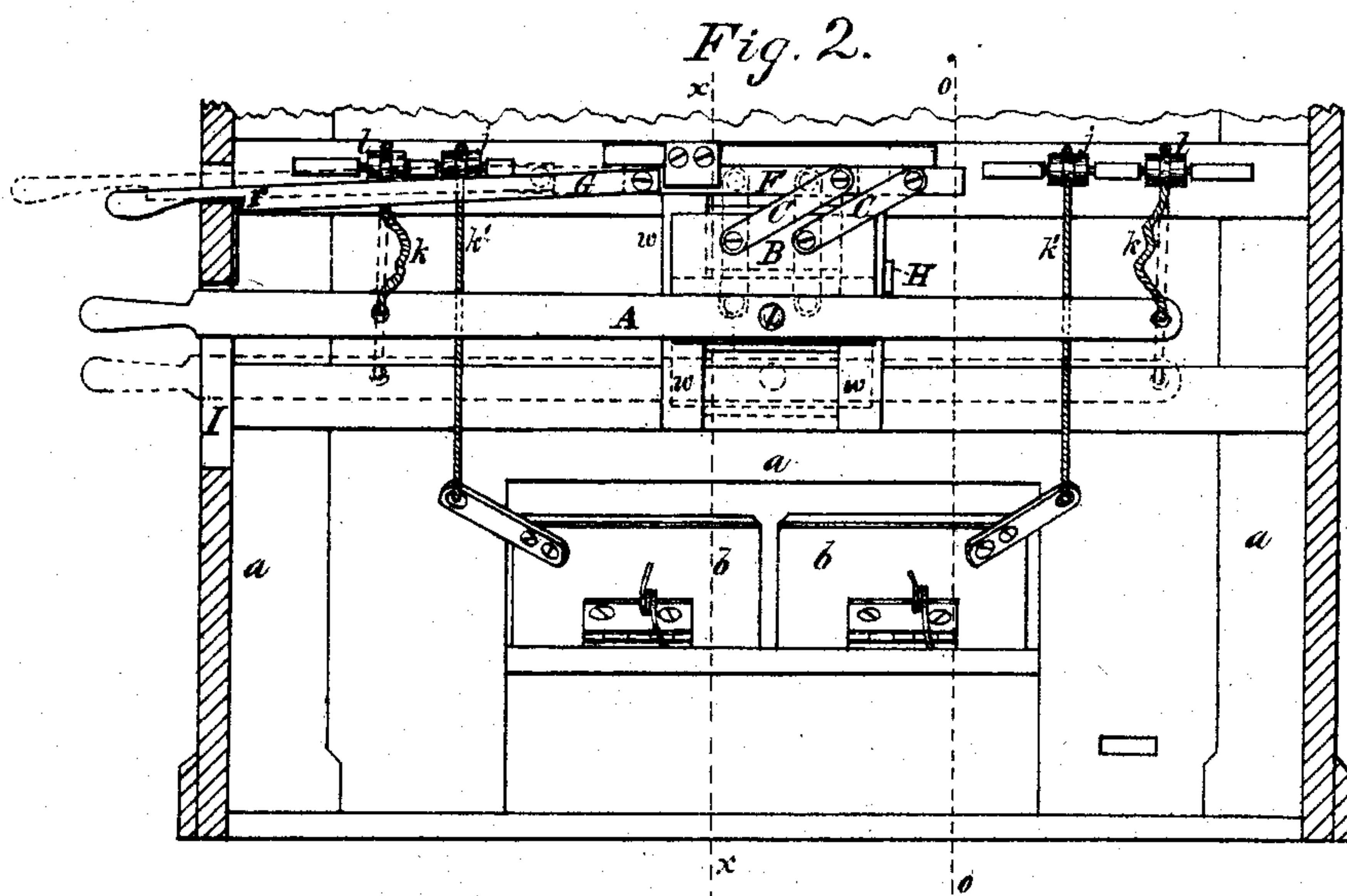
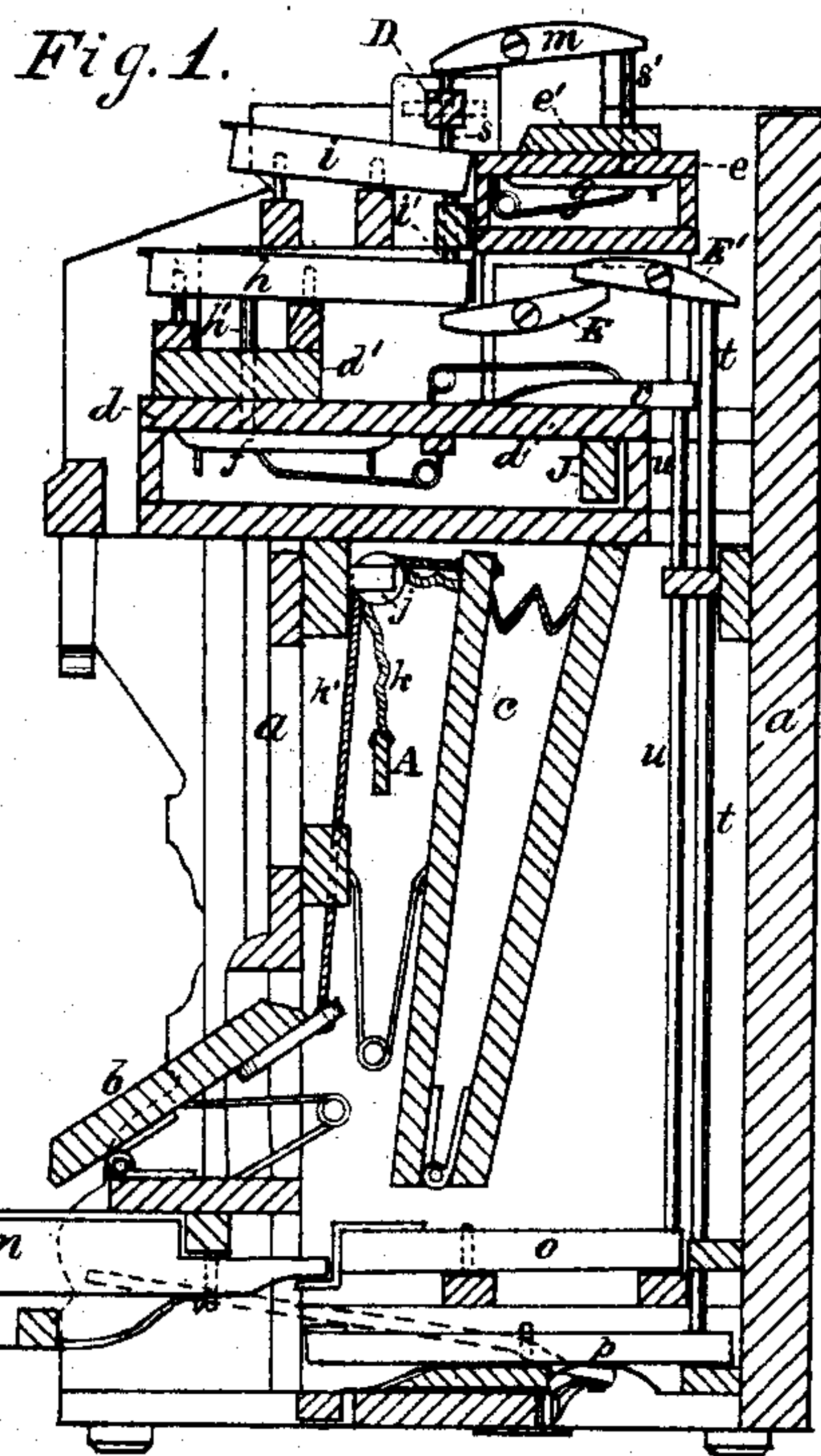


L. K. FULLER.  
Reed-Organs.

No. 139,666.

Patented June 10, 1873.



Witnesses:

Charles M. Higgins  
Arthur C. Fraser.

Inventor:

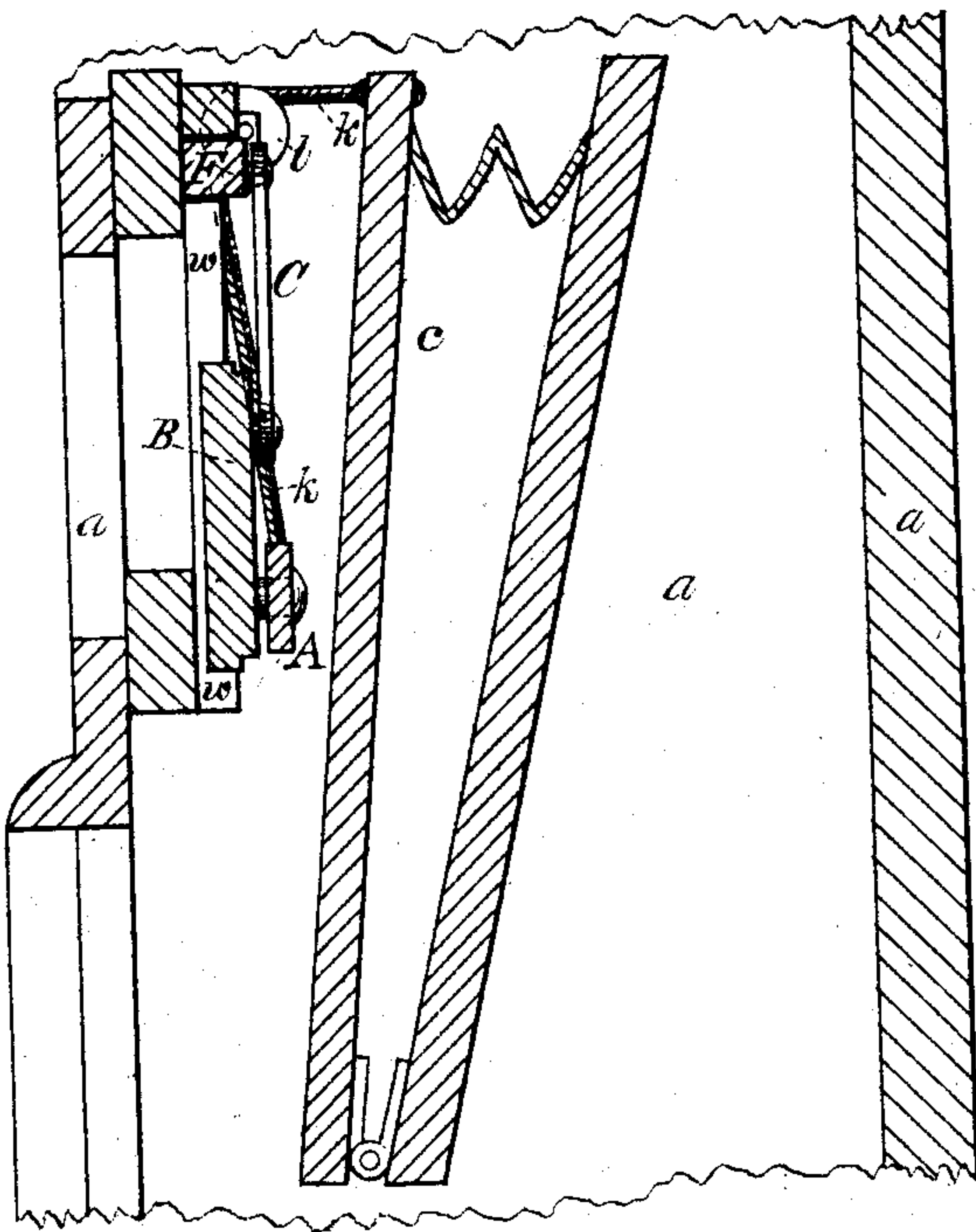
Levi K. Fuller  
Per Burke & Fraser  
attys

**L. K. FULLER.**  
**Reed-Organ.**

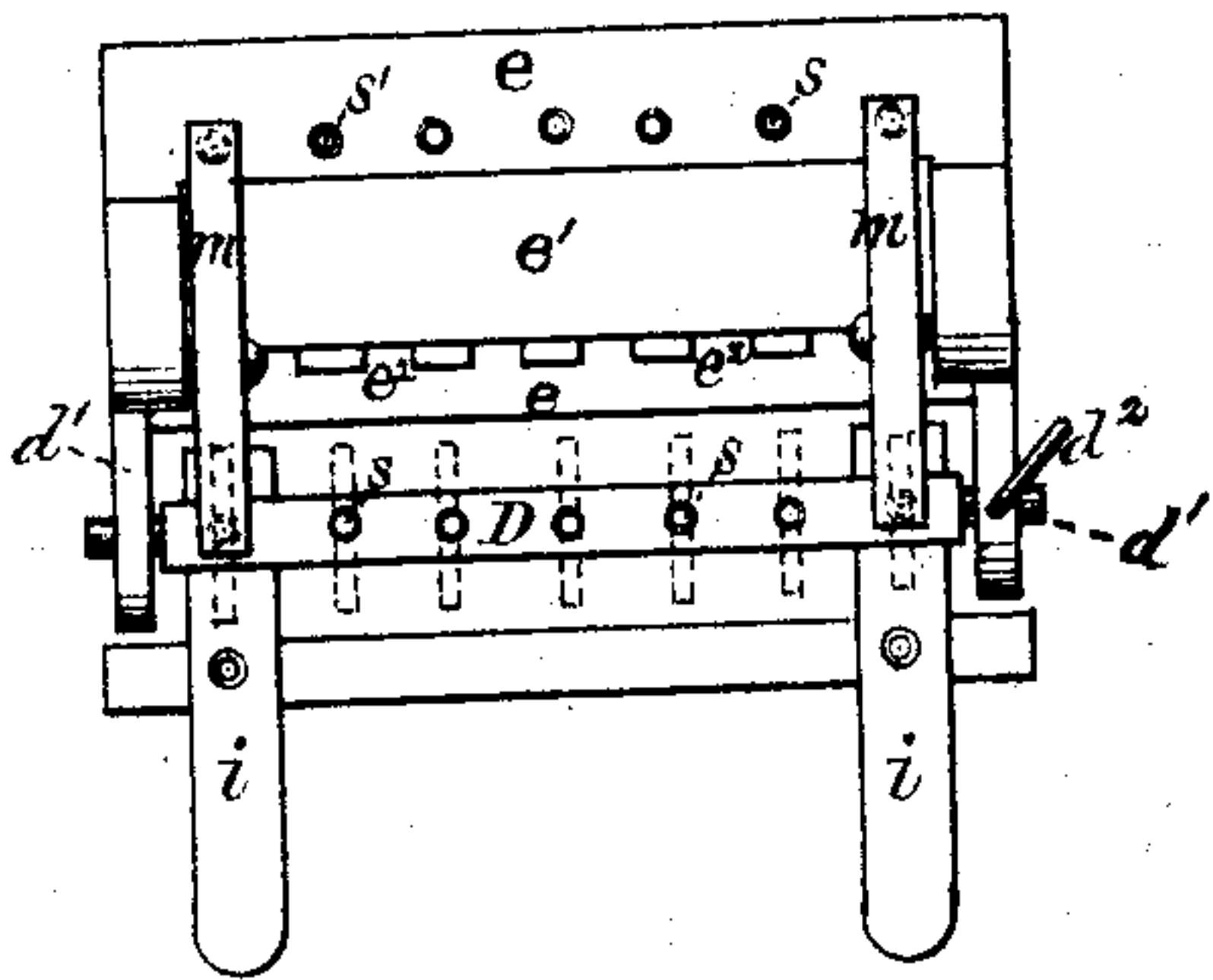
No. 139,666.

Patented June 10, 1873.

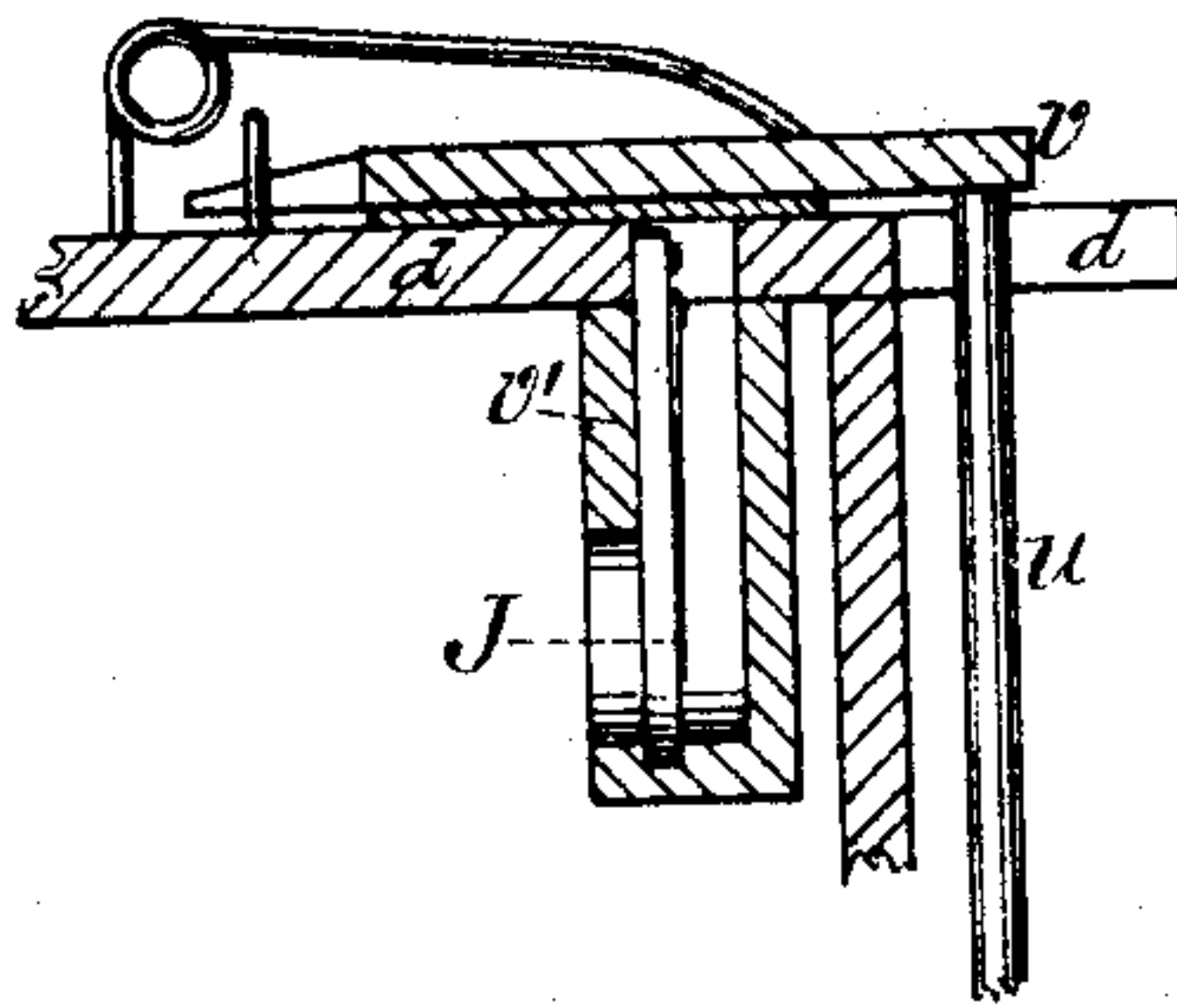
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



*Witnesses:*

Charles M Higgins  
Arthur C. Fraser.

*Inventor:*

Levi K. Fuller.  
Per Burke & Fraser, Attys



# UNITED STATES PATENT OFFICE.

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

## IMPROVEMENT IN REED-ORGANS.

Specification forming part of Letters Patent No. 139,666, dated June 10, 1873; application filed March 3, 1873.

*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 Improvements in Reed-Organs, of which the following is a specification:

My invention relates more particularly to that class of reed-organs having more than one bank of keys and furnished with pedal-keys, part of my invention being applicable to organs of other kinds, some of the advantages of which are a better combination and arrangement of parts, compactness of form, and an increased variety of music and power of tone. It consists, first, in the combination of a lever and stop mechanism with the blowing apparatus of an organ, whereby the blowing apparatus may be operated either by the performer himself operating the blow-pedals in the usual manner, or by a second person operating the said lever, thereby relieving the performer of this exertion, and leaving his feet free to operate the pedal-keys for rendering more elaborate music, said stop throwing the lever into or out of action, as desired, and which, when thrown out of action, will not interfere with the free working of the ordinary blow-pedals. It consists, further, in the combination of a lever or levers with the keys and pedal-rods, which levers communicate the motion of said pedal-rods, through the medium of the keys, to the valves. It consists, also, in the arrangement and combination of pedal-bass reeds placed below the foundation-board with projecting valves and pedal-rods. It still further consists in a pivoted bar, which holds the pins that communicate the motion of the upper or other bank of keys to their corresponding valves.

In the drawings, Figure 1 is a cross-section, on line *o o* of Fig. 2, through an organ having my improvements. Fig. 2 is an elevation of the lever and stop mechanism connected with the blowing apparatus, viewed from the rear of the case, most of the other parts of the organ being removed. Fig. 3 is an enlarged transverse sectional view (on about line *x x* of Fig. 2) of the same. Fig. 4 is an enlarged

plan view of the upper action, showing the construction and arrangement of the pivoted bar *D*, Fig. 1, and its connections. Fig. 5 is an enlarged fragmentary sectional view of the suspended pedal-bass reeds *J*, Fig. 1.

As represented in the drawings *a*, Figs. 1 and 2, is the case of the organ. *b b* are the blow-pedals, which are connected with the bellows *c*, in the ordinary manner, by the cords *k* passing over the pulleys *j*. *d* is the foundation-board of the lower action, above and at the front portion of which is placed the reed-board *d'* of the lower bank of keys *h*, while at its rear part and below the board are placed the pedal-bass reeds *J*, (in a vertical or horizontal position, as found most convenient,) their valves *v* being placed above the board, as shown, (seen best in the enlarged view, Fig. 5.) At a slight elevation above the rear portion of the main or lower foundation-board *d* is placed the upper action *e e'*, Fig. 1, of which *e* is the foundation-board, *g* the valves, and *e'* the reed-board. At the front portion of the foundation-board *d*, over the reed-board *d'*, and in front of the elevated or upper action *e e'*, are placed the lower bank of keys *h* and the upper bank *i*, which keys are pivoted to the key-boards at or near their centers, as shown. *h'* is the tracker-pin, by which the keys *h* actuate their corresponding valves *f*. Pins *i'* extend from the lower bank of keys *h* to the upper bank *i*, by which the motion of the lower keys *h* is communicated to the upper keys *i* and sounds their reeds. *s s* are tracker-pins, which rest on the upper surface of the keys *i*, pass loosely through the bar *D*, and extend to the levers *m*, which are placed above the upper action. A second series of pins, *s' s'*, extend from the opposite arms of the levers *m* and rest on the valves *g* of the upper action. The keys *i* of the upper bank thus actuate their corresponding valves *g* by means of the pins *s s'*, through the medium of the levers *m m*. The bar *D*, through which the pins *s* pass, is pivoted at each end of the action, as shown at *d'*, Fig. 4, so that it may be rotated and turn the pins in a horizontal position, as shown by the broken lines in Figs.



1 and 4, so that the reeds  $e^2$ , Fig. 4, in the upper action may be easy of access, examined, and removed or replaced without inconvenience. The bar may be furnished with a pin,  $d^2$ , or other fastening, to hold it in position. Below the upper action  $e^1$ , and above the pedal-bass valves  $v$ , are pivoted and arranged levers  $E E'$  in contact with each other, one arm of the lever  $E$  bearing against the key  $h$ , and its other arm bearing against one arm of the lever  $E'$ , the inner arm of the lever  $E'$  resting on the blow-pedal rod  $t$ , as shown. The bass-valves  $v$  project beyond the rear end of the foundation-board  $d$ , as shown in Figs. 1 and 5, and rest upon the pedal-rods  $u$ , and are actuated directly by these rods. The rods  $u$  rest on the levers  $o$ , Fig. 1, while the rods  $t$  rest on the levers  $p$ . The levers  $o$  are connected with the pedals  $n$ , the depression of which raises their inner arms and the rods  $u$ , and opens the bass-valves  $v$ . The levers  $p$ , which actuate the rods  $t$ , are connected or disconnected with the pedals  $n$ , when desired, by means of apparatus connected therewith, for which Letters Patent were granted me July 23, 1872. These levers, as seen in Fig. 1, are disconnected, but are coupled or connected with the other levers  $o$  by operating a foot-lever, shown by dotted lines in Fig. 1 at the lower part of the case, which, by means of intervening mechanism, elevates the levers  $p$ , bringing their outer arms in close proximity with the under side of the outer arms of the levers  $o$ , when the depression of the pedal  $n$  will actuate both levers simultaneously, the lever  $o$  and rod  $u$  opening the bass-valves  $v$ , and the lever  $p$  and rod  $t$  actuating the levers  $E E'$ , opening the valves  $g$  and  $f$  through the keys  $h$  and  $i$  and their connecting mechanism, thus sounding the reeds in the upper and lower actions as well as the bass-pedal reeds at the same time.

The construction and arrangement of parts in this organ are such that every portion of available space is occupied, by which is formed an instrument of great compactness and simplicity, and one having its power and variety of tone increased to an extent much beyond what has been accomplished heretofore.

My improved attachment to the blowing apparatus is shown best in Figs. 2 and 3.  $A$  is a lever hung and pivoted to the block  $B$ , and passing through a slot,  $I$ , at the side of the case, as shown. The block  $B$  is free to slide in upright guides  $w w$ , and is connected by two links,  $C C$ , with a horizontally-sliding bar,  $F$ , which bar has a connecting-rod,  $G$ , attached to its end that passes through the side of the case, and is provided with any suitably-formed and ornamental handle, with which it may be operated, with a catch,  $r$ , to hold it in position, as shown in Fig. 2. At points equidistant from the fulcrum of the lever  $A$  cords  $k$  arise therefrom, pass over the pulleys  $j$ , and are attached to the bellows  $c$ , as seen in Figs. 2 and 3. The blow-pedals  $b b$  are con-

nected with the bellows by cords  $k'$ , which pass over pulleys  $j$  in the usual manner, as seen in Figs. 1 and 2.

The lever and its connections, as shown by the full lines in Fig. 2, are out of action. It is operated as follows: To bring the lever  $A$  into action the rod  $G$  is drawn out, which causes a corresponding motion of the bar  $F$ , bringing the links  $C C$  in a vertical position, causing the block  $B$  and lever  $A$  to descend, and drawing the cords  $k$  tight and ready for action, the parts then assuming the position shown in Fig. 3, and by the dotted lines in Fig. 2. The bellows may then be operated and the instrument supplied with air by the aid of a second person working the lever at the side of the case, thus relieving the performer of this exertion, and leaving his feet free to operate the pedal-keys, enabling him to render a greater variety of music, and that of a more elaborate kind than he otherwise could do.

When less elaborate music is desired, the performer may, if he desires, dispense with the aid of a second person and operate the blowing apparatus himself by means of the blow-pedals  $b b$ , in the ordinary manner, in which case the lever  $A$  is first thrown out of action by pressing the rod  $G$  inward, which, moving the bar  $F$ , brings the links  $C C$  into an inclined position and raises the block  $B$  and lever  $A$ , bringing the inner arm of the latter in close proximity to the stop or projection  $H$  on the guides  $w$ , and its outer arm close to the upper part of the slot  $I$ , as shown by the full lines in Fig. 2, which thus effectually prevents its moving either up or down; this motion at the same time slackens the cords  $k$ , as shown in Fig. 2, which will allow the bellows  $c$  to move freely when being operated by the blow-pedals without their motion interfering with the lever or its connections. The performer may then operate the bellows by the blow-pedals  $b b$ , in the usual manner, without the least interference from the lever mechanism.

It will be seen that the lever  $A$  can be thrown in or out of action by force applied to the bar  $F$  in a horizontal direction only, while the only strain the bar can receive from the lever when it is thrown into action and being operated will be one in a vertical direction, through the medium of the links  $C C$ , which then assume a vertical position, as shown in Fig. 3 and by the dotted lines in Fig. 2, thus making it impossible for the lever to be thrown into or out of action by any strain upon itself, and leaving it entirely under the control of the stop mechanism. It will thus be seen that this stop mechanism is very efficient in its operation, simple in construction, and well adapted to this purpose.

My improved lever attachment is not limited in its application to double-bank or pedal organs, but is applicable to organs of all kinds.



I claim as my invention—

1. In a reed-organ provided with blow-pedals *b b*, the lever *A*, applied to the blowing apparatus, in combination with stop mechanism, by which it may be thrown into or out of action, substantially as set forth.

2. The bar *F*, links *C C*, and block *B*, in combination with the lever *A*, substantially as and for the purpose herein set forth.

3. The levers *E E'*, in combination with the rods *t u* and keys *h i*, substantially as described.

4. The reeds *J*, arranged below the founda-

tion-board, in combination with the projecting valves *v* and rods *u*, substantially as herein set forth.

5. The combination of the levers *m*, tracker-pins *s s'*, and pivoted bar *D*, arranged and operating substantially as described.

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

LEVI K. FULLER.

Witnesses:

J. FRASER,

CHARLES M. HIGGINS.