

(No Model.)

2 Sheets—Sheet 1.

H. W. METCALF.

REED ORGAN.

No. 363,531.

Patented May 24, 1887.

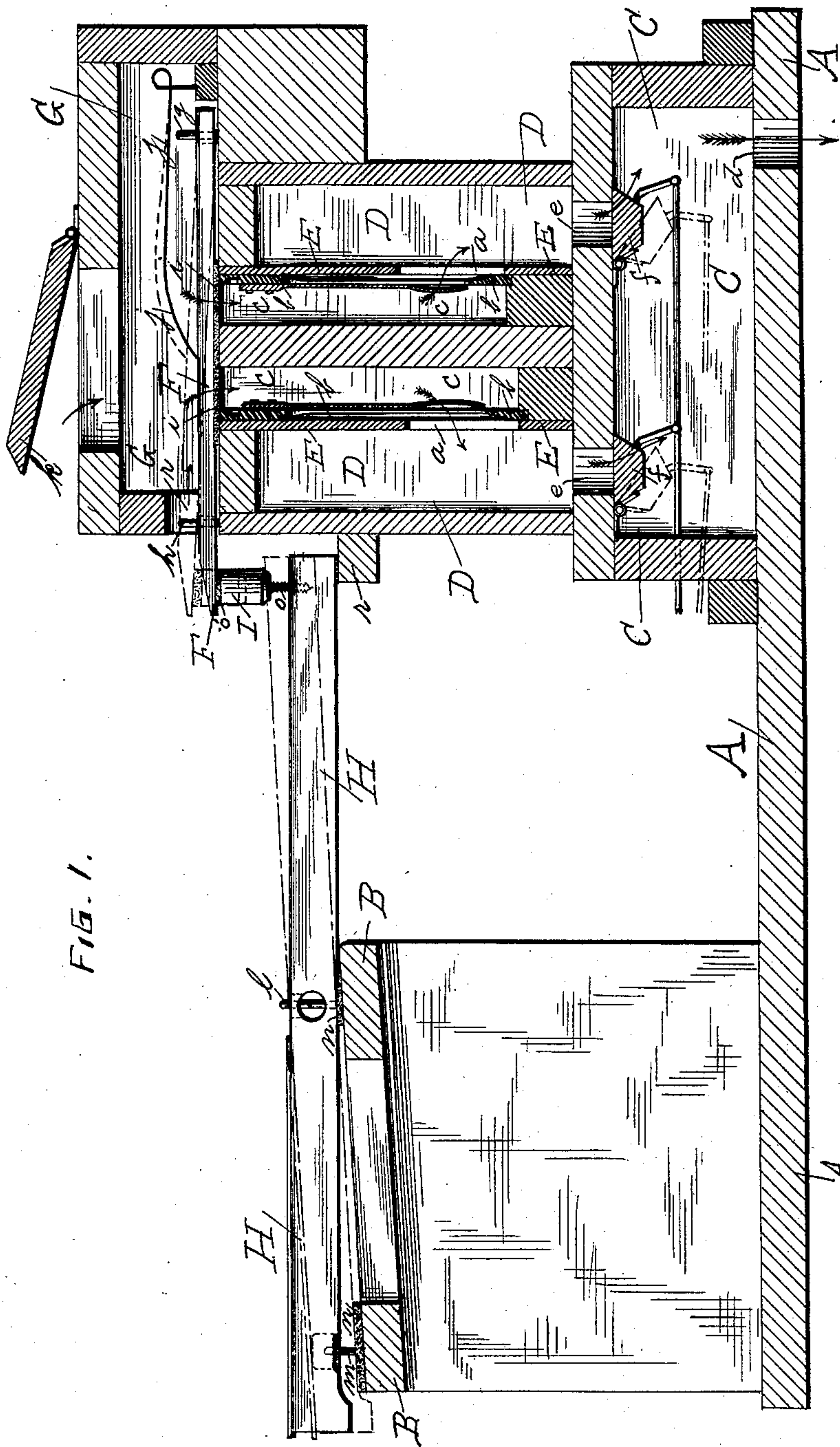


FIG. 1.

WITNESSES:

*George T. Dewey*  
*Fred. W. Smith*

INVENTOR:

*Henry W. Metcalf*  
*By John C. Dewey*  
*Attorney*

(No Model.)

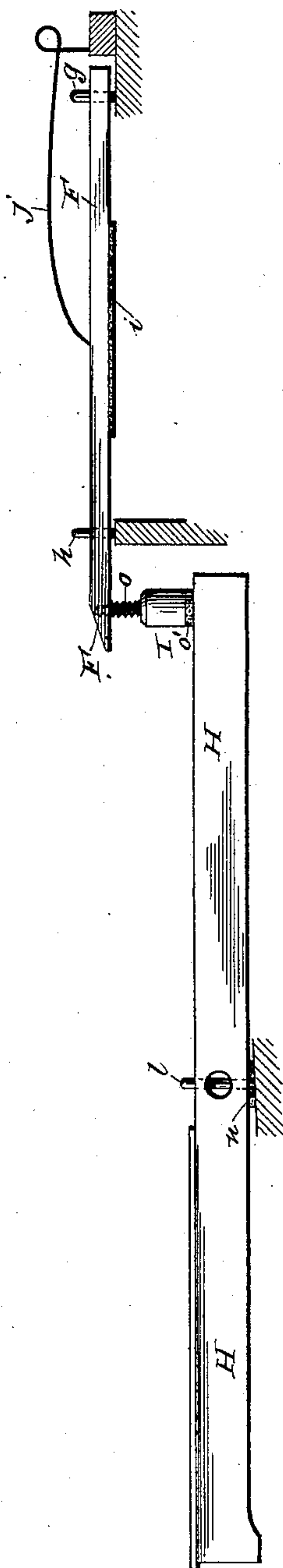
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WITNESSES:

Chas. F. Schurz

M Ralph Dryden

## INVENTOR:

Henry W. Metcalf,

by *John C. Dewey*  
Attorney.



# UNITED STATES PATENT OFFICE

HENRY W. METCALF, OF WORCESTER, MASSACHUSETTS.

## REED-ORGAN.

SPECIFICATION forming part of Letters Patent No. 363,531, dated May 24, 1887.

Application filed July 19, 1886. Serial No. 208,385. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY W. METCALF, a citizen of the United States, residing at Worcester, in the 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 thereof, which, in connection with the drawings making a part of this specification, will enable others skilled in the art to which my invention belongs to make and use the same.

My invention relates to reed-organs; and it consists in certain novel features of construction of the organ-action of a reed-organ, as will be hereinafter fully described.

Heretofore in organ-actions, as usually constructed, the reed-valves have been located under the keys and operated by a pitman running from the under side of the keys, pivoted at their rear ends to the valves. The valves have heretofore been located below the reeds. They therefore have to close against the action of the suction-bellows, requiring a strong spring to keep them closed; and in order to get at the valves it has been necessary to remove the whole of the organ-action from the top of the bellows.

In order to level the keys properly, it has been necessary to file off the ends of the pitmen, and it often happens that the end of a pitman is filed off too much, requiring the substitution of a new pitman.

In my improved organ-action I do away entirely with the use of pitmen heretofore employed for connecting the keys with the reed-valves. I locate said valves over the reeds, instead of under them, as has been done heretofore. The valves are thus easy of access, requiring only the removal of the swell-box. I open the reed-valves by means of keys pivoted at their center acting directly on said valves through regulating-buttons. The valves are closed by means of a spring, in the usual manner; but the valves being placed above the reeds, as before stated, instead of below them, are closed in the direction of the action of the suction-bellows and not against the action thereof, as heretofore. By means of the adjustable buttons upon the rear ends of the keys, or upon the front ends of the valves, con-

necting the keys with the reed-valves, the proper leveling of the keys can be easily attained.

Figure 1 of the drawings represents a vertical cross-section through my improved organ-action, detached from the other parts of an organ, as the same forms no part of my present invention; and Fig. 2 represents the key and valve detached, showing a modification of my invention, the regulating-button being secured upon the front end of the valve, instead of on the rear end of the key, as illustrated in Fig. 1.

The key and reed-valve are shown in elevation, the full lines representing the same in their normal position and the dotted lines their active position, as will be hereinafter fully described.

In the accompanying drawings, the part marked A represents the top board of the bellows upon which are supported the key-frame B and the wind-chest C. Upon the wind-chest C are supported the reed-chambers D and the reed-boards E, constructed in any usual manner, having the openings *a* therein, and supporting the reeds *b*, which are placed in a vertical position. Open spaces *c* extend upon the outside of said reeds to allow of the free passage of air to sound the reeds, drawn in by suction-bellows, of any usual construction, located directly under the board A, in the ordinary manner. An opening, *d*, connects the wind-chest C with the bellows; and openings *e*, provided with mutes *f*, of any ordinary construction, connect said wind-chest C with the reed-chambers D.

The open spaces *c*, upon the outside of the reeds *b*, are closed at their upper ends by means of a valve, F, of the usual construction, extending over the same. Said valve F is pivoted at its rear end upon a small pin, *g*. A pin, *h*, extending through a slot at its forward end, prevents any sidewise motion of said valve, and felt *i*, secured upon the under side thereof, prevents any leakage or passage of air when the valve is closed.

A spring, *j*, of the ordinary construction, tends to keep the valve F closed. The action of the suction-bellows also acts with said spring, and not against it, as is the case in organ-actions, as heretofore constructed.

A swell-box, G, provided with a cover, *k*, of



any ordinary construction and operation, is located and supported over the valves F, inclosing the same. The front ends thereof project out through an opening, *r*, in the front side of the swell-box G, as shown in the drawings. If preferred, the front ends of the valves F need not project through the front side of the swell-box G, but may be entirely inclosed within said swell-box, and the back portion of the name-board may form the front portion of the swell-box.

Upon the key-frame B is supported the key H, pivoted at its center, or approximate center, in this instance, by means of a pin, *l*, extending up from the frame B. A pin, *m*, extending up from the front part of the frame B, fits into a hole made in the under side of the key H, at its front end, in the usual manner, to prevent any sidewise motion of said key. Felt *n* is secured upon the top of the key-frame B in the usual manner.

A regulating button or knob, I, is attached to the key H at its rear end, in this instance, by means of a screw, *o*, entering into the key H and into the button I. Said button I is provided with felt *o'* upon its upper end, and is arranged to come in direct communication with the front end of the valve F, which rests and bears upon said button. The spring *j*, pressing upon the top of the valve F, keeps the front end of the valve in contact with the button I, and at the same time tends to hold the key H in its normal position. (Shown by full lines in the drawings.) The front half of the key H, being made heavier than the rear half, prevents the rear end from dropping down too far; and, if desired, a stop, *r'*, may be provided, upon which the end of the key H will rest; but this is not necessary, except in the case of the black keys, in which the rear end will be heavier than the front end, the pivot being nearer the front end of the key. The regulating button or screw I, instead of being attached to the rear end of the key H, as above described, and illustrated in Fig. 1 of the drawings, may be secured upon the front end of the valve F, as shown in Fig. 2, the manner of operation of the key and valve being substantially the same in each case. The object of the button I, which forms a means of direct connection between the key H and valve F, so that the latter may be operated directly by the key without the intervention of any pitman, usually employed, is to allow of the relative positions of the several keys of the key-board being properly beveled by simply turning up or down the button I.

The operation of my improved organ-action is very simple, and will be readily understood by those skilled in the art from the above description, in connection with the drawings, and is as follows: The front end of the key H, being depressed to sound the corresponding reed or reeds, will take the position shown by dotted lines, and the valve F, controlling the air-passages to the reeds, will at the same time be raised, as shown by dotted lines, (the button

I pressing against the under side of the front end of said valve,) allowing the passage of air, as shown by the arrows, to sound the reeds drawn in by the suction-bellows, in the ordinary manner, the mutes *f* having been first opened by means of mechanism of any usual construction and operation.

I have shown in the drawings two sets of reeds; but one or more sets may be used, in which case it will only be necessary to vary the length of the valve F. The manner of construction and arrangement of the wind-chest, the reed-chambers, and other parts connected therewith may be varied from that shown in the drawings without departing from the principle of my invention, which consists, essentially, in the novel construction of the keys to operate the reed-valves, located above the reeds, by direct communication therewith without the intervention of pitmen or levers, and in the manner as hereinbefore fully described and set forth.

It will be readily seen that the regulating-buttons I may be located upon the under side of the keys, instead of upon the upper side, as shown, and engage the reed-valves located above the reeds by having the ends of the valves extend out and rest upon the top surface of the buttons, the screw *o* fitting into the slot formed in the end of the valve F in the usual manner, to receive the pin *h*.

Instead of the button I on the screw-shank *o*, shown and described, a plain screw or equivalent device may be used for regulating the proper level of the keys.

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

1. The combination, with the key H and the regulating-button I, secured upon the rear end of said key, and adapted to engage directly with the free end of the reed-valve to open the same, of the reed-valve F, provided with a spring, *j*, and hinged at one end, and having its free end extend out beyond the rear end of the key to be acted upon by the same, in the manner substantially as set forth.

2. The combination, with the key H and the regulating-button I, secured upon the rear end of said key for the purpose stated, of the reed-valve F, located within the swell-box and hinged at its rear end, and having its forward free end extend out beyond the rear end of the key H and adapted to engage therewith, for the purpose stated, substantially as shown and described.

3. The combination, with the key H and regulating-button I, secured upon its rear end, of the reed-valve F, adapted to engage with and operated by the button I, and located within the swell-box G, and said swell-box G and the reed-boards E, for holding the reeds in a vertical position below the reed-valves, substantially as shown and described.

4. An organ-action consisting of key-levers, a reed-chest having its cells on top, a set of horizontal valves covering the reed-cells and



extending over the side of the reed-chest, and a series of direct-acting lift pins or buttons vertically adjustable interposed between the rear upper ends of the keys and the under side  
5 of the forward projecting ends of the valves, substantially as set forth.

5. The combination, with the key H, of the valve F, hinged at one end and provided with

a spring, *j*, and the regulating-button I, as a means of connection between the free end of said valve and the rear end of the key, substantially as set forth.

HENRY W. METCALF.

Witnesses:

JOHN C. DEWEY,  
FRED. W. SMITH.