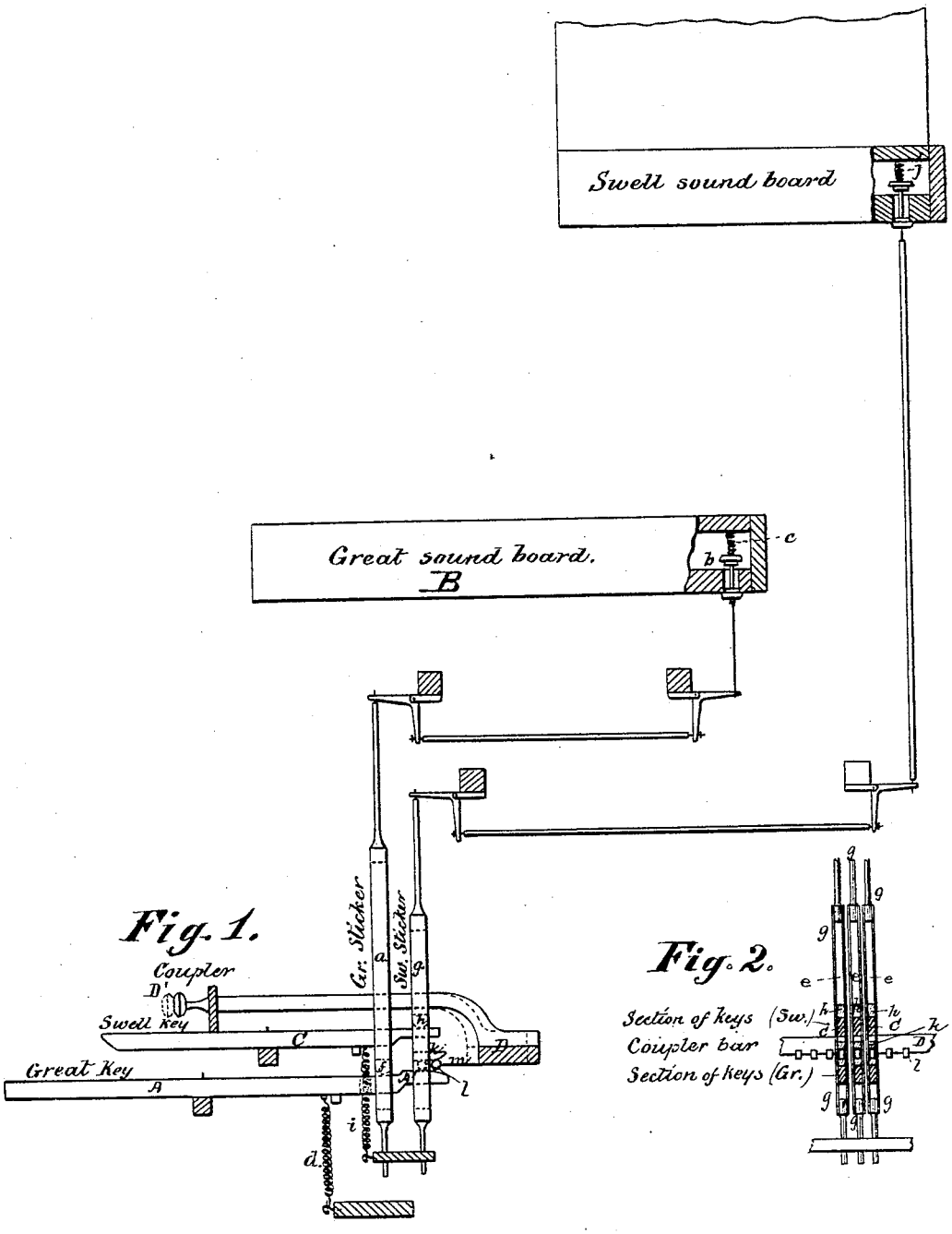
T. WINANS.

ORGANS.

No. 182,258. Patented Sept. 12, 1876.



Witnesses:

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UNITED STATES PATENT OFFICE.

THOMAS WINANS, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN ORGANS.

Specification forming part of Letters Patent No. **182,258**, dated September 12, 1876; application filed July 6, 1876.

To all whom it may concern:

Be it known that I, THOMAS WINANS, of Baltimore, Maryland, have invented certain new and useful Improvements in Organs, of which the following is a specification:

In Letters Patent No. 162,450, dated April 20, 1875, I have described and shown an air admission and exhaust valve, combined with a spring, and means whereby the tension of the spring can be regulated at will for the purpose of equalizing and rendering uniform the amount of pressure needed to depress the keys in case couplers are used. This arrangement, although perfect, is somewhat complicated and expensive. To obviate this objection I now apply to each valve a tension-spring of much less resistance—say, a resistance of one and one-half ounce—and to each key I apply a spring that will give the balance of resistance required for pleasant touch—say, for instance, four and a half ounces—making the total resistance six ounces; and the couplers connect, not key to key, for that would give double or greatly increased resistance, and would lead to decided inequality of action, but key to square or some other portion of the action, in such manner that the coupling may be effected without causing the movement of any of the keys other than those played on. In this manner I obtain a resistance which, although not uniform, varies within limits which render the action, for all practical purposes, perfect under all conditions. If, for instance, there be three banks of keys—the choir, swell, and great—then, by coupling key to square, the maximum resistance will be nine ounces, the minimum resistance will be six ounces, and the mean resistance seven and one-half ounces. The resistance thus varies within the limits of three ounces, making but a slight difference in action, which practically will be of no importance; but, by decreasing the tension of the valve-spring, even this slight difference may be further reduced.

By thus dividing between the valve and the key the resistance required to give the proper "touch," and by locating the major portion of the resistance at the key, I can, as stated, couple the subactions at points intermediate between the two resistances; and I am, consequently, enabled to dispense with the tension-regulators heretofore patented to me.

My present arrangement is adapted not only for couplers, but also for use in other connections—as, for instance, in case two or more key-boards be combined with the same organ, each capable of independent action on the organ, and all adapted for simultaneous use by as many players as there are key-boards—as described by me in another application for Letters Patent now pending in the United States Patent Office.

In the accompanying drawing I have represented one arrangement by which my invention may be carried into effect.

Figure 1 is a diagram representing an arrangement embodying my invention. Fig. 2 is a sectional view of an improved form of sticker, which I find it advantageous to use in this as well as in other connections.

A is one of the keys of the great organ, which connects, by a sticker, *a*, and squares and trackers, with its valve *b* in the great sound-board B. The valve may be a spool-valve, such as described in my Letters Patent hereinbefore referred to. The valve-resistance spring is marked *c*. The key-resistance spring is marked *d*. The former offers a resistance of, say, one and a half ounce; the latter a resistance of, say, four and a half ounces. To operate the valve, therefore, a pressure of six ounces must be applied to the great key.

The sticker *a*, in this instance, has formed in it a slot, *e*, for the greater portion of its length, or at least for such portion of its length as may be required for the free passage of the rear end of the keys, &c. The great key, as seen, enters the slot, and is enabled to operate the sticker by a stop, *f*, (indicated in dotted lines in Fig. 1,) secured in the slot just over the key. Thus, when the rear end of the key rises it will, by bearing against the stop, raise the sticker, and operate the valve.

In the rear of the great sticker is the swell-sticker *g*, which is made like the great sticker, and is also in the same way combined with its swell-key C. The stop against which the swell-key bears in order to operate the valve is marked *h*. The swell-key resistance is shown at *i*, and the swell-valve resistance

at *j*. These resistances equal the corresponding resistances of the great organ. The swell-key passes through the slotted great sticker *a* in order to reach its own sticker.

The rear end A′ of the great key A is prolonged beyond its sticker *a*, and enters the slot in the swell-sticker *g*. Above the end A′ in the slot in the swell-sticker is fixed a stop, *k*, at such distance from the end A′ that the great key normally will move a sufficient distance to operate its valve without coming into contact with stop *k*. In rear of the swell-sticker is a coupler-bar, D, from the front of which projects a coupling-knob, *l*, connected with the bar, preferably by a thin piece of sheet-brass, *m*. This knob is of a size to about fill the space that intervenes between the stop *k* and the end A′ of the great key, and, normally, it occupies a position just in rear of these parts in line with the space separating them.

In order to couple the great and swell, the coupler D′ is pulled out, thus drawing forward the coupler-bar, and consequently causing the coupling-knob to enter between the parts A′ and *k*. If, now, the great key be depressed, it will raise not only the great sticker *a* but the swell-sticker *g* also. The swell-key, however, remains at rest, inasmuch as there is enough space between it and the stop *k* below to permit the swell-sticker *g* to rise without disturbing its key. Thus the added resistance due to the coupling is confined to the valve tension or resistance alone.

I have shown in Fig. 1 but one key of each rank. It will be understood, of course, that each key of each rank has its own sticker, and that there should be on the coupler-bar as many coupling-knobs as there are keys to be coupled.

By making the stickers with slots, as shown, through which the keys pass, the coupling can be very simply and easily effected between any key and any particular sticker from another key by the use of the coupling-knobs, in the manner already indicated. These knobs can be arranged to work between any required number of keys and stickers.

This arrangement is much simpler than any other plan heretofore used to my knowledge. It also possesses the advantage of allowing the keys of the coupled organ to remain at rest.

To avoid misapprehension, I would state that by the term "resistance" in this specification I intend the device or instrumentality, such as a spring, which resists the depression of the key, and returns the key to its normal position when the pressure of the finger is removed therefrom.

Having described my invention, and the manner in which the same is or may be carried into effect, I would state, in conclusion, that it is manifest that various other arrangements of devices for accomplishing the same result may be used. I do not, therefore, limit myself to the mechanical details herein described; but

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

1. An organ-action, in which the resistance required to give the proper "touch" is divided between the valve and the key, with the main resistance at the key, substantially as and for the purposes set forth.

2. In an organ-action, in which the required resistance is divided between the keys and the valves, as described, the combination, with said keys and valves, of couplers, arranged to connect the several subactions at points intermediate between the key and valve in the manner set forth, whereby the added resistance due to the coupling is confined to the valve-resistance.

3. An organ-sticker, slotted substantially as and for the purposes shown and set forth.

4. The combination of the keys of the ranks to be coupled with the slotted stickers and the coupler-bar and coupling-knobs carried by the same, the combination being and acting as set forth.

In testimony whereof I have hereunto signed my name this 19th day of June, A. D. 1876.

THOMAS WINANS.

Witnesses:
W. S. WILKINSON,
GEO. WORTHINGTON.