(No Model.) 2 Sheets—Sheet 1.

L. D. MORRIS.

COMBINATION STOP ACTION FOR ORGANS.

No. 456,768. Patented July 28, 1891.

Fig. 6.

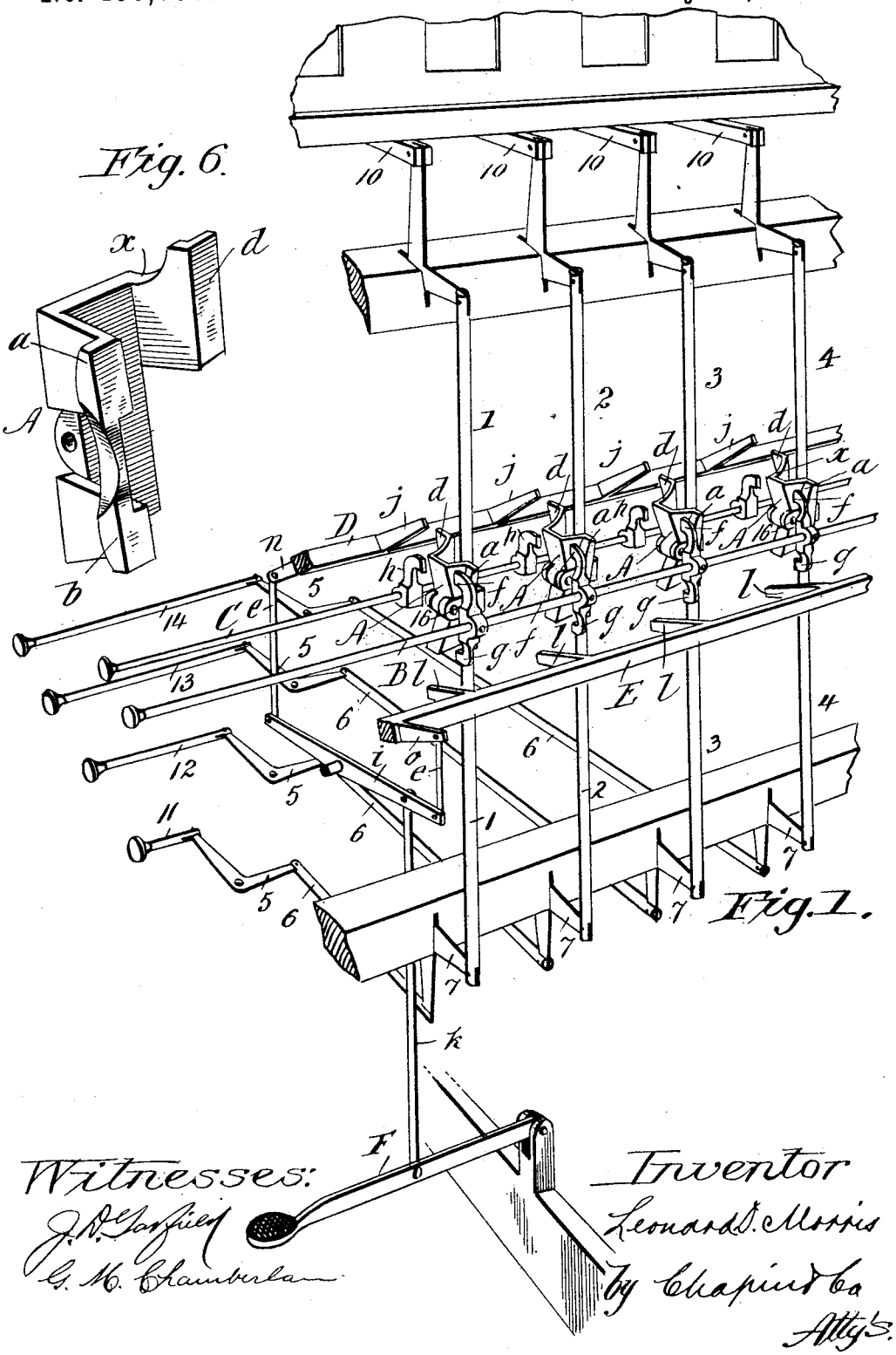

Fig. 1.

Witnesses:
J. R. Garfield
G. M. Chamberlain

Inventor
Leonard D. Morris
By Chapin & Co
Attys.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

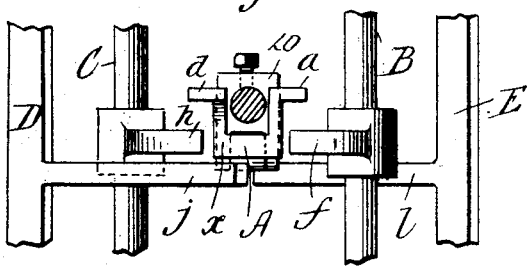


Fig. 3.

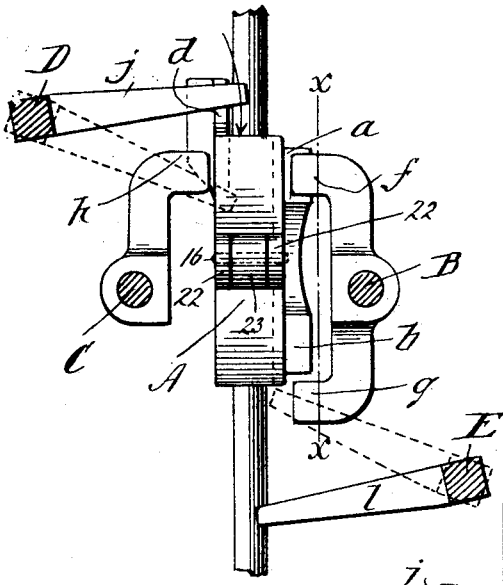


Fig. 4.

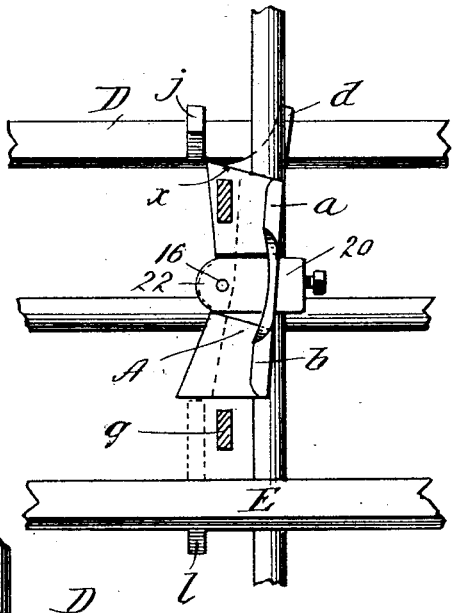
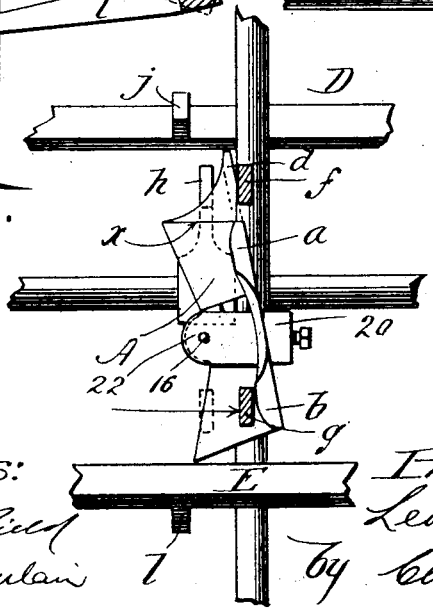


Fig. 5.



Witnesses:
J. R. Sanford
C. M. Chamberlain

Inventor:
Leonard D. Morris,
by Chapin & Co.,
Attys

UNITED STATES PATENT OFFICE.

LEONARD D. MORRIS, OF SPRINGFIELD, MASSACHUSETTS.

COMBINATION STOP-ACTION FOR ORGANS.

SPECIFICATION forming part of Letters Patent No. 456,768, dated July 28, 1891.

Application filed February 4, 1891. Serial No. 380,119. (No model.)

To all whom it may concern:

Be it known that I, LEONARD D. MORRIS, 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 Organs, of which the following is a specification.

This invention relates to improvements in combination stop mechanism or actions for organs, and more particularly pipe and church organs, although the invention may be utilized in connection with reed-organ action.

As well known, in church-organs there is a series or several series of stop-rods for controlling the pipe-registry on the proper working of such rods for securing various musical effects—as, for instance, "forte" or "piano" or other well-known effects or modifications thereof.

The object of this invention is to provide a mechanism on or in relation to the stop or stop devices of any of the series thereof which may be adjusted or set before the playing, so that at any time desired during the playing of the instrument such of the stops as have their adjustable devices adjusted may be as a combination readily and simultaneously operated, and which mechanism shall be unusually simple and convenient of operation.

The invention consists in the construction and combination or arrangement of parts, substantially as will hereinafter more fully appear and be set forth in the claims.

Referring to the accompanying drawings, it will be found that the mechanism of this invention is clearly and fully illustrated both in its application to the usual stop mechanism of a pipe-organ and also more in detail.

Figure 1 is a perspective view of the mechanism in its application to the usual stop-action. Fig. 2 is a horizontal cross-section of one of the usual stop-rods of the action and a plan view of the novel devices or portions thereof which act thereon. Fig. 3 is a side view of the parts shown in Fig. 2. Figs. 4 and 5 are side elevations taken at right angles to the view Fig. 3, with certain of the parts shown as in changed positions. Some of the portions of said latter figures are, however, shown as in vertical section taken on the intersecting plane indicated by line x x, Fig. 3. Fig. 6 is an enlarged perspective view of one of the adjustable devices for a stop-rod, the same being shown as at the side opposite to that at which each of such blocks are shown in Fig. 1.

In the drawings, 1, 2, 3, and 4 represent stop-rods, here shown as vertically applied and movable and being a few only of many thereof which are comprised in the organ-action. The said rods are operated in the usual manner through means of the horizontal knobbed draw-rods 11, 12, 13, and 14, the elbow-levers 5 5, the connecting-rods 6 6, and the second set of elbow-levers 7 7. The stop-rods 1 2 3 4, &c., are connected to respective slides 10 10 of the wind-chest through the angular levers 9. In Fig. 1 the stop-slides are shown as closed and the stop-rods therefor in their upper positions, the knobbed draw-rods at such time being in their inner positions.

Each stop-rod 1 2 3, &c., is equipped with a rocker-block A, which is adapted to rock or tilt on a horizontal pivot 16. Each rocker-block is formed at one side with a pair of wings a and b, extending laterally to the plane in which the block is capable of moving, one of said wings a being above the pivot 16, while the other thereof is below the pivot, and on its opposite side the said block is provided with another wing d, also extended laterally to the plane of movement of the rocker-block.

B represents a slide-rod which ranges horizontally past the series of stop-rods 1 2 3 4, and opposite each of the latter said slide-rod is provided with inwardly-extending lugs f and g, the one f of which is at about the height of the upper block-wing a when the stop-rod is in its higher or normal position, while the other lug g is at a height corresponding to that occupied by the lower block-wing when the stop-rod is in its lower, working, or slide-opening position.

C represents a slide-rod which ranges horizontally past the series of stop-rods 1 2 3 4, and opposite each of the latter said slide-rod is provided with a lug h, which is at about the height of the rocker-block wing d when the stop-rod and block are at their lowermost or stop-slide-opening positions.

At one side of the series of stop-rods is a horizontally-ranged rocker-bar D, which has a series of arms j j, respectively adjacent the

rocker-blocks A, and said arms serve, on being swung, when the stop-rods, or any of them, are in their upper positions and the said blocks, or any of them, are swung into one of the positions which they may be made to assume, to contact with the tops of such rocker-blocks properly positioned therefor and force them and the stop-rods down to open the stop-slide. There is also at the front of the stop-rods another horizontally-ranged rocker-bar E, which has a series of arms *l l* respectively adjacent the rocker-blocks A, and said arms serve, on being swung upwardly as the said bar is rocked, when the stop-rods, or any of them, (with the blocks A,) are in their lower positions and said blocks are swung into one of the positions which they may be made to assume, to contact with the bottoms of such properly-positioned blocks and raise the stop-rods, restoring the stops to their normal positions. A single pedal-lever F operates to rock both of said bars synchronously through the rod *k*, connecting said pedal-lever and one arm of the intermediately-fulcrumed lever *i*, and the connecting-rods *e e* between the arms of said lever *i* and the rock-bar arms *n* and *o*, it of course being seen that said bars D and E rock and the arms *j* and *l* thereon swing in opposite directions.

The practical advantages of the mechanism described will be more clearly understood upon an explanation of the operation or manner of use of the same, and therefore it will be assumed that the organist before commencing to play prepares the mechanism so that at a desired time during the playing he may bring in a musical effect produced by a concurrent opening of slides corresponding, for example, with stops 1, 2, and 4, and yet previous or subsequent to such desired point of time he may employ for a time either of the said stops 1, 2, and 4, as ordinarily. Therefore in preparing the mechanism as next above indicated he draws out draw-rods 11, 12, and 14, thereby placing stop-rods 1, 2, and 4 and their blocks in their lower positions, and it is to be assumed at this time that all of the rocker-blocks are in their normal positions, standing about vertically, as indicated in Fig. 4. The wings *b* of the rocker-blocks on the said depressed stops are now in the horizontal line of movement of the lugs *g* on the slide-shaft B, and on pushing the latter inwardly the lugs *g*, contacting with wings *b*, the rocker-blocks on stop-rods 1, 2, and 4 are tilted, so that the upper portions *x* of the blocks are in planes coincident with the courses of movement of the down-swinging arms *j* on rock-bar D, although at this time the tops of the blocks A are at or below the line corresponding with the limit of downward movement of said arms *j*, and this position of the parts, comprising one stop-rod and the members coacting therewith, is shown in Fig. 5. The slide-rod B is then drawn out or restored to its normal position, carrying the lugs *g* free from the wings *b*. The stop-rods 1, 2, and 4 are restored to their normal and slide-closing positions by pushing in the knobbed rods 11, 12, and 14, and now the said stop-rods have the tops of their rocker-blocks directly under arms *j j* of the bar D. The organist in the point of his play desiring to bring in the musical effect produced by opening slides connected to rods 1, 2, and 4, does so by swinging the rock-bar D through pedal F. As the rods are thus depressed, the knobbed stops 11, 12, and 14 are forced out. The organist having in a speedy manner availed himself of the combination desired, may, to terminate the musical effect thereby produced, push in the forced-out stop-knobs one after another, which merely raises the stop-rods without changing the rocker-blocks thereon, and the same combination may be again brought into play by again depressing the pedal.

In order to destroy a set combination, the stop-rods 1, 2, and 4 being in their normal positions, with their rocker-blocks obliquely tilted, this may be done by forcing in the slide-rod B, when the lugs *f*, thereon, engaging the upper wings *a* on the tilted blocks, will swing the latter back into their vertical positions, when of course any down swinging of the arms *j* will affect nothing. Should there be, however, in the combination a great number of stops, and, having been once used, no repetition thereof is desired, the stops of such combination may be restored to their slide-closing positions and the combination may be destroyed in a somewhat different manner from that already indicated. Thus the slide-rod C is forced in and certain of the lugs *h* thereon engage the wings *d* on such of the rocker-blocks as are comprised in the combination, and which wings *d* in the depressed positions of said blocks are at the same height as said lugs *h*. The blocks being thus restored to their vertical positions, are by their bottoms then capable of being engaged by the arms *l l* of rock-bar E, which on being upwardly swung by the depression of the pedal E raise the stop-rods, leaving the rocker-blocks in their primary or normal positions.

With respect to more precise details, each rocker-block is secured on its carrying stop-rod in this wise: A collar or apertured block 20 is fitted over the stop-rod, and confined in place thereon by a set-screw, and said apertured block is provided with laterally-extended ear-pieces 22, between which the tongue 23 of the rocker-block A is entered and on which the same is supported and connected by the pivot-pin 16.

The lugs *f*, *g*, and *h* are formed as extensions of apertured blocks or collars, which are fitted and by set-screws secured on the slide-rods B and C, said lugs being therefore readily adjusted for their proper juxtaposition relative to the rocker-blocks in the setting up of the action.

The series of stop-rods in the organ usually

consists of a score or more of such rods, each of which is of considerable length, and it is practicable to provide for each stop-rod two or three of the rocker-blocks at different heights thereon, thereby forming two or three rows or series of such rocker-blocks similar to the row described and to correspondingly provide push-rods and also rocker-bars D E, as well as an actuating-pedal for the latter. Therefore a combination may be set, say, on and by an upper row of rocker-blocks and coacting devices, another on an intermediate set, and still another combination on a lower set, each to be availed of at different times in the playing of the organ. This is, however, only carrying out the invention in its practical application in the organ in a manner which would be manifest to any one versed in organ construction and cognizant of the essentials of this invention.

What I claim as my invention is—

1. In a combination stop-action for organs, the combination, with a series of stop-rods and mechanism for moving the same endwise, of rocker-blocks pivotally mounted on said stop-rods and each having a wing *b*, the slide-rod B, provided with a series of lugs *g*, which on the movement of the slide-rod traverse the positions occupied by the wings *b* on the particular stop-rods which are in their "open" or working positions, thereby swinging such particular wings, and a rock-bar having arms *j*, which on being swung engage the swung rocker-blocks on stop-rods which are in their normal positions, substantially as for the purpose described.

2. In a combination stop-action for organs, the combination, with a series of stop-rods and mechanism for moving the same endwise, of rocker-blocks pivotally mounted on said stop-rod and each having a wing *b* and a wing *a*, the slide-rod B, provided with a series of lugs *g*, which on the movement of the slide-rod traverse the positions occupied by the wings *b* on the particular stop-rods which are in their open or working positions, thereby swinging such particular wings, and a rock-bar having arms *j*, which on being swung engage the swung rocker-blocks on stop-rods which are in their normal positions, there being also embraced in the mechanism a slide-rod having lugs *f*, which on the movement of said slide-rod traverse the positions occupied by wings *a* on swung rocker-blocks when the stop-rods carrying them are in their normal positions, and the rock-bar E, having the arms *l* for engaging the normal-positioned rocker-blocks on working-positioned stop-rods for returning the latter to their closed positions, substantially as and for the purpose described.

3. In a combination stop-action for organs, the combination, with a series of stop-rods and mechanism for moving the same endwise, of rocker-blocks pivotally mounted on said stop-rods and having the wing *b* and also the wing *d*, the slide-rod B, having the lugs *g*, which on the movement of the slide-rod traverse the positions occupied by the wings *b* on such of the stop-rods as are in their open or working positions, thereby swinging such particular wings, a rock-bar having arms *j*, which on being swung engage the swung rocker-blocks on stop-rods which are in their normal positions, and a slide-rod having lugs *h*, which traverse positions occupied by the wings *d* when the rocker-blocks are swung and adapted to force through such wings the swung rocker-blocks to their normal positions on the stop-rods, substantially as described.

4. In a combination stop-action for organs, the combination, with a series of stop-rods and mechanism for moving same endwise, of rocker-blocks pivotally mounted on said stop-rods, each having the wings *a*, *b*, and *d*, the slide-rod B, having the lugs *f* and *g*, the slide-rod having the lugs *h*, and the rock-bars D and E, respectively provided with the arms *j* and *l*, and all arranged for operation substantially as and for the purposes set forth.

5. In a combination stop-action for organs, the combination, with a series of stop-rods and mechanism for individually moving same endwise, of rocker-blocks pivotally mounted on said stop-rods, each having the wings *a*, *b*, and *d*, the slide-rod B, having the lugs *f* and *g*, the slide-rod having the lugs *h*, the rocker-bars D and E, each having a series of arms *j j* and *l l* and also having the arms *n* and *o*, the intermediately-pivoted lever *i*, the connecting-rods *e e*, the pedal-lever F, and the connecting-rod *k*, all arranged for operation substantially as and for the purposes set forth.

6. In a combination stop-action for organs of the character described, the combination, with the stop-rods 1 2 3, &c., of the apertured blocks fitted and secured thereon and having the ear-pieces 22, the winged rocker-blocks having a tongue portion entered within said ear-pieces and the confining-pivot, slide-rods B C, having collars thereon and confining set-screws and said collars being provided with lugs, and the rock-bars D and E, having the arms *j l*, and means for individually operating said stop-rods and also for effecting the rocking of said rock-bars, substantially as described and shown.

LEONARD D. MORRIS.

Witnesses:
C. B. MORAN,
J. C. MICHAEL.