

(No Model.)

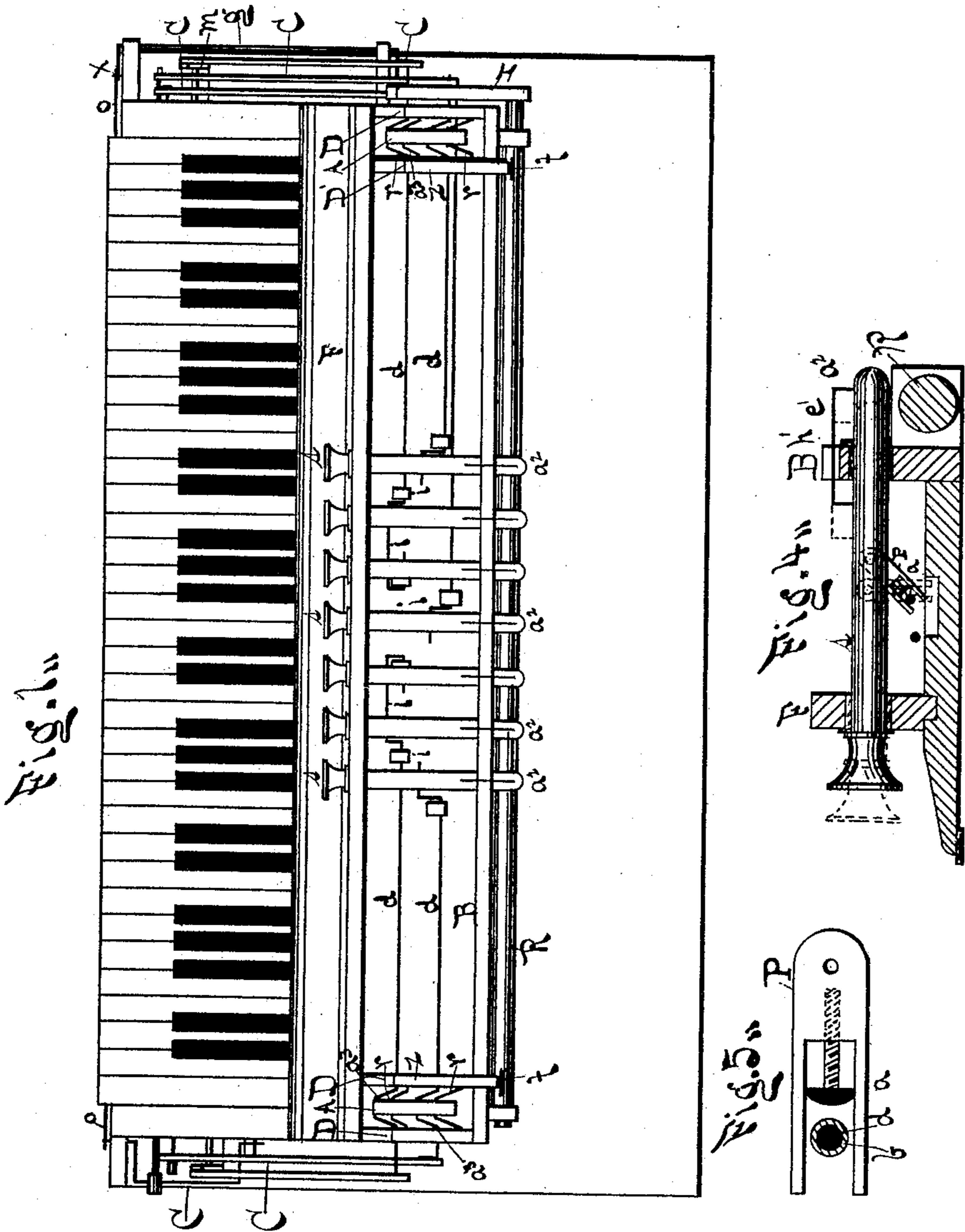
2 Sheets—Sheet 1.

J. A. WARREN.

REED ORGAN STOP ACTION.

No. 322,509.

Patented July 21, 1885.



Witnesses:

W. Pell Pulis  
Geo G. Doyle

Inventor:

Joseph A. Warren  
By  
Rosen B. Wheeler  
att'y

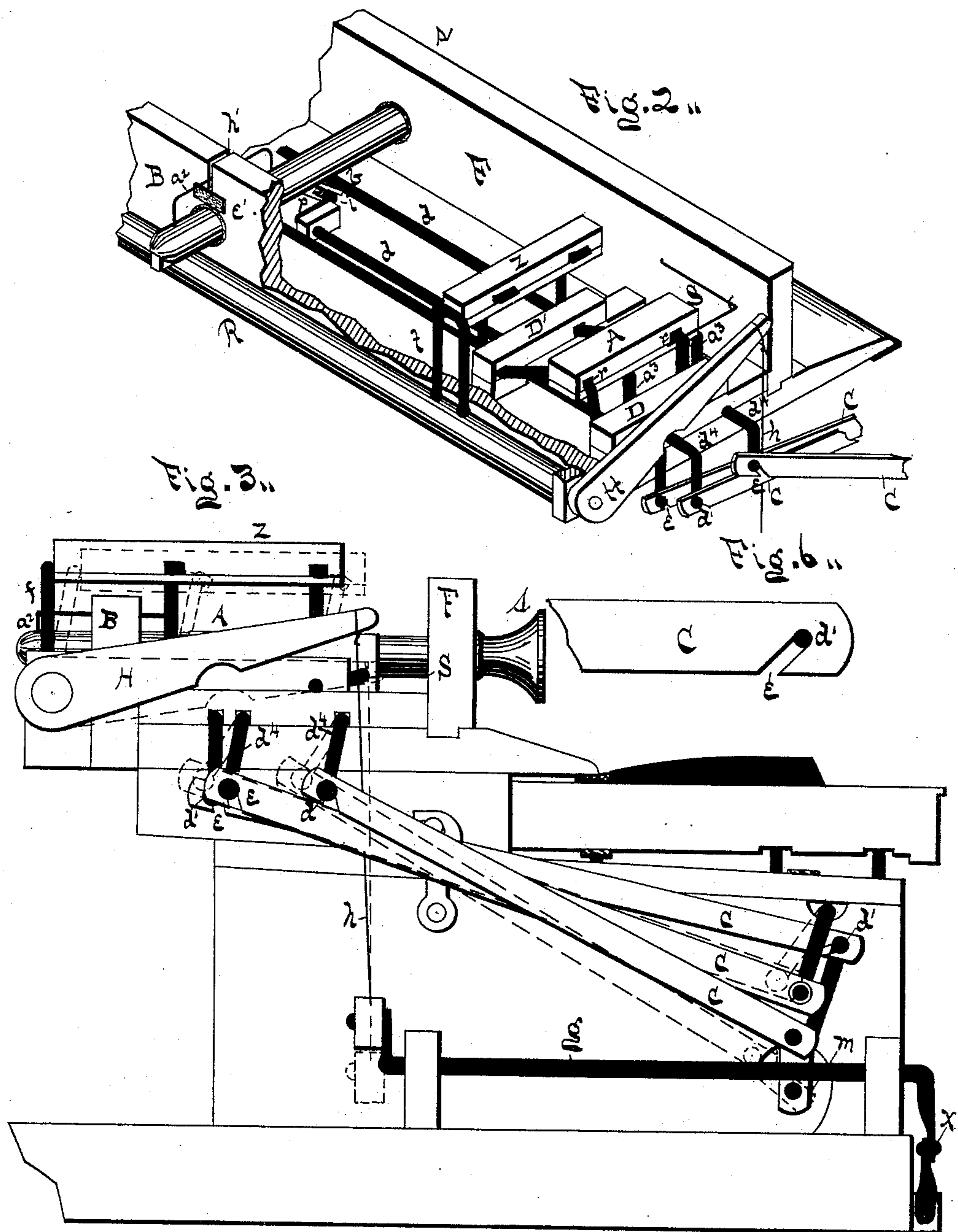
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# UNITED STATES PATENT OFFICE.

JOSEPH A. WARREN, OF DETROIT, MICHIGAN.

## REED-ORGAN STOP-ACTION.

SPECIFICATION forming part of Letters Patent No. 322,509, dated July 21, 1885.

Application filed November 1, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH A. WARREN, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Stop-Action Mechanism for Reed-Organs; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

The object of my present invention is to provide suitable means for operating the mutes or valves of a reed-organ that shall be uniform in its movements with as little resistance as possible. All movements being upon pivots, friction of parts is overcome; and my invention consists in the construction of parts for operating simultaneously the mutes or valves of a reed-organ; also in providing the pivoted pawls with an adjustable bearing, whereby the degree of action had upon the mutes may be adjusted readily and to any desired point; also in the manner of attaching the reciprocating bars to the crank-rods of the instrument by providing said bars with a hooked end, all of which will be hereinafter set forth.

In the drawings, forming a part of this specification, Figure 1 is a top plan of an instrument embodying my invention. Fig. 2 is an enlarged isometrical view of the same having portions broken away. Fig. 3 is an enlarged end elevation of Fig. 1. Figs. 4, 5, and 6 are enlarged details of the instrument embodying my invention.

In the drawings, F is the front and B the back boards, through which the stop-draws *s* have reciprocating movement, which is common, as are also the pawls P, pivoted to said stop-draws. *d d* represent a series of crank-rods, which are connected with the pawls to the stop-draws, and by the reciprocating bars C C to the valves or mutes *m* of the instrument, which are also common. Said parts are shown in duplicate in Fig. 1, and in order to operate the sections simultaneously by means of the knee-action *o* at the front of the instrument, I employ the double-cranked rods

*r r*, which are pivoted in bearings or boxes, D D'. Between said boxes the rods are bent upward, forming cranks. Carried by said cranks and mounted pivotally upon the same is the pressing bar or bars A A. (See Figs. 1 and 2.) The left-hand portion, or inner part of the rods *r r*, is bent upward, then horizontally extending over the bar D', passing through, being pivoted to and supporting at an elevation the operating bar or bars *z z*.

Pivoted in the rear of the instrument is a shaft, R, which is provided with two upward-projecting loops or arms *f f*. (See Figs. 1, 2, and 3.) Said arms have a bearing against the ends of the bars *z z*.

To the outer end of the shaft R, I attach rigidly the lever H, to the free end of which I secure the wire or rod *h*, which is connected to the crank of the transverse shaft *g*. The opposite end of said shaft is also attached to the knee-operating rod O, being jointed at *x*. The two series of rods *d d d d* are provided with cranks *i*, which are operated by the pivoted pawls P of the stop-draws *s*. (See Figs. 1, 2, and 4.) Said rods extend under the pressing-bars A A, and are bent upward in the form of a loop, meeting said pressure-bars and standing on an angle or slanting forward, as shown at *a<sup>3</sup> a<sup>3</sup>* of Figs. 1 and 2, thus forming crank-bearings to the pressure-bars A A.

Attached to the front board F is a torsion-spring, S, the free end of which engages with one of the crank-wires *r*, as a means for elevating the pressure-bar A to the position of Fig. 2.

It will be observed from the foregoing that as the knee-rod O is operated the shaft *g* is caused to rock, pulling down the lever H by means of the wire *h*, rocking the shaft R forward, forcing the arms *f f* against the operating-bars *z z*, thus turning the crank-rods *r r* down, forcing the pressing-bars A A down upon the crank-portions *a<sup>3</sup> a<sup>3</sup>* of the series of rods, *d d d d*, causing the same to turn, thus forcing the crank portion *d<sup>1</sup> d<sup>1</sup>* of said rods back, drawing up the reciprocating bars C C, opening simultaneously the valves or mutes *m*, which movements are clearly shown in dotted lines of Fig. 3.

The outer ends of the crank-rods *d d* are provided with a head or washer, *d'*, (see Figs. 3 and 6,) to prevent the bar C from working

off; and as a means for ready attachment at this point I cut or form the slot  $\sigma$  on the under edge of the bar C, as shown in Fig. 6, the slot being sufficiently large to receive the body of the rods  $d$  and not allow the head  $d'$  to pass through, the bar being attached by simply hooking over the rod. This furnishes a cheap and simple attachment. The mutes or valves are also operated by the stop-draws  $s$ , to which are pivoted the pawls P. (See Figs. 2, 4 and 5.)

Within the fork of the pawls I secure a set-screw,  $a$ , which is screwed into the upper portion of the pawl, the head bearing against the rod  $d$ . (See Figs. 4 and 5.) When the stop-draw is drawn forward, as shown by dotted lines of Fig. 4, the crank-portion  $i$  of the rod  $d$  is forced down, turning the rod which opens the valve by the pressure of the set-screw  $a$  upon the rod.

It will be observed by this construction that the opening of the mutes may be decreased by forcing the set-screw  $a$  inward, and the opening of the mutes increased by extending the screw outward, and may be adjusted to a very fine degree. I design using the set-screw  $a$  with a leather or flexible head; or in using a metal-headed screw I cover the rod  $d$  with a rubber ring,  $b$ , where the screw has its bearing, as shown in Fig. 5. The number of rods  $d$  may be increased according to the requirements of the instrument to be constructed, and will operate in the same manner as the ones herein described and by the same mechanism for operating simultaneously the parts.

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

1. The stop-draws connected to the crank-rods by means of the pawls, pivotally attached

to said stop-draws and fitting over the crank-rods, the fork of said pawls provided with adjustable bearings, for the purposes set forth.

2. The stop-draws connected to the cranks of the crank-rods by the forked pivoted pawls fitting over said rods and the rubber ring  $b$ , said pawls provided with the adjusting-screws, as and for the purposes set forth.

3. The crank-rods provided with the heads or washers  $d' d'$ , connected to the mutes by the reciprocating bars, having the hooked recess portion  $e$  cut from the under edge extending upward at an angle to the edges of said bars, forming a hook, substantially as set forth.

4. In a reed-organ, the combination of a series of crank-rods having the loop-cranks  $a^3 a^3$ , the double crank-rods  $r r$ , pivoted within suitable bearings, said rods pivoted to and supporting at an elevation the pressing-bars  $A A$  and the operating-bars  $z z$  of the shaft  $R$ , its arms engaging with the bars  $z z$ , the lever  $H$ , connected to the knee-action by the means, substantially as set forth.

5. In a reed-organ, the combination of a series of crank-rods having the cranks  $i d'$  and loop-cranks  $a^3$ , formed integral therewith, the pair of double crank-rods  $r r$ , pivoted within bearings, said double crank-rods pivoted to and supporting movably the pressing-bars  $A A$  and operating bars  $z z$ , with the mechanism, substantially as set forth, for operating simultaneously said parts in duplicate, for the purposes specified.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH A. WARREN.

Witnesses:

R. B. WHEELER,  
JNO. G. DOYLE.