

R. NICHOLLS.
Pneumatic Organ Actions.

No. 150,972.

Patented May 19, 1874.

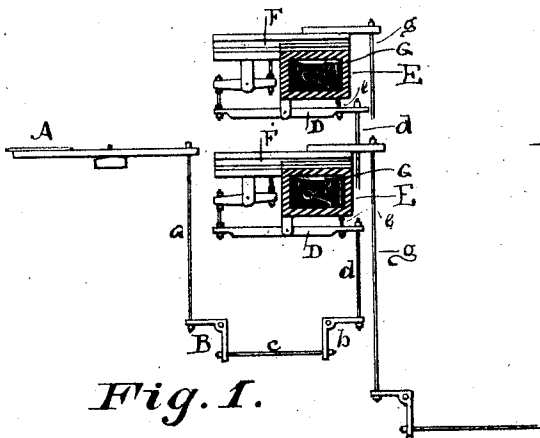


Fig. 1.

Fig. 2.

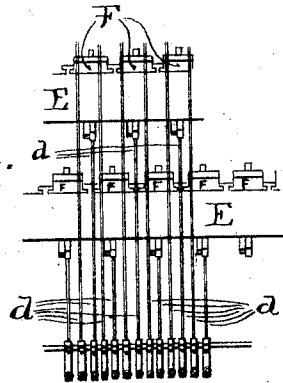


Fig. 3.

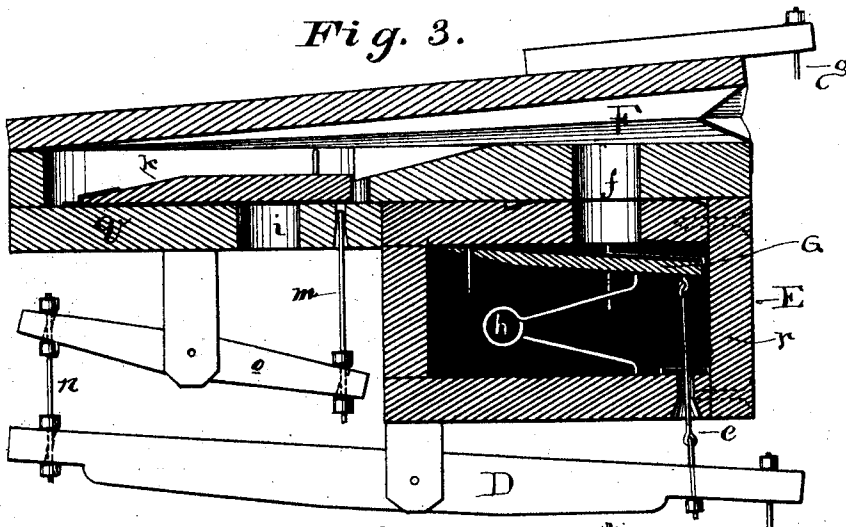
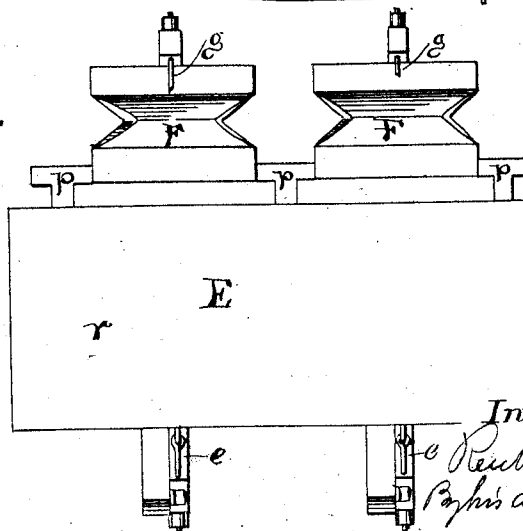


Fig. 4.



Witnesses:~
C. C. Poole
No. Valmett

Inventor:~

Ruben Nicholls
By his atty R. O. Smith

UNITED STATES PATENT OFFICE.

REUBEN NICHOLLS, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN PNEUMATIC ORGAN-ACTIONS.

Specification forming part of Letters Patent No. **150,972**, dated May 19, 1874; application filed March 27, 1874.

To all whom it may concern:

Be it known that I, REUBEN NICHOLLS, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Pneumatic Actions for Organs; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal section of my invention, showing position and action. Fig. 2 is a rear elevation of the same. Fig. 3 is a longitudinal section of a single "pneumatic" and wind-chest, with action. Fig. 4 is a rear elevation of the same.

It is well known that pipes of different sizes require different volumes of wind, and it is, therefore, necessary to employ pallets correspondingly-varying in number or size. Whenever pallets are opened by direct action of the key the resistance varies in proportion to the volume of wind to be admitted, and therefore the touch is not uniform. To correct the effect of this want of uniformity pneumatic actions have been employed, wherein the several keys operate to open small pallets of uniform size, whereby wind is admitted from the wind-chest to small supplemental pneumatic or bellows, the inflation whereof is employed to open the pallets which admit wind to the corresponding pipes. By this method the touch is rendered uniform, and the same for the larger or smaller pipes. But heretofore such pneumatics have been constructed with and as a part of the organ, and without a view to accessibility or convenience of removal for repairs, &c.

The object of my invention is to make the pneumatic action for an organ portable, or capable of being constructed detached and separate from the organ, and applicable to instruments already built, and also so that each pneumatic may be separately detached from its wind-chest and removed when necessary for repairs, or for any other cause. I also construct the wind-chest itself with a removable front, whereby it is easy to reach the pallets for purposes of adjustment or repairs.

That others may fully understand my improvement I will more particularly describe the same.

A is one of the keys in position on the key-

board, and *a* is the tracker leading from said key to the square B. From said square the tracker *c* leads to a corresponding square, *b*, and from thence a tracker, *d*, leads to the back fall D, pivoted to the lower side of the pneumatic wind-chest E. F is one of the small bellows known in the trade, and herein referred to, as "pneumatics." The wind-chest E is a long trunk extending across behind the keys in the organ, and taking wind from the blower in the ordinary way. The pneumatics F F' are placed transversely on the wind-chest E, and side by side along its whole length, and as these pneumatics occupy more place laterally than the width of the keys A it is convenient to arrange them in series, with separate wind-chests E, one above another, the whole being constructed in a single nest or frame, which may be located in any convenient part of the instrument, but preferably within the case immediately back of the keyboard. The back fall D, when it is actuated by the movement of the keys, opens a pallet, G, within the wind-chest E, by means of the tracker, *e*, and wind is thereby admitted through the hole *f* to the interior of the pneumatic F, which instantly becomes inflated, and actuates the tracker *g*, which leads to and opens the pallet in the main wind-chest, which admits wind to the proper pipe. The pallet G is closed by the pallet-spring *h* when released from the pressure of the key. It is necessary that the pneumatic F shall exhaust as soon as the pallet G closes, and for this purpose the hole *i*, covered by the pallet *k*, is placed within the pneumatic, and said pallet is raised by the sticker *m* at the instant when the pallet G closes. The pallet *k* requires no spring, as its own weight and the wind pressure inside are sufficient to make it close promptly and tightly. The sticker *m* is actuated by the back-fall *o*, which, in turn, is connected with and actuated by the back-fall D, by means of the sticker *n*. The back-fall D is pivoted to the bottom of the wind-chest E, and the back-fall *o* is pivoted to the bottom of the pneumatic F. The pneumatic F is made separate from the wind-chest, and is provided with grooved or rabbeted edges which engage with flanged strips *p* secured to the top of the wind-chest, and transverse thereto. The pneu-

matic F may then be attached or detached by sliding it endwise like a drawer, and the only disconnections required before removal are the tracker *g* and sticker *n*. The pallet *k* is placed upon the upper surface of a board, *q*, which is secured to the bottom of the pneumatic by screws, so that it may be easily removed for adjustment or repairs of said pallet. The spring to pallet in main wind-chest is all that is needed to close pneumatic F under any circumstances. No weight is needed, as it will fall of itself when *k* is opening. The front board *r* of the wind-chest E is made so as to be easily removed, and thus expose the interior of said wind-chest and give easy access to the pallets and springs inclosed therein, whenever such access may be required.

Having described my improvement, what I claim as new is—

1. The combination, with the key-action and wind-chest E, of the pneumatic bellows F, provided with inlet and exhaust pallets G and *k*, and the back-falls D and *o*, connected by the sticker *n*, and provided with the tracker *e* and sticker *m*, to constitute a pneumatic action, substantially as set forth.

2. In combination with the wind-chest E, the removable pneumatic bellows F, substantially for the purpose set forth.

REUBEN NICHOLLS.

Witnesses:

THOS. S. DISSTON,
H. BUCHANAN.