(No Model.)

G. B. KELLY.

REED ORGAN STOP ACTION.

No. 260,689. Patented July 4, 1882.

FIG. 1.

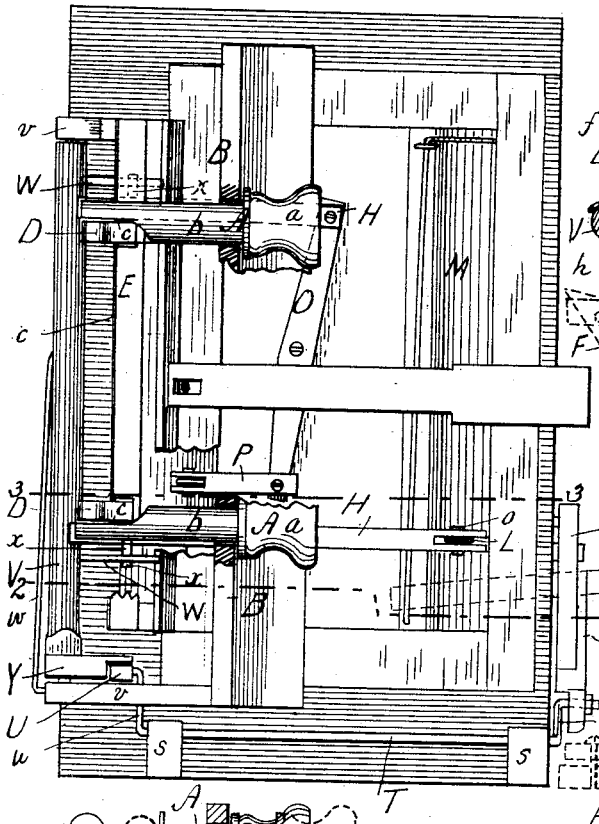


FIG. 3.

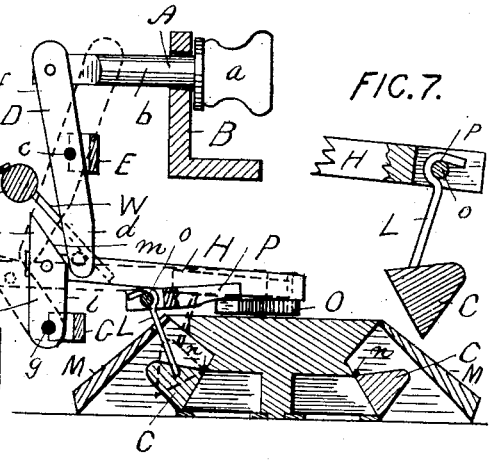


FIG. 7.

FIG. 2.

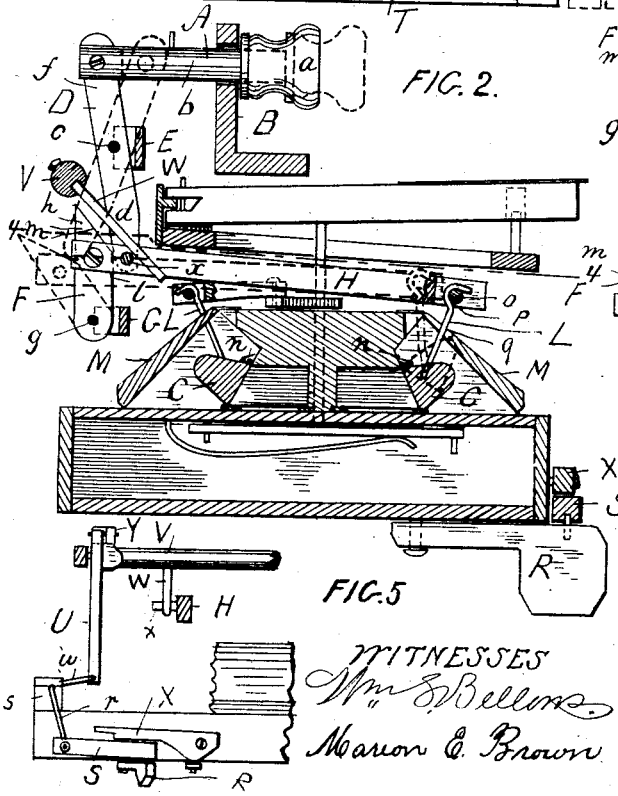


FIG. 4.

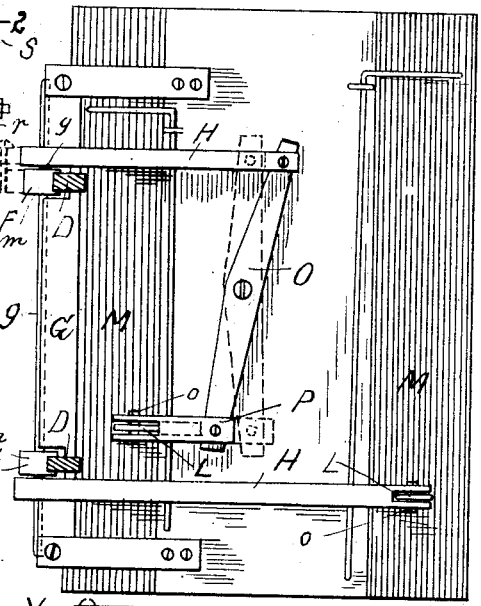
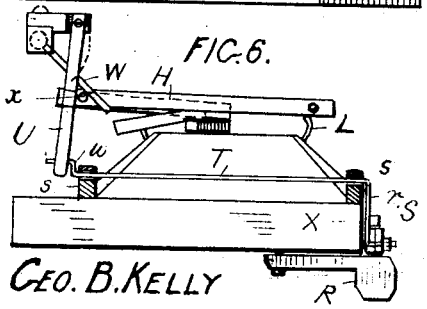


FIG. 5

FIG. 6.



WITNESSES

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UNITED STATES PATENT OFFICE.

GEORGE B. KELLY, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE MASON & HAMLIN ORGAN COMPANY, OF SAME PLACE.

REED-ORGAN STOP-ACTION.

SPECIFICATION forming part of Letters Patent No. 260,689, dated July 4, 1882.

Application filed December 16, 1881. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. KELLY, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Stop-Actions for Reed-Organs, of which the following is a full, clear, and exact description.

This invention consists of mechanism connected in one part to the stop-knob and in the other part to the valve or mute of the stop or swell; also, of mechanism constructed and arranged to operate simultaneously a series of valves to organ stops or swells, and of other features, as will hereinafter fully appear.

In the accompanying plate of drawings, Figure 1 is a plan view. Fig. 2 is a transverse vertical section on line 2 2, Fig. 1. Fig. 3 is a transverse vertical section on line 3 3, Fig. 1. Fig. 4 is a horizontal section on line 4 4, Fig. 2. Fig. 5 is a front view. Fig. 6 is a side view of the mechanism to operate simultaneously a series of valves to organ-stops. Fig. 7 is a view in detail of the arm directly connected to the valve of the organ-stop.

In the drawings, A represents an organ-stop, (two being shown,) consisting of a knob, *a*, and a shank or bar, *b*, arranged to move through the name-board B, against which the knob *a* rests when the valve or mute C to the stop is closed, all as usual. The stop-shank *b* inside of the name-board B is pivoted to the upper end of a vertical lever, D, of the first order, which has its fulcrum upon a horizontal rod, *c*, arranged to act as such fulcrum to levers D for a series of stops A, and secured in position to a fixed horizontal rail, E, crossing at right angles the line of movement of the stop-shank *b* through the name-board B. In either position of the organ-stop—that is, either in its position when the valve to the stop is closed or in its position when the valve to the stop is opened—the lever D at rest is at an angle of inclination to the line of movement of the stop-rod, and when the stop is closed the portion *d* of the lever below its fulcrum is forward of the portion *f* of the lever above the fulcrum, and vice versa when the stop is opened.

F is a vertical lever of the second order, turning at its lower end upon a fulcrum-rod, *g*, arranged horizontally and in position to act as such fulcrum for a series of levers, F. The fulcrum-rod *g* is secured to a fixed horizontal rail, G, below the rail E. The upper and free portion *h* of the lever F is back of the lower arm, *d*, of the stop-lever D, and in the vertical plane thereof, and the front edge, *l*, of this portion of the lower or rear lever, F, has an incline, *m*, which meets the rear edge of the stop-lever D at an angle of inclination to its length, and otherwise is situated and of a direction that the stop-lever D, in both of its movements to open and close the valve C, will ride upon, and when the valve is opened will have a rest by its lower end upon, such inclined face *m* of the lower lever, F, and in the latter instance in a downward direction, thereby confining the lower lever, F, against movement under the return action of the spring *n* to the stop-valve C to close such valve, as will hereinafter more fully appear.

The stop-valve C is connected to the lower lever, F, and in the drawings are shown two arrangements of such connecting mechanisms. One arrangement of such mechanism consists of a horizontal pitman-rod, H, hung at one end directly to the lever F, and at the other end by a cross wooden pin, *o*, in the hook or eye *p* at the upper end of a vertical rod, L, fastened at its lower end to the stop-valve, and passing for such connection through a slotted opening, *q*, of the swell valve or lid M for the reeds of such stop, this slotted opening having the proper direction to permit of the movement of the rod L in the operations of opening and closing the stop-valve, as will hereinafter appear. In the other arrangement, shown in connection with another stop-valve C, the pitman-rod H is connected to a horizontal lever, O, of the first order, and of a direction crossing that of the pitman-rod H, and this lever O in turn is connected to one end of a horizontal pitman-rod, P, running more or less parallel to the pitman-rod H, before described, and hung at its other end to the upright rod L of the stop-valve C, as explained for the first arrangement of connecting mechanism.

The valves to the stops are opened by pulling upon their respective knobs, and under this pull the lever connected to the shank of the knob works against the lever connected to the valve, and, swinging it upon its fulcrum, causes, through the mechanism above de-

scribed as connecting it with the valve, the opening of such valve, when by the then rest or bearing of the lower end of the stop-lever D upon the incline face of the valve-lever F the valve is maintained in its open position against the tendency of the valve-spring *n* to close it.

The valves to the stops are closed by the action of their respective springs *n*, and for such action to occur it is only necessary to push upon the stop-knob sufficiently to remove the stop-lever D from its rest upon the incline of the valve-lever F, as is obvious without further explanation.

Obviously the arrangement of mechanism herein described for opening and closing the stop-valves to reeds may be used as well for swell valves or lids.

In addition to the above-described mechanism for opening a stop-valve each in a separate and distinct manner, mechanism, to be now described, is provided, through which a series of stop-valves may be opened simultaneously and by operating one stop only. This mechanism, as illustrated, is operated through a lever, R, located in a position to be conveniently worked by the knee of the player. This lever R is under the organ body or case, and it is connected by a horizontal pitman-rod, S, to the lower end of the downward-projecting lever-arm *r* at the front end of a horizontal rod, T, running from the front to the rear of the organ, and arranged to turn in fulcrum-block *s*, and at its rear end provided with a crank and lever arm, *u*, to which is hung the lower end of a vertical pitman-rod, U, hung at its upper end to the crank-arm Y of a horizontal rocker-shaft, V, arranged to turn at each end in stationary bearings *v*. This rocker-shaft V is back of the stop-levers D, and it has a spring, *w*, applied to it in a manner for the shaft to work in one direction against it and in the other direction with it. The former movement is when the knee-lever is operated to open the stop-valves, and the latter is when the stop-valves are set free to be closed by the reaction of their separate springs *n*. The rocker-shaft V has a projecting radial arm, W, one for each stop intended to be operated through it. These arms all project in the same direction, and this direction is such that in the rock of the rocker-shaft V, under the movement of the knee-lever to open the stop-valves, they will respectively abut against a pin, *x*, which projects horizontally from each of the pitman-rods H connected to the stop-valve levers D, and through such abutment and the continued movement of the knee-lever in the same direction such rods are drawn or moved in the proper direction to open the stop-valves with which they are connected, as described.

The stop-valves, opened as above-described, are held so opened by a button-lever, X, which is arranged in position to be dropped or placed in an abutment against the knee-lever at such time. On a release of this button-lever X from the knee-lever R the knee-lever is returned to its normal position of rest by the reaction of the spring of the rocker-shaft V, which releases the stop-valves to the action of their respective springs to be closed by them.

The arrangement of mechanism above described for operating a series of stop-valves simultaneously in no manner interferes with the operating of the stop-valves separately, as described; and, again, it is such as to operate only upon such of the stop-valves of the series as are closed, and in no manner to affect those valves which are at the time opened.

A rod, C, and also a rod, *g*, each arranged as described, form a most convenient and simple way of suspension, the one, *c*, of a series of stop-levers D and the other, *g*, of a series of valve-levers F.

The wooden pin *o* is secured to the pitman-rod H, extending across an open slot in its end, on which pin is suspended, by its hook end *p*, the arm L of valve, which suspension and bearing render the connection noiseless, easy, and free, while the open slot allows of a ready attachment and detachment of the arm L to the rod H, and is a simple and convenient mode of making the joint, and the hook end of the lever L enables it to be readily attached and detached.

In the operation of the two levers D and F the incline *m* on the lever F may be dispensed with; but it is preferable to have it.

I am aware that it is not broadly new to operate the stop or swell valve of an organ by a sliding pitman connected therewith, and that the mute of an organ has been provided with an eye to engage the hooked end of a rod which is operated by the organ stop-key; but such features are not broadly claimed by me.

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

1. The levers D, connected to organ-stops A, and the levers F, each connected, through a pitman-rod, H, and arm L, to a stop or swell valve, constructed and arranged to operate together substantially as described, whereby when the stop is open the levers D will rest upon levers F at an angle to a straight line between their respective fulcrums, in combination with an abutment, *x*, of the pitman-rods H and arms W of a rocker-shaft, V, which is connected, through a crank-arm, Y, pitman-rod U, lever-arms *r s*, and pitman-rod S, to a knee or stop lever, R, all for operation of the arms W of rocker-shaft V upon the abutments *x* of pitman-rods H, as and for the purpose specified.

2. The combination, with an abutment, *x*, of the pitman-rod H, connected to a stop or swell valve of arms W, of a rocker-shaft, V, which is connected, through a crank-arm, Y, pitman-rod U, lever-arm *r s*, and pitman-rod S, to a knee or stop lever, R, all for an operation of the arms W of rocker-shaft V upon the abutments *x* of pitman-rod H, substantially as described, for the purpose specified.

3. In a reed or other organ, the combination, substantially as herein described, of the hinged

stop or swell valve, provided with an upward-projecting lever-arm, L, having the hooked end *p*, with the sliding pitman-rod H, having its end constructed with an open-ended slot and provided with a pin, *o*, extending across said slot for the ready attachment and detachment of the hooked end of the lever-arm on the stop or swell valve.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

GEORGE B. KELLY.

Witnesses:
EDWIN W. BROWN,
WM. S. BELLOWS.