

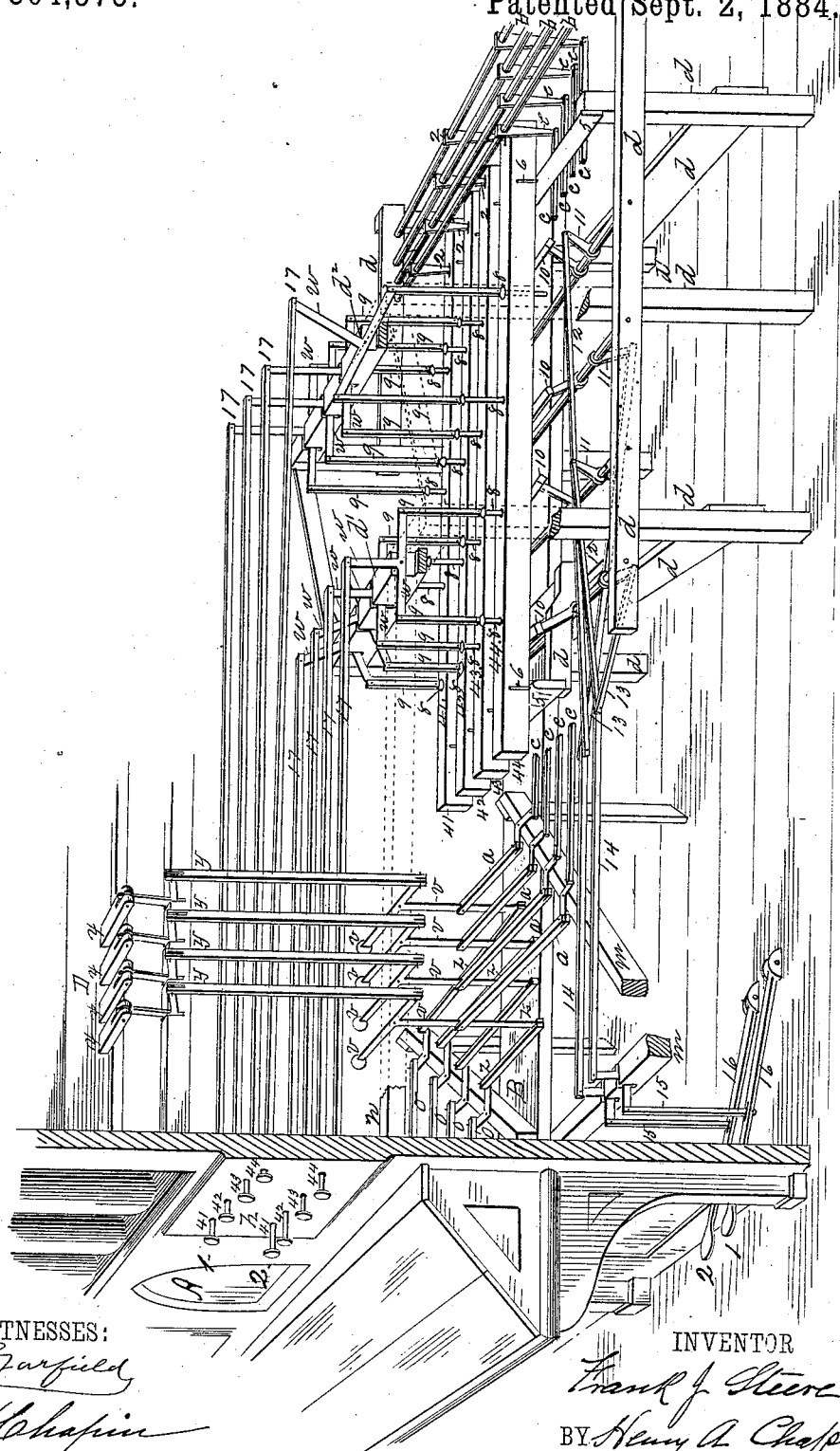
(No Model.)

F. J. STEERE.

COMBINATION STOP ACTION FOR ORGANS.

No. 304,575.

Patented Sept. 2, 1884.



WITNESSES:

*J. D. Garfield*  
*Wm. H. Chapin*

INVENTOR

*Frank J. Steere*  
BY *Henry A. Chapin*

ATTORNEY

# UNITED STATES PATENT OFFICE.

FRANK J. STEERE, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR TO  
STEERE & TURNER, OF SAME PLACE.

## COMBINATION STOP-ACTION FOR ORGANS.

SPECIFICATION forming part of Letters Patent No. 304,575, dated September 2, 1884.

Application filed July 2, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK J. STEERE, a citizen of the United States, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Combination Stop-Actions for Church-Organs, of which the following is a specification.

This invention relates to improved combination stop-actions for church-organs, the object being to provide improved means whereby an organist can prearrange the various combinations of stops which may be required during the performance of a piece of music, and bring each of said combinations successively into action when wanted without removing his hands from the key-board of the organ.

The drawing forming part of this specification illustrates the ordinary stop-action of a church-organ having applied to it and connected therewith my improved combination stop-action.

In the drawing, A indicates the front of an organ-case. B *d* indicate, together with *m* and *n*, parts of the interior frame-work of the organ, adapted to support in proper position the mechanism connected with the stop-actions. The usual stop-slides, *x*, in the wind-chest D are connected with the usual or regular stops of the organ by means of the rods *y*, the T-levers *v*, having counterbalanced weighted arms, and the rods *z* and *o*, on the ends of which the usual stop-heads are secured at one end of the key-board. The slides *x* and rods *y*, and the rods *z* and *o*, are connected by means of the usual bell-crank or elbow levers, as shown. The T-levers *v* are pivoted in the part *n* of the said frame-work, and when the stop-rods *o* are moved out and in the downhanging arms of said levers have a vibratory motion.

The aforesaid mechanism, which is connected to and operates with the above-described regular stop-action, consists of the slides 41 to 44, inclusive, which rest on cross-bars 5, which are supported on said frame-work, and in which are guide-pins 6, to keep said slides in line, together with a series of rocker-shafts, *b*, having thereon arms 2, which engage with said slides, and arms *e*, with which the aforesaid T-levers *v* are connected by the rods *a* and *c* and the usual intermediate elbow-levers. In the drawing only four stop-rods, *o*, are shown

and an equal number of said slides, these being sufficient for the illustration of this invention; but the adaptation of said mechanism to an organ having a greater number of stops only requires a suitable multiplication of slides and connections. The aforesaid foot-pedals for operating said slides 41 to 44, inclusive, and through the latter the regular stops of the organ, consist of the pedals 16 16. A series of slide-rockers, 10, is hung transversely under said slides. Said rockers consist of a shaft pivoted in frame *d*, having thereon arms to the ends of which is secured a bar parallel with said shaft, and which is adapted to have a vibratory motion under said slides swinging close to them. The said rockers 10 are connected in pairs—two with each pedal 16—by the rods 12 and 13, joined on a single rod, 14. The shafts of said rockers have each thereon an arm, 11, which on one rocker projects upward and on its intercoupled rocker projects downward, so that the movement of the rod 14, by one of pedals 16, causes reverse vibratory motions in the pair under said slides.

The aforesaid auxiliary combination-stops consist of a group, *h*, thereof, located just above the key-board of the organ or elsewhere within convenient reach of the organist. The said group of stops is connected indirectly with the slides 41 to 44, and to designate the stops, which have relation to certain slides, the figures which said slides bear are shown over the corresponding stops, as 41, 42, 43, and 44. Hung in bars *d'* and *d''* of said frame, extending across the slides 41 to 44, and over the latter, are two series of T-levers, *w*, which are connected by rods 17 with the aforesaid group of combination-stops *h*. Two pins, 8, are suspended to each of said T-levers, *w*, by flexible connections 9, and said pins are of sufficient length to pass through holes in the slides 41 to 44, and have their ends project somewhat below the under sides thereof, as shown. The said pins are adapted to be moved freely up and down in said holes in the slides, and are hung on the arms of said T-levers in such a way as to permit of a certain vibratory movement in the direction of the movement of said slides. Each of said combination-stops is capable of being moved in or out to swing the T-levers with which it is connected, so that either one or neither of the pins 8 sus-

pended to its arms will be allowed to project below the bottom of the slide in which they operate. The extent of the movement of the said slides on bars 5 is only such as is sufficient to give the proper motion to the T-levers *v*, (through the above-described connections,) and through said levers to the wind-chest slides *x*, whereby the regular stops are "drawn on" or "pushed off," as it is termed. Each one of the slides 41 to 44 represents one of the regular stops of the organ, (that one with which it is connected,) as above described, and the number of combination-stops connected with each slide by means of pins 8 may be more or less, according to the number of stops the organ possesses and the probable number of times that the stop represented by one slide might require to be repeated in different successive combinations. Two of the reversely-operating slide-rockers are hung under each double row of pins 8, and there being one pedal 16 to each pair of rockers, it follows that the pedals 16 in practice are multiplied in proportion to the number of sets of T-levers and pins, which are arranged to operate in connection with the slides 41 to 44.

It will be observed that the combination-stops in group *h* are set in horizontal rows, each row representing one set of pins 8, adapted to be acted upon by one of pedals 16.

In order to make the description of the operation of the above-described improvement as clear as possible, the said horizontal rows of stops are numbered 1 and 2, and the foot-pedals corresponding with each row are correspondingly numbered.

The organist, in preparing to play by the use of the combination-stop mechanism, does not, as is ordinarily practiced, draw the regular stops of the organ with his hands; but, deciding what combination of stops he will first make use of, he selects them from row No. 1, pushing in of that row such as he has decided upon; and, selecting in like manner from row No. 2 such stops as he wishes to embrace in his second combination, he also pushes those in; but if he does not wish to use in his second combination any one or all of the stops used in his first one, such stops of the row No. 2 are pulled quite out. The organist begins by pressing down pedal No. 1, which vibrates the slide-rocker 10 against the pins 8 of the slides, which are in connection with the pushed-in stops of row No. 1, (first combination,) causing said slides to be moved forward, and the stops of the organ with which they are connected, as aforesaid, to be drawn, giving the combination-set on row No. 1. When the organist commences to play, and wishing to use the second combination, he, without other inconvenience than pressing his foot on pedal No. 2, so draws on said combination. In effecting the latter change, such stops as were, in arranging the combinations, pushed in are drawn off by the same movement of pedal No. 2 that drew on the second combination. When said stops are pushed in the pins 8, hang

ing on the right-hand arm of the T-levers *w*, are dropped through the slides 41 to 44, so that the rocker 10, which swings toward the front of the organ when a pedal is operated, will hit said pins and move the slides, drawing on the required stops; and when certain stops are drawn out, as above set forth, the pins 8 on the left-hand arm of the levers *w* are dropped through said slides, so that the rockers 10, which swing from the front of the organ actuated by the pedal, will strike said pins and push in the said stops, by moving said slides in a direction opposite to that required to draw on the stops. Nothing in the construction of the combination stop mechanism interferes in the least with the free manipulation of the regular stops of the organ, so that the player is at liberty to use the combination devices or not, or to partially employ them.

The following tables illustrate the manner of producing different combinations in succession, as above described:

Two different combinations, of two stops each, the stops used referring to the group *h*: Row No. 1—push in Nos. 44 and 41, connected to pedal No. 2. Row No. 2—push in Nos. 42 and 43, connected to pedal No. 1. Row No. 2—draw out Nos. 44 and 41. When pedal No. 2 is operated to bring 42 and 43 into action, Nos. 44 and 41 are by the same movement thrown off.

Two different combinations, of three stops each: Row No. 1—push in Nos. 43, 41, 42, connected to pedal No. 2. Row No. 2—push in Nos. 44, 42, 41, connected to pedal No. 1. Row No. 2—draw out No. 43. Action of pedal No. 2 draws off No. 43 when Nos. 44, 42, and 41 are drawn on.

What I claim as my invention is—

1. The combination, with the ordinary stop-action of a church-organ, of a series of auxiliary stops arranged in a group or groups above said ordinary stops, of rock-lever mechanism, substantially as described, interconnected with said ordinary stop-action and with said auxiliary stops, and of a series of foot-pedals and connected mechanism arranged under the ordinary stops, substantially as described, and adapted to be brought into engagement with said interconnected mechanism by the manipulation of said auxiliary stops, thereby interlocking both the auxiliary stops and foot-pedal mechanism with the ordinary stops, and whereby the said ordinary stop-action is operated, substantially as set forth.

2. The combination, with the ordinary stop-action of a church-organ, of a series of perforated slides, substantially as described, connected to said stop-action, of a series of pins suspended upon oscillating levers over said slides, and adapted to rise and fall in the perforations therein, of a group or groups of auxiliary stops connected to said oscillating levers, of a series of slide-rockers, substantially as described, adapted to oscillate under said

slides, and of a series of foot-pedals connected with said rockers, substantially as set forth.

3. The combination, with the ordinary stop-action of a church-organ, of the perforated slides 41 to 44, inclusive, of the rocker-rods *b*, having arms 2 and *e* thereon, and of connections, substantially as described, between said rocker-rods and said stop-action, substantially as set forth.

4. In combination, the levers *v* of the regular stop-action of the organ, the group or groups of combination-stops *h* and their connecting-rods 17, a series of oscillating levers, *w*, connected to said rods, having pins 8 suspended thereto, a series of perforated slides, 41 to 44, inclusive, adapted to receive said pins, the rocker-rods *b*, connected with said slides and with said levers *v*, the foot-pedals 16, and the slide-rockers 10, connected in pairs to said pedals, substantially as set forth.

5. The improved means for operating the stops of a church-organ by foot-pedals, herein described, the same consisting of a foot-pedal and slide-rockers, substantially as described, of a series of perforated slides located near said rockers, and connected, by means substantially as described, with the regular stop-action of the organ, of a series of pins flexibly suspended in and over said slides upon the ends of oscillating levers, of a series of oscillating **T**-levers, and of auxiliary stop-connections, substantially as described, for operating said **T**-levers, to raise and lower said pins, to bring said slides into engagement with said foot-pedal and slide-rockers, substantially as set forth.

FRANK J. STEERE.

Witnesses:

HENRY A. CHAPIN,  
WM. H. CHAPIN.