(No Model.)

L. MASON & G. B. KELLY.

SWELL ACTION FOR REED ORGANS.

No. 260,214. Patented June 27, 1882.

Fig. 1.

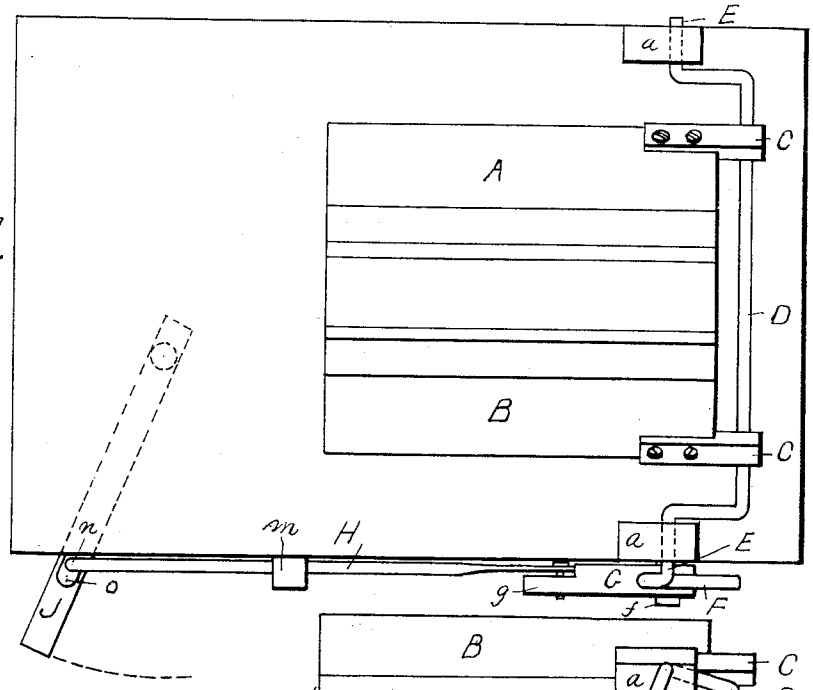


Fig. 2.

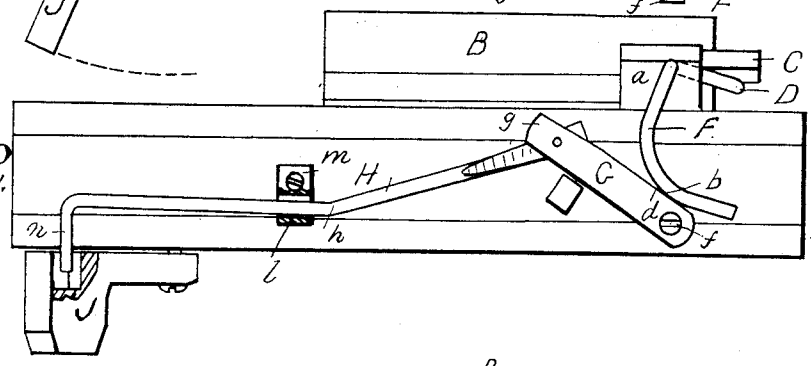


Fig. 3.

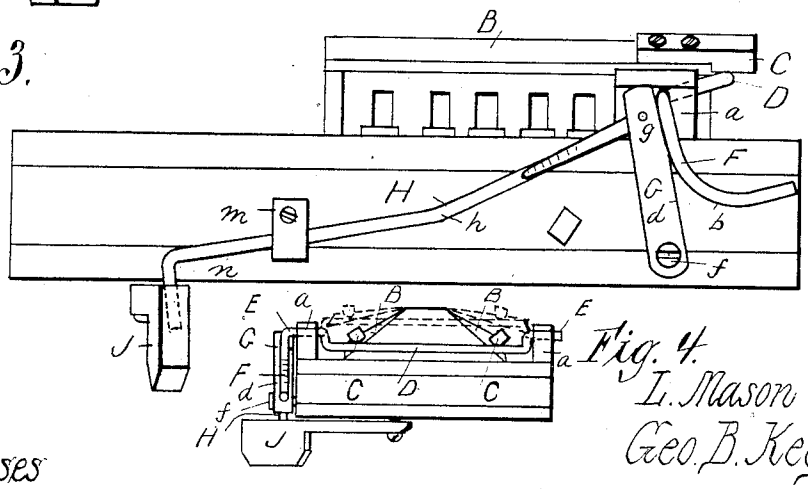


Fig. 4.

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UNITED STATES PATENT OFFICE.

LOWELL MASON, OF ORANGE, NEW JERSEY, AND GEORGE B. KELLY, OF BOSTON, MASSACHUSETTS, ASSIGNORS TO THE MASON & HAMLIN ORGAN COMPANY, OF BOSTON, MASSACHUSETTS.

SWELL-ACTION FOR REED-ORGANS.

SPECIFICATION forming part of Letters Patent No. 260,214, dated June 27, 1882.

Application filed January 12, 1882. (No model.)

To all whom it may concern:

Be it known that we, LOWELL MASON and GEORGE B. KELLY, respectively of Orange and Boston, in the counties of Essex and Suffolk, and States of New Jersey and Massachusetts, have invented certain new and useful Improvements in Swell-Actions for Reed-Organs, of which the following is a full, clear, and exact description.

This invention relates to mechanism for the operation of the swell board or lid of reed-organs; and it consists in novel combinations and arrangements of parts, which will be fully hereinafter described in detail, and pointed out in the claims, the object being to provide efficient means for operating the swell boards or lids.

In the accompanying plate of drawings, Figure 1 is a plan view, illustrating two swell boards or lids closed and arranged to be opened and to close in accordance with this invention. Fig. 2 is an elevation in and along the length of one of the swell boards or lids in its closed position. Fig. 3 is a similar elevation to Fig. 2, but with the swell-board opened. Fig. 4 is an elevation, on a reduced scale, at one end of the swell boards or lids when closed, and showing them as opened and their lifting-rod in dotted lines.

In the drawings, A and B represent two swell boards or lids of a reed-organ, each arranged to open against a spring and to close with the reaction of such spring, all as well known.

C is an arm secured to and projecting one from one end of each of the swell-boards A B. These arms, with the swell-boards closed and opened, both rest upon a common horizontal rod, D, which crosses them at right angles, and has at its opposite ends similar crank-arms, E, each arranged to turn in a stationary bearing-block, *a*. This horizontal rod D in cross-section preferably is round, and each of the swell-board arms in its part resting and bearing upon it has a rounding and convex face. The double crank-rod D at one end terminates in a crank or cam arm or lever, F, which in its length is in the arc or sweep of a circle running from the axis of rotation of the cranks E in their bearing-blocks *a* in an opposite direction to the projection of said cranks E therefrom. This crank or cam arm or lever F—or as it will be hereinafter designated for convenience of reference, cam-sweep or cam-lever—rests and bears by its convex edge or face *b* against the straight edge *d* of a lever, G, arranged to turn upon a fixed fulcrum, *f*, and in so turning to swing in a vertical plane. The fulcrum of the straight lever G is at one end thereof, and the cam sweep or lever F bears, as aforesaid, on said lever between its fulcrum *f* and its end *g*, and by this end it is hung to one end of a rod, H, that is connected at its other end to a knee-lever, J, or other operating lever or device for the swell boards or lids A B.

The knee-lever is arranged in the ordinary manner of similar knee-levers in reed-organs.

The connecting-rod H, which between its two ends and at *h* has a bend in its length, plays through the guide-opening *l* in a stationary block, *m*. The connecting-rod H, at its end *n* connected to the knee-lever J, is bent at right angles and arranged to move vertically in and out of a socket, *o*, in the upper edge of the knee-lever.

With the arrangement of parts above described the swing of the knee-lever J toward the vertical swinging lever G, to which it is connected through the rod H, swings said lever in an upward direction and toward and against the cam sweep or lever F, and under such a movement of the straight lever G said cam sweep or lever is caused to roll upon the edge *d* thereof, and in so rolling the rest and double crank-rod D for the swell-boards A B is made to turn in its bearing-blocks *a*, and in a direction to lift by the rest of the arms C of the swell-boards thereon said boards against their respective springs, and thus the swell-boards are opened.

On a release of the knee-lever it and all the connecting parts between it and the swell-boards are returned to their respective normal positions by the then reaction of the springs of the swell-boards—that is, the swell-boards are closed, and by the turning of the double crank-rod in its bearing-blocks the cam sweep or lever F is made again to roll upon and along the lever G, but in an opposite direction, and thus such lever is forced to its position of rest,

carrying with it the knee-lever, all as is obvious without further description.

The rolling of the cam sweep or lever F upon the vertical lever G and the combination and arrangement of them described are important for this reason, among others, that it gives a slow and easy opening movement to the swell-boards on the start and an after increase of speed in such movement, and thereby secures a gradual increase in the volume of sound, instead of an abrupt increase, as heretofore.

The curvature of the cam sweep or lever F herein described may be upon the vertical lever G and said cam-lever F made straight; and, again, both cam sweep or lever F and lever G may have a curve or sweep in and along their respective lengths, which in each may be at its bearing-face, either convex in both or concave in the one and convex in the other, and yet secure a roll between the two parts, either of one upon the other or of both upon each other, as they move in the opening and closing movements of the swell-boards. The construction and arrangement of parts particularly described, and shown in the drawings, however, have been found to secure the results and effects desired, and in a most satisfactory manner.

The arrangement of the rod H connecting the knee-lever J with the vertical lever G herein described prevents strain upon such rod and its connections in the movement of the knee-lever to open the swell-boards and in the movements of the parts under the closing of the swell.

As shown and described, two swell-boards are arranged to be operated from one knee-lever; but obviously the operation of the parts would be the same if only one or more than two swell-boards were similarly arranged.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In combination with one or more swell-boards of a reed-organ, a crank-rod, D, having a convex lever-arm, F, and a lever, G, connected by a rod, H, to an operating-lever or other device for opening the swell board or boards, substantially as described.

2. In combination with one or more swell-boards of a reed-organ, a crank-rod, D, having convex lever-arm F, and a lever, G, connected by a rod, H, to a knee-lever, J, for opening the swell board or boards, substantially as described.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

LOWELL MASON.
GEO. B. KELLY.

Witnesses:
JAMES HOLLYER,
CHAS. E. BROCKINGTON,
EDWIN W. BROWN,
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