(No Model.)

# G. L. GROUT.

## Reed Organ.

No. 229,605. Patented July 6, 1880.

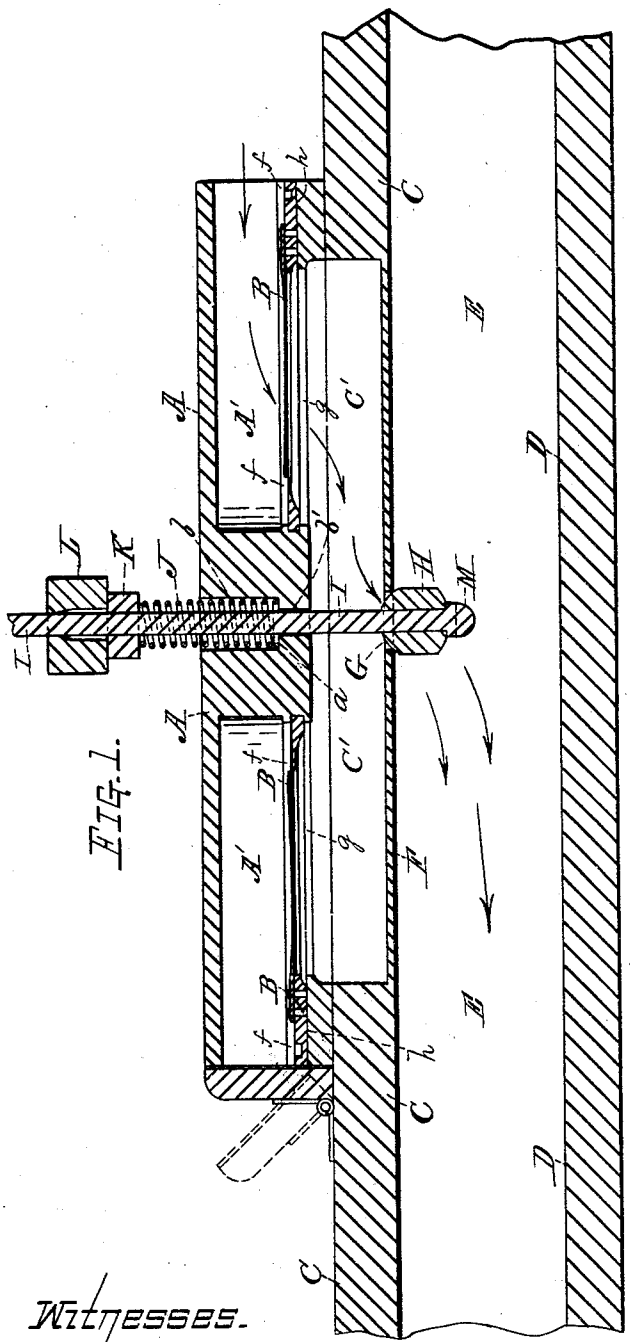


Fig. 1.

Fig. 2.

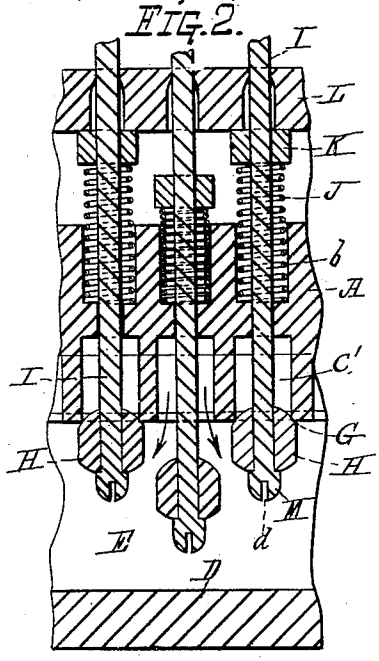
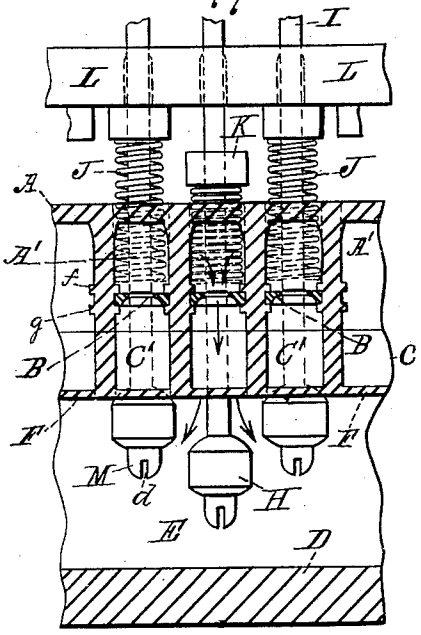


Fig. 3.



Witnesses.

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# UNITED STATES PATENT OFFICE.

GEORGE L. GROUT, OF WORCESTER, MASSACHUSETTS.

## REED-ORGAN.

SPECIFICATION forming part of Letters Patent No. 229,605, dated July 6, 1880.

Application filed April 26, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE L. GROUT, of the city and county of Worcester, and State of Massachusetts, have invented certain new and useful Improvements in Reed-Organs; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 represents a vertical transverse section through the reed-board and a portion of the sounding-board of an ordinary reed-organ, showing my improvements applied thereto, as will be hereinafter more fully described. Fig. 2 represents a vertical longitudinal section through a portion of the reed and sounding boards, taken through the center of the pitman-rods and my aforesaid improvements; and Fig. 3 represents a similar section to that shown in Fig. 2, through the reed and sounding board chambers of the instrument.

My invention consists in the construction and mode of operating the pitman-rods and their valves of an ordinary reed-organ; also, in the form and construction of the reed and sounding board chambers, and in the manner of securing the reeds so as to require no packing.

To enable those skilled in the art to which my invention belongs to make and use the same, I will proceed to describe it more in detail.

In the drawings, the part marked A represents the reed or tube board; A′ A′, the reed-chambers; B B, the reeds; C, the sounding-board; C′, the sounding-board chambers; and D, a section of the top of an ordinary pair of suction-bellows, to which is attached the sounding-board C in the usual manner, with a chamber, E, between said parts. Top D is provided with suitable openings for the passage of air through the reeds to the bellows.

Chambers C′, which are of the proper dimensions to receive the reeds, are formed by cutting recesses in the upper side of the sounding-board C and under side of the reed-board A, and securing said parts together, as represented in the drawings.

The sounding-board C, instead of being cut entirely through vertically, as is the usual practice, is cut only part way through, as represented in Fig. 1, leaving thin partitions F between said chambers and chamber E; and to allow of air being drawn through the reeds by the bellows when the latter are operated round openings G are formed in partitions F at or near their centers, the positions of said openings being governed by the positions of the pitman-rods and their valves.

By the aforesaid construction and arrangement it will be seen that the air, as it is drawn into the instrument by the bellows, is conducted so that its greatest force is brought to bear upon the inner vibratory ends of the tongues of the reeds, thus requiring but little power from said bellows to operate the same.

By the present method of employing long valves, which cover the whole bottom of chambers C′, considerable power is unnecessarily lost when said valves are opened, as a large amount of air is drawn through and wasted which would otherwise be utilized if it were regulated so as to be conducted directly to the points best adapted to operate the reeds, as illustrated by my invention.

If preferred, partitions F may be secured separately to sounding-board C instead of being formed upon the same, as before explained.

Air-passages G are opened and closed, so as to operate and stop the action of their respective reeds, by means of ball-valves H, which in this instance are secured upon the lower ends of pitman-rods I. The latter are operated in the usual manner, being, in practice, secured at their upper ends to the keys of the instrument.

Valves H, being rounded upon their upper ends, form very close and tight joints against the sides of openings G when drawn up into position, as represented in Fig. 1 of the drawings, thus obviating the necessity of using any leather or other packing material, as is now customary upon the long valves now employed. Said valves H are firmly held against the sides of openings G by means of spiral springs J, which are, in turn, held in position upon the pitman-rods by bearing at their upper ends against collars K, secured to said rods, and at their lower ends against shoulders *a* of the reed-board.

If preferred, any other suitable style of spring

may be used for drawing up the pitman-rods and their valves, instead of spiral springs J, without departing from the principle of my invention.

The openings through the reed-board for the passage of the pitman-rods are enlarged, as shown at *b*, to receive spiral springs J, thus economizing in space, and at the same time by such enlargement producing less friction upon said pitman-rods, only a small portion, *b'*, of the reed-board being fitted to the pitman-rods.

A cross-bar or guide, L, secured a short distance above the reed-board, and through which the pitman-rods pass, serves to hold the latter in position, so that they will move up and down in a true vertical line.

If preferred, guide L may be made from a thin metallic strip instead of wood, as in this instance.

In the drawings, valves H are represented as being made separately and secured upon the pitman-rods; but, if desired, they may be formed upon and with the same. They may be manufactured from any suitable material and of any suitable and desirable form—as, for instance, round or conical shaped—instead of the form represented, or in the shape of a cube, the openings G being made to conform to the shape of said openings. By making said valves H of rubber, which can be done at a trifling expense in excess of wood or other similar materials, perfectly air-tight joints may be produced.

Upon the lower ends of pitman-rods I may be formed or secured hubs M, provided with slots *d*, as shown in Figs. 2 and 3 of the drawings, thereby allowing of the old form of spring being used, instead of spiral springs J, to hold the valves H in openings G, should the former be preferred.

The reeds B B are retained in position between ribs *f* upon their upper sides and ribs *g* and surfaces *h* upon their under sides, as fully represented in Fig. 1 of the drawings. By this arrangement of forming close tight-fitting joints between the outer under sides of the reeds and flat surfaces *h* of the reed-board air is effectually prevented from entering the instrument at that point without the use of any packing whatever, thus dispensing with the usual packing operation required to make the same air-tight, the reeds being arranged so that their under sides are raised a short distance above the surfaces *h* by the present method employed.

Those skilled in the art to which my invention belongs will readily understand and appreciate the advantages resulting from its application to an ordinary reed-organ, as hereinbefore shown and described. Not only is considerable expense saved, but actual tests have proven its practicability and value when used in combination with the same.

Having described my improvements in reed-organs, what I claim therein as new and of my invention, and desire to secure by Letters Patent, is—

1. In a reed-organ, the combination, with openings G of partitions F, reed-board A, and guide L, of valves H, hubs or projections M, pitman-rods I, collars K, and spiral springs J, constructed and arranged to operate substantially as and for the purposes set forth.

2. The combination of reeds B and ribs *g* and *f*, arranged, as shown and described, to form close joints between the under sides of said reeds B and surfaces *h*.

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Witnesses:
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