

(No Model.)

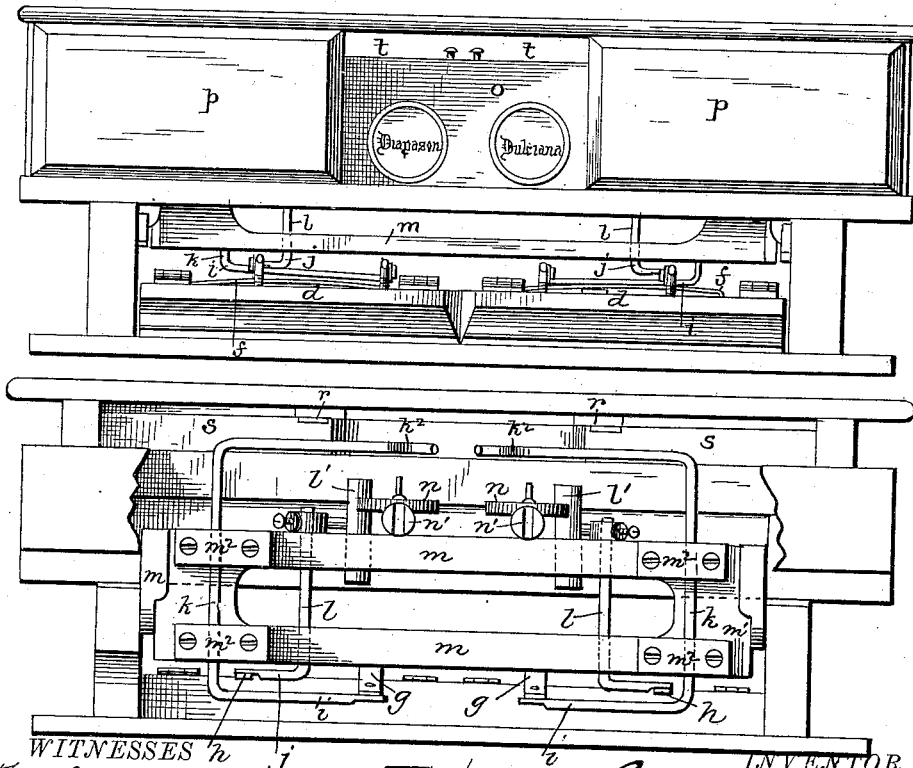
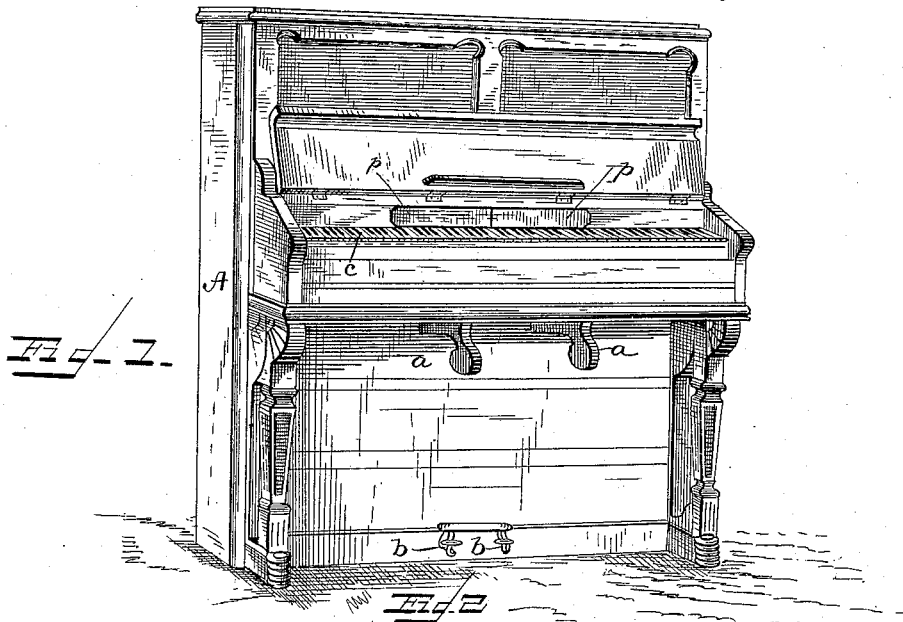
2 Sheets—Sheet 1.

L. G. BILLINGS.

REED ORGAN STOP ACTION.

No. 382,943.

Patented May 15, 1888.



WITNESSES
F. L. Curand
Edwin A. Finckel.

Fig. 2

INVENTOR.

Luther G. Billings.
by W. A. Finckel
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(No Model.)

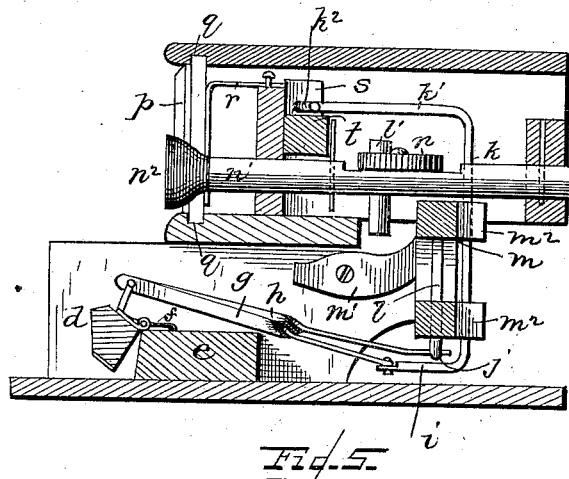
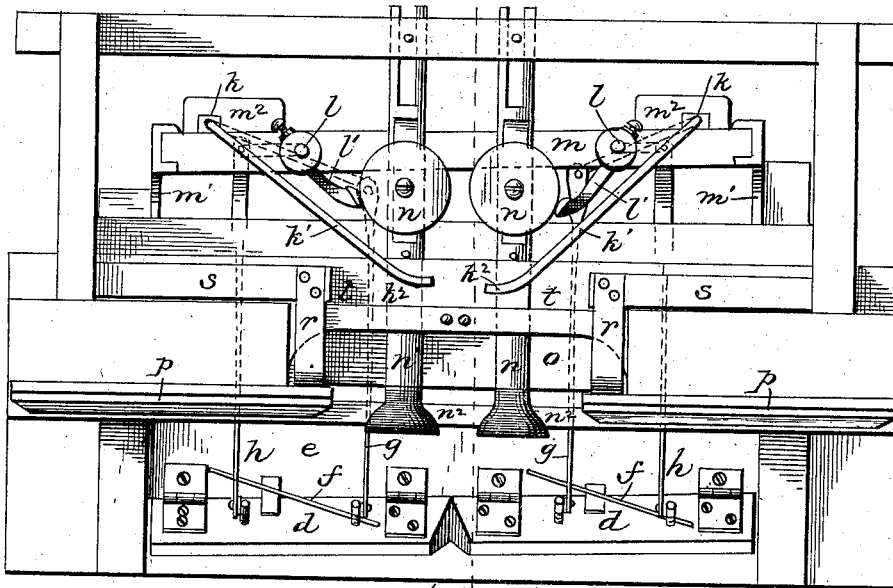
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WITNESSES.

J. L. Ouraud.
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UNITED STATES PATENT OFFICE.

LUTHER G. BILLINGS, OF WASHINGTON, DISTRICT OF COLUMBIA.

REED-ORGAN STOP-ACTION.

SPECIFICATION forming part of Letters Patent No. 382,943, dated May 15, 1888.

Application filed November 4, 1887. Serial No. 254,312. (No model.)

To all whom it may concern:

Be it known that I, LUTHER G. BILLINGS, a citizen of the United States, residing at Washington, in the District of Columbia, have invented a certain new and useful Improvement in Reed-Organs, of which the following is a full, clear, and exact description.

This invention relates to a musical instrument known on the market as the "New Orchestral Piano-Organ," and which has as an essential feature the external appearance of an upright piano with six-octave manual of keys, (more or less,) the case being so fashioned as to obtain this appearance, and pedals in construction and appearance like piano-pedals being substituted for the ordinary carpet-covered flat wooden pedals of an organ, the knee-swells, when used, alone indicating from the outside the real character of the instrument, and which when not in use may be folded back out of sight.

The object of the invention is to further this simulation of a piano by having any desired number of sets of reeds normally open for playing without any stop-knobs appearing, and requiring operation to this end the stop-knobs for specially operating said reeds and for effecting various organ combinations being normally concealed in the case, and being accessible through slides or doors, which in the act of opening automatically cut off the first-named set of reeds, and then leave the organ subject to their re-employment alone by operation of their special stop knob or knobs, or in conjunction with any desired number of other stops or sets of reeds.

The invention consists in a piano organ having this object in view constructed and arranged substantially as I will now proceed to set forth more particularly, and finally specifically claim.

In the accompanying drawings, illustrating my invention, in the several figures of which like parts are similarly designated, Figure 1 is a perspective view with the key-board cover open. Fig. 2 is a front elevation of the stop-action on a larger scale, the remaining figures being on this same scale. Fig. 3 is a rear elevation; Fig. 4, a plan; and Fig. 5 is a cross-section taken in the plane of line *x x*, Fig. 4.

The case A in general outline and finish is

like that of a common upright piano now on the market, without limit as to design or ornamentation. When knee-swells *a a* are used, they may be fashioned to so harmonize with the case as to look like a part of its ornamentation. The pedals *b b*, for operating the bellows, are externally like piano-pedals, and their construction and arrangement, so far as I am aware, are peculiar to the concern manufacturing the instrument, hereinbefore referred to. The key-board *c* is of ordinary design, and the connection of the keys with the reeds may be through actions of ordinary construction.

My invention concerns the mechanism for throwing into and out of action the various stops or sets of reeds to be operated by these keys of the key-board.

For simplicity's sake I have shown a set of reed controllers or mutes in two parts, which are normally open, so as to permit the reeds to respond to the keys of the key-board, and which mutes, in addition, are independently operable by stop-knobs. *d d* are the mutes, hinged, as indicated, to the reed-board *e*, and thereby capable of being given a rising and falling motion. Springs *f f*, applied to these mutes, normally tend to close them. Each mute has applied to it rods *g h*, which in turn are connected to cranked ends *i j* of rock-shafts *k l*, respectively. (See more specially Fig. 3.)

The rock-shafts *l* are supported in a double bar, *m*, which is arranged in brackets *m' m'*, secured to the framing, and the rock-shafts *k* are arranged in bearings *m² m²*, fastened to the bar *m*. The upper ends of the rock-shafts *k* are provided with forwardly-extended arms *k' k'*, terminating in tappets *k² k²*. As presently will appear, these tappet-tipped arms extend within the path of movement of the stop-concealing slides or doors, so that the operation of such slides or doors actuates said arms, and through them the rock-shafts, and through the latter the rods *g*, and so ultimately the mutes, to open or close the said mutes. The upper ends of the rock-shafts *l* are provided with tappets *l' l'*, also extended forwardly and into operative connection with rollers *n* on the rods *n'* of the stop-rods. By pulling out and pushing in the stop-rods the mutes are respectively opened and closed through the action of the

rollers *n* on the tappets *l' l'*, causing said tappets to actuate the rock-shafts *l*, cranks *j*, and rods *h*.

The springs *ff* of the mutes, acting through the rods *g* and *h* and rock-shafts, serve to keep the tappets *k* and *l'* in position to be acted upon by the slides and stop-operating mechanism.

The knobs *n' n'* of the stop rods are arranged in a recess, *o*, in the front of the frame or case just over the key-board. Slides or doors *p p* are arranged to be slid back and forth in ways *q q* in the frame or case to cover and uncover the recess *o*, so as to conceal the stop-knobs and expose them. These slides *p p* in the arrangement shown are connected by brackets *r r* with wiper-blocks *s s*, arranged in guides *t* on the frame or case parallel with the guides or ways *q* to move with the doors *p*.

When the stop-knobs are pulled out from the recess *o*, as shown in Figs. 4, 5, their rollers *n*, acting as cams against the tappets or arms *l' l'*, will operate the rock-shafts *l*, and through them the rods *h*, and open the mutes. Now, if the stop-knobs be pushed back into the recess, the mutes will be closed, and their springs will force the tappets *k' k'* into the path of the wiper-blocks *s*, and if these wiper-blocks then be moved toward each other they will act upon the tappets *k' k'*, and through their arms *k'*, the rock-shafts *k*, and rods *g*, again open the hereinbefore referred to normally-open set or sets of reeds to permit playing.

It will be understood that the recess *o* may contain any number of stop-knobs necessary to operate the several stops employed in the instrument. Each stop will be connected with its action in any ordinary manner; but it is only necessary that a single full set of reeds be coupled up with its stop-knob and the doors, as set forth, because all the stop-knobs have to be pushed into the recess before the doors can be closed.

Having determined what set or sets of reeds it is desired to have normally open when the stop-knob-concealing doors are closed, and having coupled their stop action or actions with the door-action, as set forth, any additional number of stops (using that term technically) may be introduced into the instrument to give desired stop-combinations. In the example shown the diapason and dulciana are the normally-open stops, the stop-knobs of which are coupled for the before-described duplex operation.

What I claim is—

1. Stop-operating mechanism of ordinary construction having its stop-knob arranged in a recess or inclosure, combined with a secondary operating mechanism coupled therewith and controlling access to said recess or inclosure, substantially as described.

2. Stop-operating mechanism of ordinary construction having its stop-knobs arranged in a recess, combined with secondary stop-operating mechanism coupled with and operated by doors or slides for such recess, substantially as described.

3. An ordinary stop-operating mechanism having its knobs arranged in a recess along with the knobs of any desired number of other stops, combined with a secondary stop-operating mechanism comprising doors to close said recess when all the stop-knobs are withdrawn therein, so as to render all the stops or reeds inoperative, rods connected to any desired stop-action, and rock-shafts and tappets thereon co-operating with said rods and doors, substantially as described.

4. The spring-closed mutes and an ordinary stop mechanism connected therewith, and having its stop-knobs arranged in an inclosure, combined with a secondary operating mechanism, including the doors or covers of said inclosure for opening the mutes after the stop mechanism is closed and rendered operable only upon the closing of the stop mechanism, substantially as described.

5. The combination, with the mutes and their springs, and ordinary stop mechanism connected therewith and arranged in a recess wherein it may be concealed, of a secondary operating mechanism comprising connections with the mutes, doors for the recess, and interposed mechanism for closing and opening the mutes, respectively, by the opening and closing of the said doors, substantially as described.

6. The doors *p* and co-operating wiper-blocks *s*, tappet-armed rock-shafts *k*, rods *g*, and spring-mutes, combined with ordinary stops, the stop-knobs of which are arranged in a recess with which the doors co-operate, substantially as described.

In testimony whereof I have hereunto set my hand this 24th day of October, A. D. 1887.

LUTHER G. BILLINGS.

Witnesses:

EDWIN A. FINCKEL,
JAMES H. GRIDLEY.