A. & G. Geminder.

Pipe Organ.

No. 9022. Patented June 15, 1852.

Fig. 2

Fig. 4.

Fig. 8

Fig. 5

Fig. 6

Fig. 1

Fig. 3.

Fig. 7.

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ORGAN.

Specification of Letters Patent No. 9,022, dated June 15, 1852.

To all whom it may concern:

Be it known that we, ALBERT GEMÜNDER and GEORGE GEMÜNDER, both of Springfield, in the county of Hampden and Commonwealth of Massachusetts, have invented certain new and useful Improvements in the Construction of Organs; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, with the explanations of the same hereinafter contained.

Our invention consists in constructing air chambers, running the entire length of the scale and of the sounding board, each chamber supplying all the pipes of a single stop with wind. There are, consequently, as many air chambers as stops. By the usual mode of construction, the air chambers extend across the sounding board, and furnish wind to all pipes of the same note or letter in the several stops. By our mode of construction, the wind is let into the pipes, from the air chambers, through passages between the chambers, as seen in Figure 1. These passages are closed by valves, as seen in the same figure, (where, however, they are represented as open.) The valves are opened by rollers ranged underneath the air chambers, and at right angles with them, (Fig. 1, R) so that the same roller opens all valves connected with pipes of the same letter, in the different chambers. The wind is admitted into the air chambers, through passages from the wind pipe, which passages are also closed by valves. (Fig. 3, *v*, *v*, *v*, &c.) These valves are opened by drawing the stops, and we, therefore, denominate them "stop valves."

The position of the wind pipe (Fig. 3, W,) with reference to the air chambers, and the mode of conveying wind to it from the bellows, is arbitrary, and must depend upon the size, form and position of each organ. The same is true of the mechanical contrivances for opening the stop valves, and for connecting the rollers with the keys of the finger board.

The following explanation of figures will more fully show the nature and details of our invention.

Fig. 1 represents an end section of several air chambers, *a*, *a*, *a*, &c. are the chambers; *c*, *c*, *c*, &c. the valves; *b*, *b*, *b*, &c. the partitions between and *d*, *d*, *d*, &c. the covering of the chambers, both perforated by the air passages *e*, *e*, *e*, &c.; *p*, *p*, *p*, &c. are the pipes; R, the roller.

Fig. 2, is an enlarged view of one of the valves in an air chamber, with its attachments, and of the partition, air passage and pipe. For a description of the attachments of the valve, see explanation of Figs. 4 and 8.

Fig. 3, is a superficial or bird's eye view of the same air chambers, shown in Fig. 1, showing the arrangement of the valves in the chambers. *a*, *a*, *a*, &c. are the chambers; *b*, *b*, *b*, &c. the partitions, with the orifices of the air passages; W, is the wind pipe, with an opening at X, to admit wind from the bellows; *v*, *v*, *v*, &c. are the stop valves, which admit wind to the chambers, with spiral springs to keep them closed.

Fig. 4, is a perspective view of two air chambers A, A, showing the arrangement of the valves, and their attachment within the chamber, together with the partitions between the chambers B, B, with the orifices of the air passages. Two of the valves in this figure are represented as open.

The attachments of the valve are its center rod *c*, (Fig. 8 *d*,) moving through the stationary guide *d*, which is fixed into the partition B; two guiding wires *e*, *e*, are also attached to the valve and move on the stationary pin *m*, which is fixed in the bottom of the chamber. V, V, are stop valves (see Fig. 3.)

Figs. 5 and 6, are superficial views of a valve. In Fig. 6, instead of a center rod surmounting the valve, there are two stationary pins *c*, *c*, on which the guide *b*, *b*, moves.

Fig. 7 is a superficial view of a set of rollers as seen from beneath.

Fig. 8 is an end section of one of these rollers, with its attachments, in which *a*, is the arm or lever by which the lever is turned, by mechanical contrivances connecting it with the finger board; *b*, is one of two parallel lever wires, which raise the valve rod *d*, by means of the buttons *c*, *c*; the other lever wire is concealed by *b*, but both are seen in Fig. 7.

By our mode of construction, sliders for preventing the passage of wind into the pipes of a stop not in use, are dispensed with. It is not easy to adjust sliders so that they shall move easily, and yet fit closely enough to prevent the escape of wind, and they are also subject to contrac-

tion and expansion in different states of the weather. Valves, on the other hand, may be made to fit perfectly tight, and thus a great deal of wind is saved, and the escape of wind into wrong pipes, which produces discord, is prevented.

In our organ, pipes of the same note or letter in the different stops, receive the wind with an equal pressure, because all the valves of that letter occupy the same position in their respective chambers, with reference to the point at which the air is admitted to the chamber; this produces evenness of tone. In the common organ, this is not the case, because each chamber supplies wind to all the pipes of the same note or letter in the different stops, and instead of being constantly filled with wind, as in our organ, it is only filled when that note is used, whence it follows that the pipe most remote from the point where the wind is admitted, receives the wind last.

The following is the operation of our invention. The player selects the stops which he will use, and drawing the stop valves, admits the wind to the air chambers belonging to those stops. By pressing down the key of any letter, on the finger board, by a mechanism similar to what is used in all organs, he turns the roller, and opens all the valves of that letter in the different stops; and from the air chambers of the stops which he is using, the wind is admitted to the pipes of that letter, causing them to sound. The opening of the valves in the other chambers, does not cause the pipes connected with such chambers to sound, because there is no wind in those chambers.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The use of a separate air chamber for supplying wind to all the pipes of a single stop, as herein described, and as opposed to the old method of having a single air chamber supply all pipes of the same note or letter in the different stops.

2. And finally we claim the combination of air chambers such as are herein described, with valves communicating with the several pipes, and operated by mechanical agencies such as are shown in the foregoing description, explanations and the accompanying drawings, substantially as herein described.

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