G. B. KELLY & E. L. RAND.

REED-ORGAN STOP-ACTIONS.

No. 186,848. Patented Jan. 30, 1877.

FIG. 1.

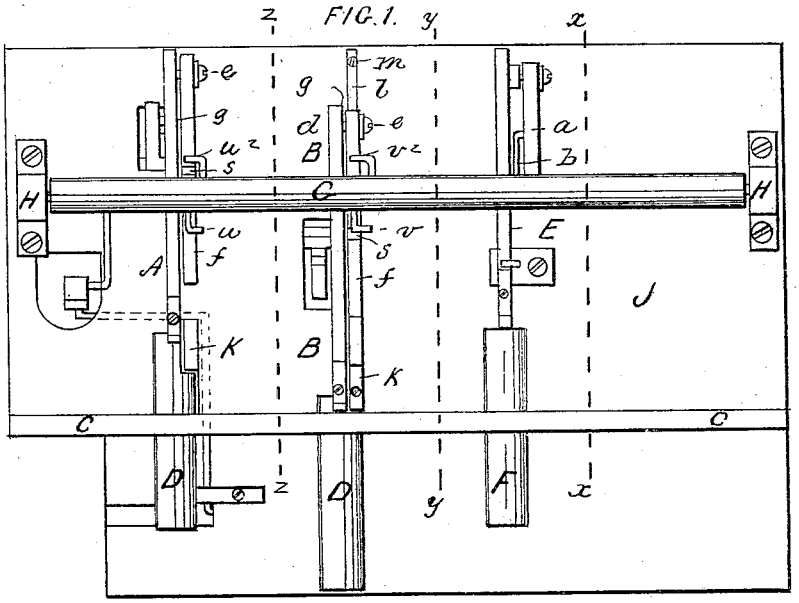


FIG. 2.

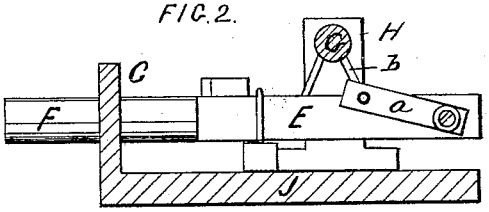


FIG. 3.

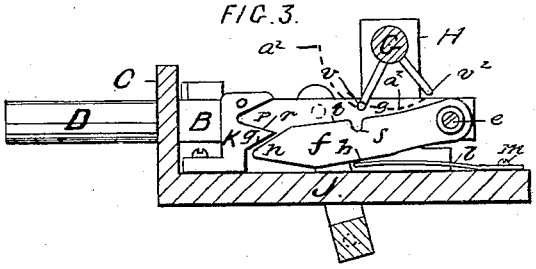


FIG. 4.

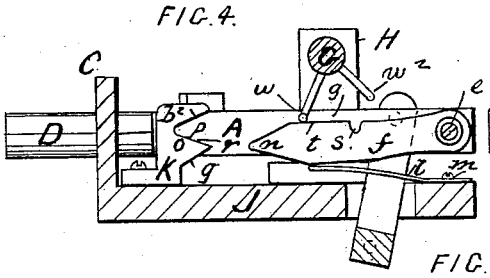


FIG. 5.

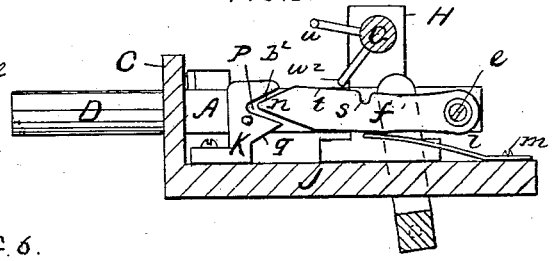
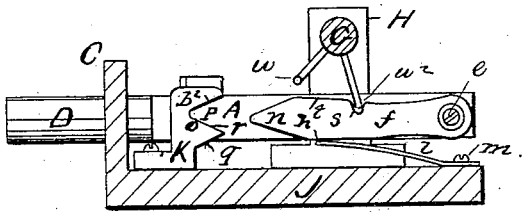


FIG. 6.



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UNITED STATES PATENT OFFICE.

GEORGE B. KELLY AND EDWARD L. RAND, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN REED-ORGAN STOP-ACTIONS.

Specification forming part of Letters Patent No. **186,848**, dated January 30, 1877; application filed September 14, 1876.

To all whom it may concern:

Be it known that we, GEORGE B. KELLY and EDWARD L. RAND, both of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Organs, of which the following is a specification:

This invention relates more particularly to reed-organs, although it is applicable to all organs, and it pertains to the full-organ stop, so called. Its main purpose is to connect the full-organ stop, and the other stops which make up the full organ, so that all stops of the organ which were drawn out before the full-organ stop is drawn out will be left undisturbed, or still out when the full-organ stop is pushed in; and, as will appear from the description hereinafter given, this is accomplished in a most simple, efficient, and practical manner.

In the accompanying plate of drawings, Figure 1 is a plan view, showing our improved connection between a full-organ stop and two stops of the organ, for the purpose above stated; Figs. 2, 3, and 4, tranverse vertical sections on lines *x x*, *y y*, and *z z*, respectively; Figs. 5 and 6, transverse sections to illustrate the operation of our improved connection, and hereinafter more particularly referred to.

In the drawings, A and B represent two stops of an organ, and each stop projects from the face or stop-board C, and has a handle or knob, D, and, except as to the present improvement, is constructed, arranged, connected, and operates all as ordinarily in organs, and therefore, as to such construction, arrangement, connection, and operation, needs no particular description or illustration herein.

E the full-organ stop draw. This stop or stop-draw E has a handle, F, and projects from the stop-board C, and is arranged to be drawn out and pushed in, all as ordinarily. *a*, a link at one end pivoted to inner end of full-organ stop, and at its other end hung to a crank-arm, *b*, of a horizontal shaft, G, which is arranged above and crosses the line of travel of the stops A and B, and turns in suitable supports or posts H of the organ frame-work J. Pulling out and pushing in the full-organ stop E reciprocally rotates, through the link and crank connections above described, the shaft G in its supports H, and such rotation operates or affects the stops A and B, as is now to be described. On a fixed pivot, *e*, at the inner part *d* of each stop A and B, is hung an arm, *f*, which lies against the upright side *g* of the stop, and extends forward from said pivot *e* toward the stop-board C, resting by its lower edge *h* on a bent spring, *l*, fastened at *m* to the organ frame-work J, and otherwise adapted to press up said arm *f*, and to allow of its depression, as hereinafter described.

The forward end of each arm *f* is pointed, as at *n*, and forward of such pointed end *n*, and in line with it and the arm *f*, is a stationary upright block, K, which has in its face *o*, toward the arm *f*, a V-shaped opening, *p*, which is suitably situated for the said pointed end *n*, either to enter it or to pass below it and along the edge *g*, which declines from the outer end of the lower leg or edge *r* of said V-opening *p*, when the stop carrying the arm *f* is moved toward its said block K, as will hereinafter be described. *s*, a notch in upper edge *t* of each arm *f* of the stops A and B; *u* u^2 *v* v^2, radial arms or levers on shaft G.

These radial levers are arranged in pairs *u* u^2 and *v* v^2, with the two arms of each pair at an angle to each other, and located on the shaft to work solely in connection with a single stop of the organ—as, for instance, see the pair *u* u^2 for the stop A, and the pair *v* v^2 for the stop B.

When the full-organ stop E and the stops A and B are all in, each arm of the radial levers *u* u^2 and *v* v^2 will be in line with the other; and each pair of levers will be situated relatively to the edge *t* and notch *s* of the pivoted arms *f* on the stops A and B, so that the levers u^2 and v^2 of each pair will fall back of the notch *s*, and out of contact with the arms *f*, while the arms *u* and *v* will maintain their bearing on and depress the arms *f*, keeping the pointed ends of said arms under the incline *g* of the blocks *k*, and forcing them against the springs *l*, out of the plane of rotation of both levers of the stops A and B, as shown in Fig. 3, when the shaft G is rotated by operating the full-organ stop

E; and, second, the levers u^2 and v^2 of each pair $u\ u^2\ v\ v^2$ (by the rotation of the shaft G on pulling out the full-organ stop E) enter and interlock with the notch *s* in the arms *f* of said stops A and B. This interlock is maintained by the springs *l*, so that said stops A and B will be carried forward and opened, and the pointed ends of the stop-arms *f* directed and entered into the V-shaped openings *p* of the blocks K, and therein made to rest against the upper leg or decline of the V-shaped openings *p*, Fig. 5.

In this open position of the stops A and B, from the movement of the full-organ stop E, sufficient throw is allowed to the stop E for clearing its levers $u^2\ v^2$ from the notches *s*, so that the stops A and B will be free to be operated of themselves, if so desired, and without disturbance to the outstanding full-organ stop E; and, as said stops are thus pulled out and pushed in, the levers $u^2\ v^2$ hold the arms *f* from any upward movement under the force of the springs.

With the stops A and B opened from pulling out the full-organ stop E, as above described, they may be closed, either by pushing them in separately by hand, or by pulling them in through pushing in the stop E. If by the latter mode, then the inward movement of the stops A and B is caused by the interlock of the levers $u^2\ v^2$ with the notches *s*, and the rotation of the shaft G from the pushing in the stop E, and in such case the inward push of the stop E should be carried to a suitable distance to put the levers $u^2\ v^2$ out of interlock, and bring the levers *u v* to the rest on the stop-arms *f*, hereinbefore described, and shown more particularly in Fig. 4.

Either stop A or B may be pushed in when the full-organ stop is out, and without the least hinderance to an after pushing of the stop E, and without the least effect on the relative positions herein stated between the stops A and B and their levers $u\ u^2\ v\ v^2$, when the stops A and B and full organ-stop E are in.

If either stop A or B, or both, are out, and if then the full-organ stop E be pulled out and pushed in, as has been described, the position of the stop A or B, or both, as the case may be, will not be, in the least degree, affected or changed by either of said movements of the full-organ stop E. (See more particularly Fig. 3.) This obviously enables a combination of drawn stops, existing before the full-organ stop E is opened, to be established again by simply closing such stop E, provided, of course, that all the stops in such combination are provided with the means and connections which have been hereinbefore particularly described for the stops A and B.

All necessary parts of the arrangement herein described are cushioned and covered with leather, to prevent noise, &c., as ordinarily; and, again, the shaft G and the stops A and B may be adapted in the ordinary manner, to be operated from the knee or foot instead of in the way herein described.

Fig. 6 shows the interlock by which the rotation of the shaft G is made to push out and pull in an organ-stop.

In lieu of the V-shaped opening in post K, with the rest b^2, a rest can be placed on the stops A and B in proper position to prevent the arm *f* from rising too high, and, consequently, interfere with the free movement of the stop when the full-organ stop is pushed in or pulled out, but the under decline or rest *q* for the said arm *f* is important, as is obvious from the description given.

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

1. The combination, with the draw-stop of an organ, of the pivoted spring-arm *f* and the post K, having a rest, *q*, the whole constructed and arranged substantially as and for the object specified.

2. The combination of the shaft G, having one or more pairs of levers, $u\ u^2$, the pivoted arms *f*, and the fixed rest *q*, the whole being constructed and arranged and interposed between the stops of an organ, as and for the object specified.

3. The combination, with an organ-stop, of the rest *b* and the pivoted spring-arm *f*, the whole constructed and arranged as and for the purpose set forth.

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EDWARD L. RAND.

Witnesses:
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