(No Model.)

F. D. DEXTER.

REED ORGAN.

No. 588,713. Patented Aug. 24, 1897.

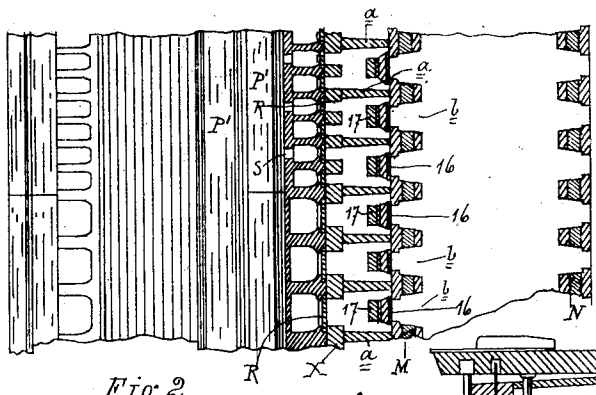


Fig. 2

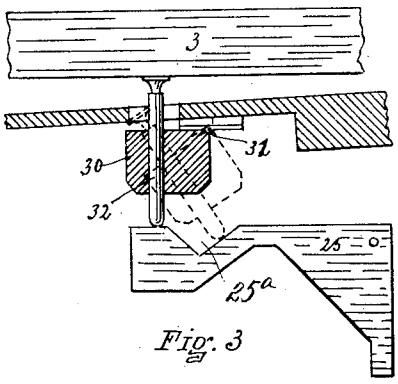


Fig. 3

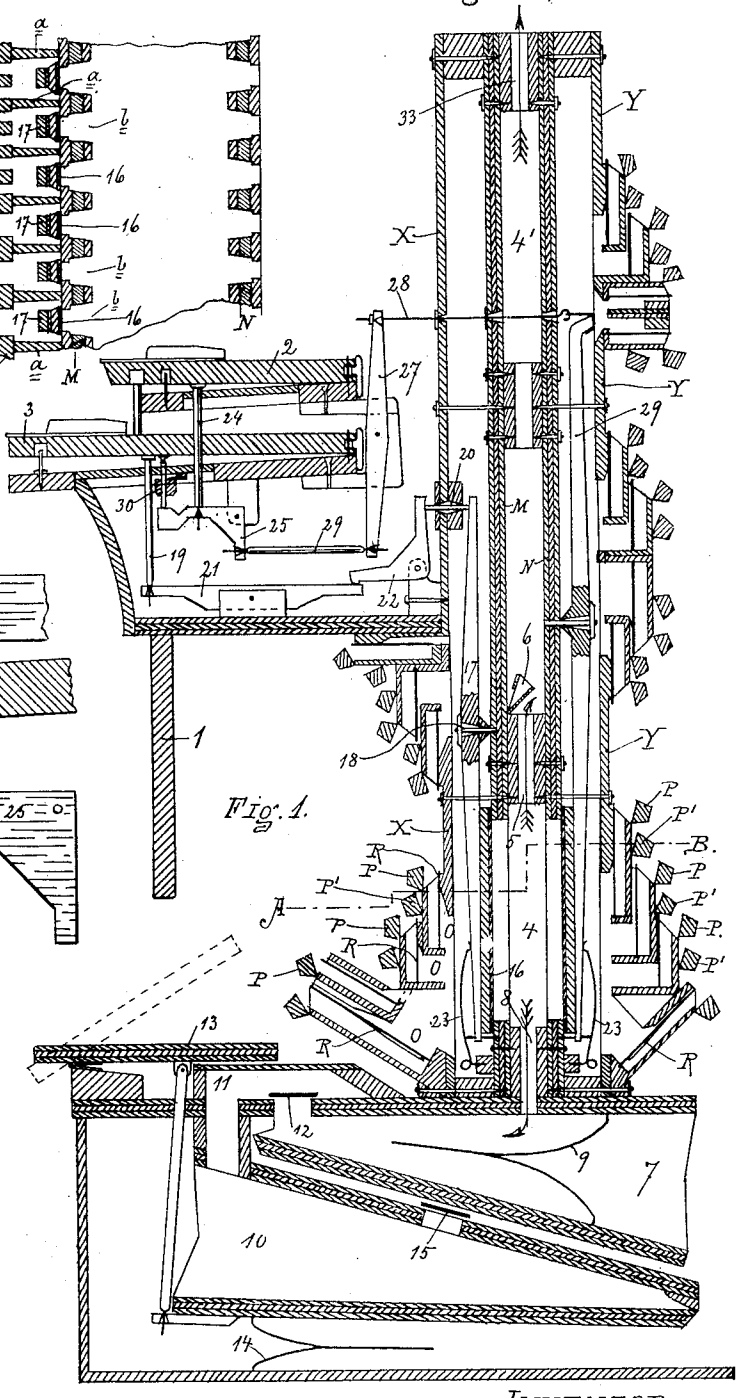


Fig. 1.

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REED-ORGAN.

SPECIFICATION forming part of Letters Patent No. 588,713, dated August 24, 1897.

Application filed January 25, 1897. Serial No. 620,519. (No model.)

To all whom it may concern:

Be it known that I, FREEMAN D. DEXTER, of West Winfield, in the county of Herkimer and State of New York, have invented certain new and useful Improvements in Organs; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

In the drawings, Figure 1 shows a vertical section of an organ (omitting portions of casing) embodying my improvements. Fig. 2 is a partial horizontal section taken on a line with A B of Fig. 1 adjacent to the center of the instrument and on a larger scale. Fig. 3 shows details of construction on larger scale.

Referring to the reference letters and figures in a more particular description, L indicates the frame or casing so far as shown.

2 3 indicate the keys of the upper and lower banks, respectively.

The exhaust-chamber is formed between the two valve-boards M N, which are placed back to back. The exhaust-chamber consists of two parts 4 and 4', connected by openings 5, pted to be closed by a valve 6. At the ower end the exhaust-chamber 4 is put in communication with the exhaust-bellows 7 by opening 8. The bellows 7 is operated by a spring 9 and is placed in communication with bellows 10 by a passage-way 11, closed by a valve 12. The bellows 10 is operated in its opening movement by a treadle 13 and is closed by a spring 14. The air is expelled from the bellows 10 through an opening closed by the valve 15.

Opposed to each of the valve-boards M and N are provided reed-boards X and Y, respectively. The space between the reed and valve boards is divided into a series of cells by partitions *a a*, &c. These cells I term "valve-cells." This part of the construction being the same practically on both back and front of the instrument a description of one will suffice for both.

The valve-board M is provided adjacent to its lower end with a series of slit-like valve-openings *b b*, &c., which place the exhaust-chamber in communication with the several valve-cells, respectively. These openings *b* are adapted to be closed by inwardly-opening valves 16, which are suitably padded to make them air-tight and are mounted on the valve-lever 17. These levers 17 are fulcrumed on the valve-board M at and are held in place by a pin 18. The lever-fulcrum is a pointed projection having an opening extending through it and the body of the lever to receive the pin 18 and enlarged at one side to permit the movement of the lever. The valve-lever 17 receives its motion in opening from the key 3 through the medium of the push-pins 19 and 20 and lever 21 and bell-crank 22, as shown. The push-pin 20 passes through a packed opening as it enters the valve-cell. The valves 16 are closed and held closed by a light spring 23, assisted by air-pressure.

It will be observed that the valve-cells extend practically from bottom to top of the mechanism of the instrument and make ample provision for the location of numerous reed-cells, which are indicated by O. The reed-cells communicate with the valve-cells and contain reeds R. The reed-cells may be arranged as shown on the lower side of Fig. 2 and adapted to contain one large reed, or subdivided, as shown at the upper side of same figure, and adapted to contain two reeds. The mouths or entrances of the reed-cells are adapted to be closed by a valve or mute P, which extends lengthwise of the instrument and is adapted to operate on a whole set of reeds at a time. When subdivision of the reed-cells is employed, a side opening *s* is employed, and these openings are provided with mutes P'. The mutes are operated by stops on the instrument by connecting mechanism, which is not shown, but is well understood in the art. The employment of the subdivided reed-cells provides for the employment of two sets of treble reeds with one set of bass reeds, makes the construction compact and the reeds not relatively removed from each other or from the valve which controls both, and affects the tone either by the different directions in which they receive air or otherwise.

The valves on the back of the instrument are operated, through the medium of the push-pin 24, bell-crank 25, connection 26, lever 27,

connection 28, and valve-lever 29, by the key 2. The valve-lever 29 is essentially the same as 17, and further description may be omitted. The connection 28 passes through packed or padded openings in the valve and reed-boards to prevent the entrance of air from other sources than through the reeds.

The absence of the keyboards and the keyboard mechanism on the back of the instrument permits reeds and reed-cells to be arranged over the entire back of the reed-board Y, as shown.

It will be observed that provision is made in the construction for the use of a large number of reeds, and I am enabled by the construction to thus make a reed-organ of great power and variety of tones.

There is provided a manual-coupler consisting of a rocking bar 30, passing transversely under the lower bank of keys and hinged to the casing at 31. The bar 30 carries a set of push-pins 32, which when in upright position are capable of sliding and communicating motion from the keys to the bell-crank 25. To throw the coupler out of operation, the bar 30 is moved from the position shown in full lines in Fig. 3 to the position shown in dotted lines in the same figure, which throws the push-pins 32 out of operative position. The mechanism for operating the bar 30 is not shown. The bell-crank 25 is provided with a notch 25^a, which permits this rocking motion of the bar 30.

When the instrument is in use, the performer may operate the bellows by means of the treadle, but in view of the limited amount of power that the performer can with comfort supply it would be impracticable to bring into effective use all of the reeds of the instrument. There is therefore provided a powerful auxiliary exhaust bellows or pump (not shown) which is connected to the exhaust-chamber 4′ by means of the opening 33. This bellows may be located within the instrument or outside. By means of this bellows or pump, which may be operated by another person than the performer or by power, the full capacity of the organ may be developed.

When the organ is pumped by the performer, only portions of the reeds can be successfully employed, and the capacity of the chamber between the valve-boards could be to advantage reduced, both on account of the labor of pumping, the ready response of the reeds, and the acoustic properties of the instrument. This result is obtained by the automatic closing of the valve 6.

The length of the body of the instrument may be considerably greater than that of the keyboard, which would cause the connection from the keys to the valves to diverge, and there are numerous other details of the construction which it is not necessary to point out or describe, as they are quite obvious to one skilled in the art.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination in an organ of a divided chamber between the valve-boards and an automatic valve between the parts, substantially as set forth.

2. In a reed-organ a valve-board having valve-openings, a reed-board and reeds, intermediate valve-cells, an inwardly-opening valve located in the cell, a valve-lever parallel with the valve-board and fulcrumed thereon and means for operating the lever, substantially as set forth.

3. The combination in a reed-organ of a valve-board having valve-openings, a reed-board with reed-cells and reeds, valve-cells between the valve-board and reed-board, an inwardly-opening valve and valve-lever parallel with the valve-board and both located within the valve-cell and key and connecting mechanism for operating the valves, substantially as set forth.

4. The combination in a reed-organ of the valve-boards M, N, having valve-openings and an intermediate exhaust-chamber, reed-boards X, Y and valve-cells between the valve-boards and their adjacent reed-boards respectively, inwardly-opening valves and valve-levers fulcrumed on the valve-boards, both located within the valve-cells and keys and connections extending to the several valve-levers, substantially as set forth.

5. In a reed-organ a subdivided reed-cell, the subdivisions having openings on the side and end of the cell respectively in combination with mutes adapted to close each set of openings independently and reeds in each subdivision.

6. A valve-lever having a pointed projection constituting a projecting fulcrum, a fixed fulcrum-pin, an opening in the lever and pointed projection to receive the pin and permit the motion of the lever, and a valve on the lever in a plane substantially with the fulcrum, combined substantially as set forth.

In witness whereof I have affixed my signature in presence of witnesses.

FREEMAN D. DEXTER.

Witnesses:
NELSON W. SHOLES,
CHARLES K. BEAMAN,
HUDSON R. PARKER.