheep skin, or equivalent material, is attached to the body of the pallet, as shown in Figs. 2 and 3. The body is ordinarily stiffened at or near its center by an attached block 14, the block being located upon
70 the under side of the pallet. The pallet may be hinged at one end to a bottom partition of the sounding board, but ordinarily the pallet is connected with this partition by passing a
75 pin 15 downward from the partition through an opening in the pallet near one end, and the pallets are held in closed position by springs 16, having bearing against the blocks 14 of
80 the pallets and against a spring bar 17, placed longitudinally within the pressure box C. Pins 18, or the equivalents thereof are ordinarily placed at each side of the pallet at or near their free ends and serve as guides therefor. Air is supplied to the pressure box, in
85 which box the air is under considerable pressure, by means of a bellows, a fan, a blower, or other proper mechanism.

The bellows 19, contained within the pressure box are placed on the bottom of the pressure box within the same, one bellows beneath
90 each pallet; and each of the bellows is provided in its bottom with an opening 20, and each of the bellows openings 20 communicates with an opening 21, the latter openings
95 being produced in the bottom of the pressure box; and into each opening 21, one end of a tube 22, is introduced, each of these tubes connecting at its lower end with an exhaust
100 box D, connection between the bellows exhaust pipes and the exhaust box being made through the bottom of the latter; and the openings in the exhaust boxes into which the exhaust pipes 22, are inserted, are normally

closed by a valve 23, located within the exhaust box, as best shown in Fig. 1, and the valve is normally held in a closed position by a spring 24. Each exhaust valve 23, is connected by a rod 25, or like device, with a key lever 26 of the instrument, as is likewise shown in Fig. 1.

Each exhaust box is provided with an exhaust pipe 27, and these exhaust pipes are connected at their inner ends with the interior of the exhaust boxes above the valves 23, as shown in Fig. 1, and the opposite extremities of the exhaust pipes of the exhaust boxes are connected with the exhaust fan, bellows, or other implement or machine, whereby a vacuum or a partial vacuum may be created in an exhaust box when the valve 23 thereof is closed. This feature of providing a means for creating a partial vacuum in the exhaust boxes is the important feature of the invention, and another important feature of the invention consists in a means whereby when the bellows 19 in the pressure box have been contracted they may be filled with the air stored in the pressure box, and also to provide a means whereby the air from the pressure box will be automatically and at proper time admitted into the compressed bellows. To that end each bellows 19 in the pressure box is provided at the top near one end with an opening 28, and these openings are closed by valves 29, one of which valves is pivotally attached upon the edge of each bellows, as is shown in the enlarged views Figs. 2 and 3. These valves are connected by links 30 with the pallets 12 over the bellows, as a bellows valve 29, is located beneath the free end of each pallet. The valves extend some distance beyond the edges of the bellows, and in fact are secured to the bellows between their centers and their forward ends; and each valve is preferably provided at its outer or rear end with an upright guide bar 31. Back of each valve a spring-controlled latch 32, is fulcrumed in any suitable or approved manner upon the bottom of the pressure box within the same, each latch being provided with a suitable head; and the latches are capable of being pressed backward against the tension of their springs.

The operation of the action is as follows: The parts being in their normal condition, that is the bellows inflated, the pressure box charged and the air exhausted as much as possible from the exhaust boxes, when a key is pressed even but slightly a responsive note is quickly, in fact immediately sounded, as the moment that the key is pressed down the valve in the exhaust box belonging to that key is opened, and by reason of the vacuum in the box and the escape provided for the air in the bellows exhaust pipe 22, in addition to the pressure of the air in the pressure box upon the top of the bellows, the air in the bellows is quickly and surely forced out therefrom into the exhaust box; the bellows therefore, in connection with the key pressure

quickly collapses and draws down with it the free end of the pallet connected with it, admitting the air from the pressure box to the proper pipe 10 to sound the required note. The moment that the bellows is compressed, the valve 29 upon that bellows, which has been carried down with it, strikes the latch 32, and the rear end of the valve is caught under the head of the latch, and its forward end, or that usually covering the opening 28 in the bellows, is held above said opening, and the air contained in the pressure box will therefore immediately pass down through the opening 28 into the bellows, inflate it, cause it to rise to its normal position, disengage its valve from the latch 32, and close the pallet.

It is obvious with the simple construction above set forth that whenever a key is pressed a note will be immediately sounded; and in fact the keys of an organ having the action above set forth connected therewith may be manipulated in practically as rapid a manner and with as good a result as the keys of a piano or like instrument.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In an organ, a valved bellows located within the pressure box, and a trip mechanism opening the valve when the bellows is compressed, whereby the bellows will be inflated by the air contained in the pressure box, as and for the purpose specified.

2. In an organ, the combination with a pressure box, of a bellows arranged in the pressure box and adapted to be inflated by the air in the said pressure box, a valve for controlling the admission of air to the bellows, and means for opening the valve when the bellows is collapsed, substantially as described.

3. In an organ the combination with a pressure box, of a bellows arranged in the pressure box and communicating therewith, a valve for controlling the admission of air to the bellows, and means for engaging the valve to open it when the bellows is collapsed, substantially as described.

4. In an organ, the combination with a pressure box, of a bellows in the pressure box and provided with an opening in its top, a valve hinged to the bellows and closing said opening, and a latch for engaging the valve to open it when the bellows is collapsed, substantially as described.

5. In an organ the combination with a pressure box, of a bellows arranged in the pressure box, a valve for controlling the admission of air to the bellows from the pressure box, means for opening the valve when the bellows is collapsed, a suction box having a communication with the bellows, and a key operated valve in the suction box, substantially as described.

6. In an organ, the combination, with the pressure box, a valved bellows located therein and a trip mechanism adapted for engagement with the valve, of an exhaust box hav-

ing a valved opening therein, a tubular connection between the valved opening of the pressure box and the bellows, an exhaust mechanism communicating with the exhaust
5 box above its valve, a key and a connection between the key and the valve of the exhaust box, substantially as and for the purpose set forth.

7. In an organ, the combination, with the
10 pressure box, a valved bellows contained there-

in, and a trip mechanism engaging with the valve of the bellows, of a flexible pallet, and a connection between the valve of the bellows and the pallet, as and for the purpose specified.

WILLIAM SCHWARZE.

Witnesses:

J. FRED. ACKER,
E. M. CLARK.