2 Sheets—Sheet 1.

L. K. FULLER.

REED ORGAN ACTION.

No. 189,554. Patented April 17, 1877.

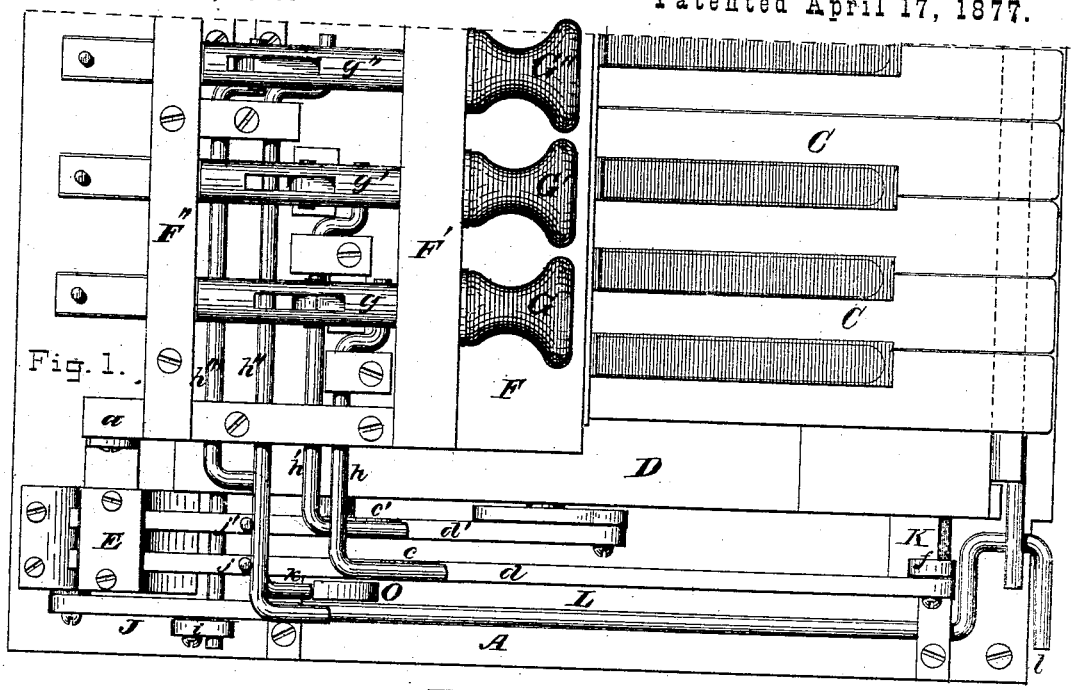

Fig. 1.

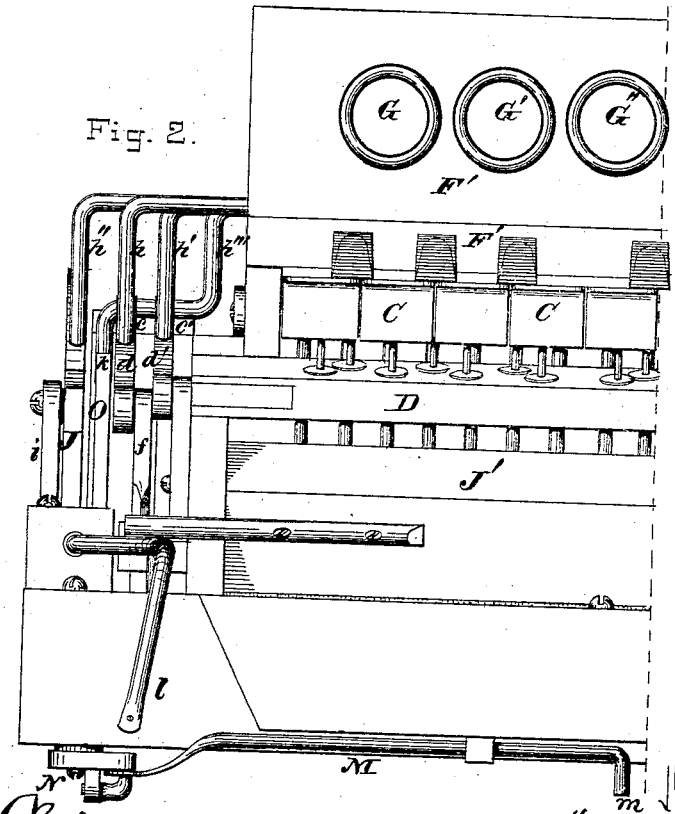

Fig. 2.

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2 Sheets—Sheet 2.

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Fig. 3.

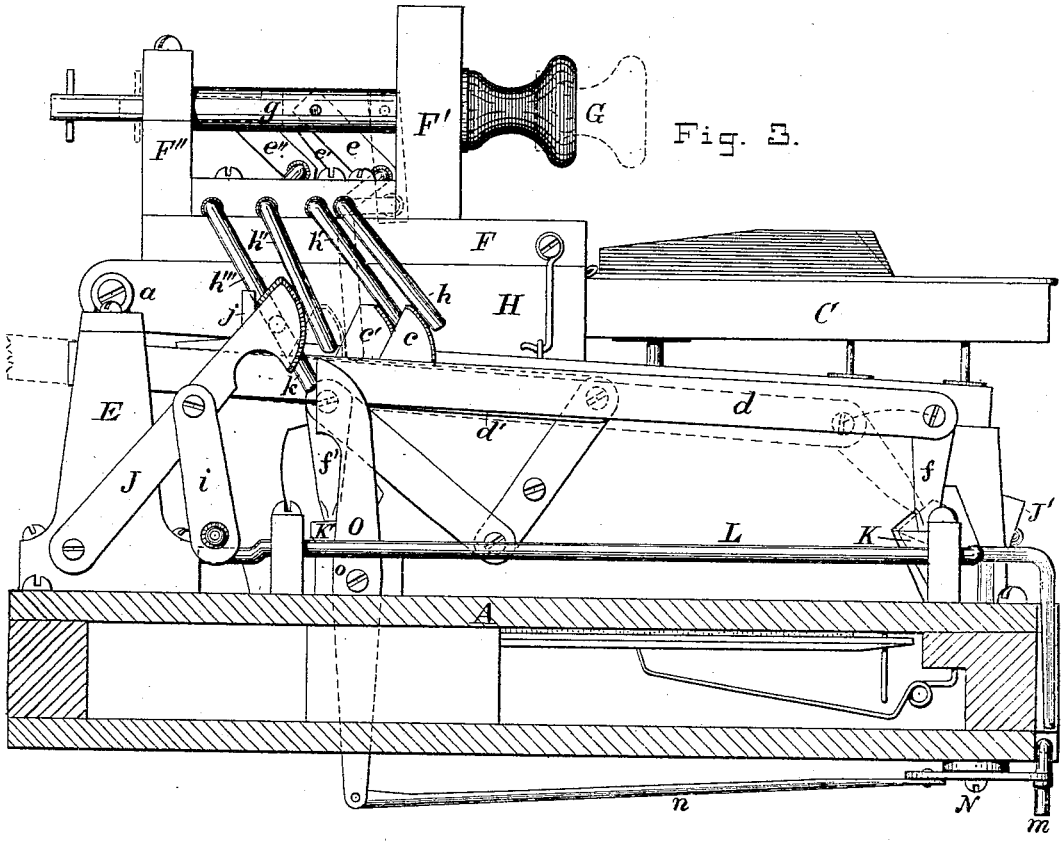
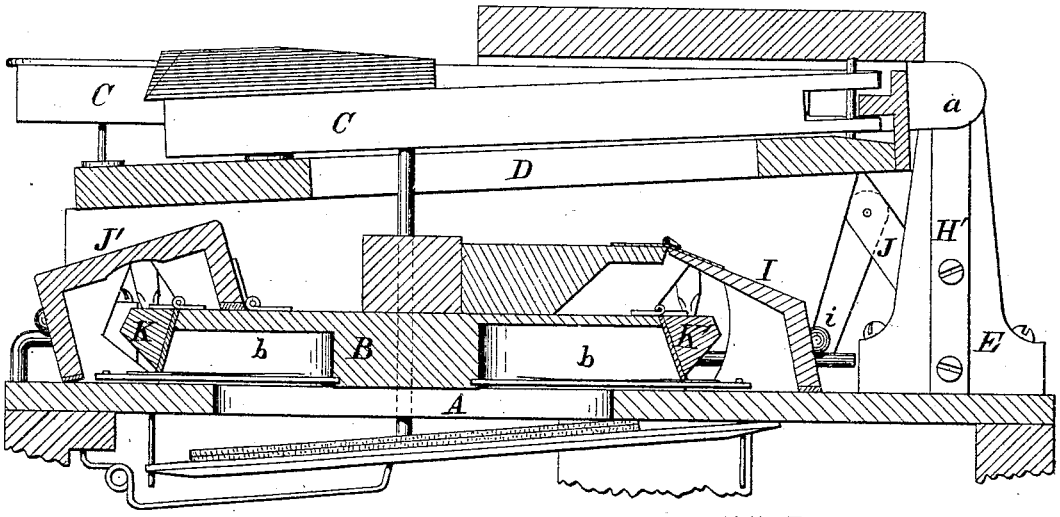


Fig. 4.



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Henry A. Burke

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INVENTOR:

Levi K. Fuller,

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UNITED STATES PATENT OFFICE.

LEVI K. FULLER, OF BRATTLEBOROUGH, VERMONT, ASSIGNOR TO J. ESTEY & CO., OF SAME PLACE.

IMPROVEMENT IN REED-ORGAN ACTIONS.

Specification forming part of Letters Patent No. **189,554**, dated April 17, 1877; application filed January 6, 1877.

To all whom it may concern:

Be it known that I, LEVI K. FULLER, of Brattleborough, in the county of Windham and State of Vermont, have invented certain Improvements in Reed-Organs, of which the following is a specification:

This invention relates to the mechanism for operating the dampers and swells connected with the different sets of reeds through the medium of stops and knee-levers, and also to the manner of hinging the base-board, upon which is mounted the "name-board," stops, and stop-rods, in connection with the stop mechanism.

The invention consists essentially in the novel mechanism for operating the dampers singly or together, as may be desired, and the combinations of the same with the hinged base for the name-board, all as will be hereinafter more fully and clearly set forth.

In the drawings, Figure 1 is a plan, Fig. 2 a front view, Fig. 3 an end view, and Fig. 4 a sectional view, of the left-hand end of a reed-organ action arranged to illustrate my invention.

Let A represent the foundation-board of a reed-organ action; B, the reed-board; *b b*, the reeds; C C, the keys; and D, the key-frame. These are all arranged in substantially the usual manner.

H is a hinging-arm, that for the left-hand end of the action only being shown. This arm extends back, and is pivoted at the point *a* to a bracket, H′, secured to a standard, E. On the arms H H is mounted the base-board F, name-board F′, and back strip F″. These parts—the arms, base-board, name-board, and back strip—taken collectively, I will denominate the "stop-frame." G G′ G″ are stops, the shanks *g g′ g″* of which pass through the name-board, and have bearings in the back strip, as shown. Only three stops are shown, as this number will serve to illustrate the operation of as many as may be desired.

The shanks of the stops are mortised to receive pivoted links *e e′ e″*, these latter reaching down and taking hold of cranks bent on the ends of respective stop-rods *h h′ h″*. These rods find suitable muffled bearings in blocks affixed to the base-board F, and have their extremities, which overhang said base, bent down to engage, respectively, projections *c c′* on the slides *d d′* and the muffled head of the swell-lever J. The rear ends of the slides *d d′* have muffled bearings in the standard E, and their front ends are connected more or less indirectly, through the medium of uprights *f f′*, with the dampers K K′, respectively.

The swell-lever J is pivoted to the standard E, and connects, by the link *i*, with the bar *i′* affixed to the swell I.

So far as described, the operation of the mechanism is as follows: When the stop G is pulled out the link *e* presses down the crank on the stop-rod *h*, which causes its bent-down extremity to engage the projection *c* on the slide *d*, and push the said slide endwise, thus opening the damper K through the medium of the rigid upright *f* attached thereto.

When the stop G′ is pulled out, the motion is transmitted through the link *e′*, stop-rod *h′*, projection *c′*, and slide *d′*, to the standard *f′*, thus throwing open the damper K′.

Thus any number of stops may be arranged to give voice to their respective sets of reeds.

The stop G″ acts through the link *e″* and stop-rod *h″* upon the swell-lever J, and through it and the link *i*, acts to raise the swell I, and give a greater volume of sound to the particular set or sets of reeds with which it is connected.

The ordinary knee-swell lever is connected with the swell-wire L at *l*. The said wire has cranks, which take under bars projecting from the swells I J′, and open them simultaneously when the lever is pressed by the knee.

In order to throw open all of the dampers, and draw on all of the stops at the same time, I provide a separate knee-lever (not shown) which acts upon the lever *m*, attached to, or forming part of, a bar, M. This bar is linked to one arm of a bell-crank, N, to change the direction of the motion, and from the other arm a rod, *n*, extends back, and takes hold of the lower end of a lever, O, which is pivoted at *o*.

The upper end of this lever is arranged to engage a projecting tip, *k*, of a cranked rod, *h‴*, which has bearings similar to those of the stop-rods *h h′ h″*. This rod *h‴* bends down

at right angles where it overhangs the base-board F, and then projects out horizontally just above and over the slides *d d'*, finally terminating with the tip *k* before mentioned. The horizontal portion is arranged to engage pins *j j'* in the slides *d d'*.

When the knee is pressed against the lever at *m*, the motion is communicated, through the various rods, cranks, and levers, to the cranked rod *h'''*, which is pushed back by the lever O, and, engaging the pins *j j'*, moves all the slides back, and throws open all the dampers. It will be seen that this is done without disturbing any of the stops G G', or stop-rods *h h'*; and in operating either of the stops G G', the mechanism last described is not disturbed.

It may be convenient, or necessary, to arrange a portion of the stops and slides used at each end of the action, the arrangement at the left-hand end only being here shown. In such cases the rod *h'''* will be extended through, and the other end have a crank bent on it to engage pins in the slides at that end. However the stops may be arranged, at one or both ends of the action, or in the center, the principle and mechanism for operating all the dampers simultaneously will be the same.

The same is also true with regard to the number of stops and dampers used.

By this mechanism and arrangement the player is enabled to throw open with his knee all the dampers instantaneously and momentarily, and thus obtain in forte and fortissimo passages the full voice of all the reeds in the instrument. This would be impracticable if drawing the stops was relied on, partly because the hands of the player are not free to attend to it with the necessary promptness, and partly because it it were attempted to draw out a number of stops at once, it would task the player's strength too heavily.

By my arrangement, so much of the stop mechanism remains undisturbed that but a moderate pressure of the knee is required to open all of the dampers. Of course, the other knee may be used to simultaneously actuate the knee-swell, so as to produce crescendo and diminuendo effects.

The standard E serves the double purpose of a support far the bracket to which the stop-frame is hinged, and a bearing for the slides *d d'*. As the stop-frame, and the mechanism mounted thereon, is unconnected, except by contact with the slides and other mechanism below it, the said frame may be thrown back on its pivots or hinges, so as to expose the keys and key-frame, and again be returned to position without disarranging the stop mechanism in the least.

The capability of the stop-frame to be thrown back permits the back set of reeds to be conveniently got at and tuned.

I claim —

1. The hinged stop-frame, composed of the hinging-arms H, base-board F, name-board F', and back-strip F'', in combination with stops G G', links *e e'*, and cranked stop-rods *h h'*, all arranged to operate substantially as herein set forth.

2. The combination of the hinged stop-frame, the stops G G', links *e e'*, stop-rods *h h'*, slides *d d'*, and dampers K K', all arranged to operate substantially as set forth.

3. The combination of the hinged stop-frame, the stop G'', link *e''*, stop-rod *h''*, swell-lever J, and swell I, all arranged to operate substantially as herein set forth.

4. The combination of the standard E, the stop-frame hinged thereto, the stops G G', and stop-rods *h h'*, the slides *d d'* provided with projections *c c'*, and bearings in the standard E, and the dampers K K', all arranged to operate substantially as herein set forth.

5. The combination of the rod M, crank N, rod *n*, lever O, and rod *h'''*, all arranged to operate in the manner substantially as herein set forth.

6. The combination of the cranked rod *h'''*, the slides *d d'*, connecting with all the dampers in the organ, and provided with pins or projections *j j'*, the lever O and suitable rods connecting the same with the knee-lever *m*, substantially as herein set forth.

7. The combination, with slides arranged to actuate the dampers of a reed-organ, of a rod, *h'''*, arranged to be actuated by the knee, to throw open simultaneously all the dampers of the organ without actuating the individual stop mechanism, or in the least degree disturbing it, all substantially as herein set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

LEVI K. FULLER.

Witnesses:
W. H. CHILDS,
J. E. HALL.