No. 812,995.

PATENTED FEB. 20, 1906.

O. HERRMANN.

FOOT RELEASE VALVE FOR PNEUMATIC ACTIONS FOR ORGANS AND PIANOS.

APPLICATION FILED OCT. 18, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

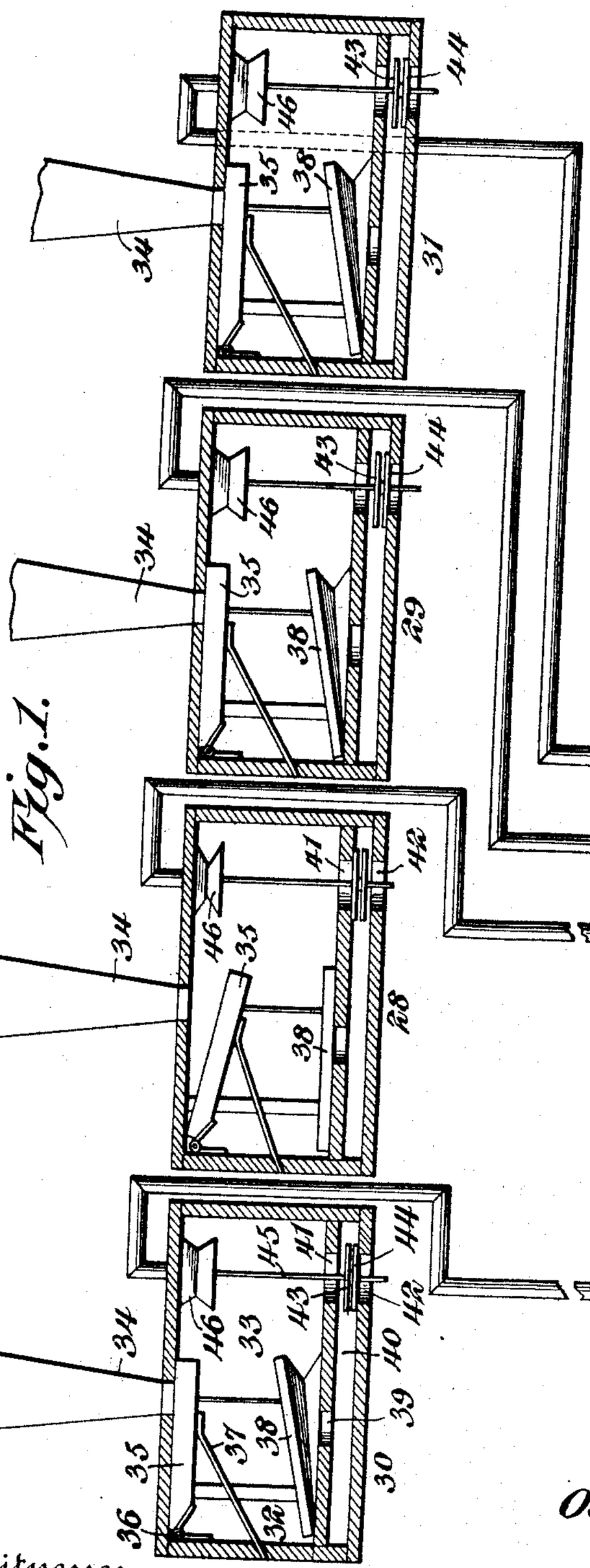
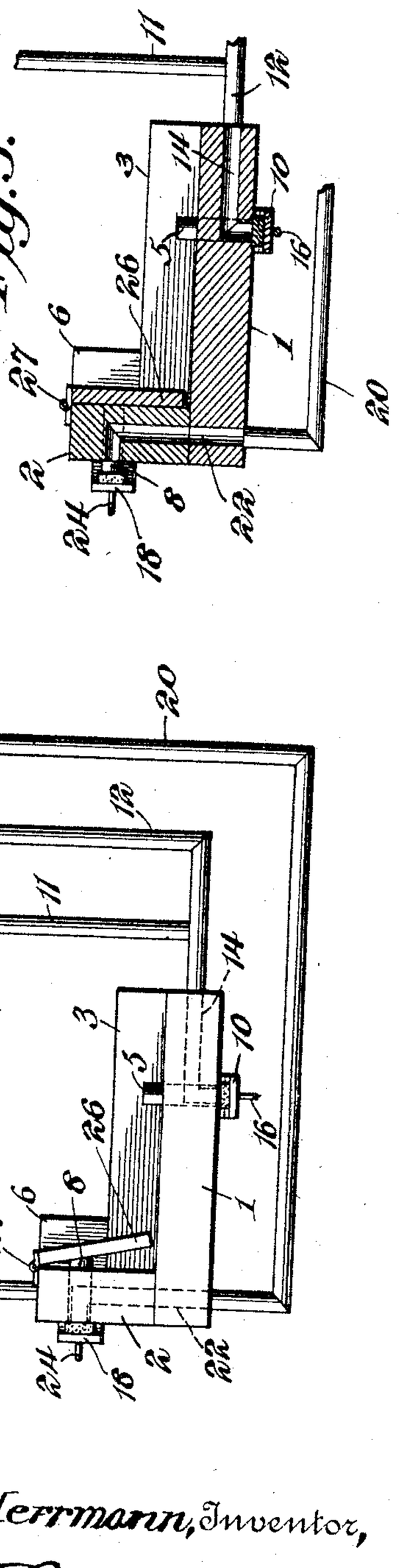


Fig. 5.



Witnesses
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2 SHEETS—SHEET 2.

Fig. 3.

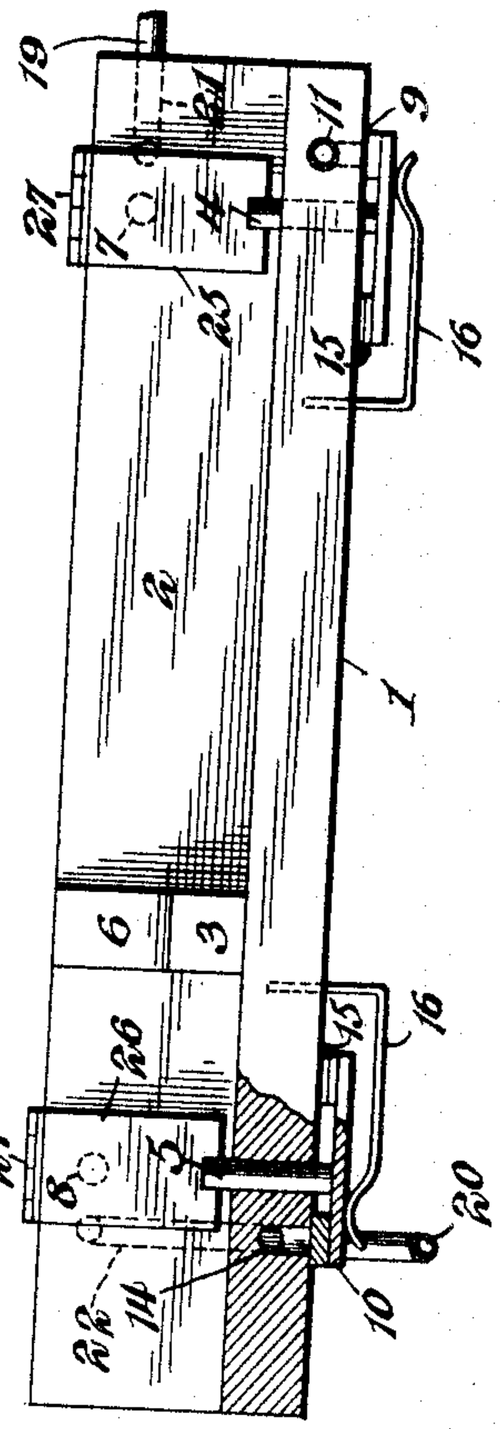


Fig. 4.

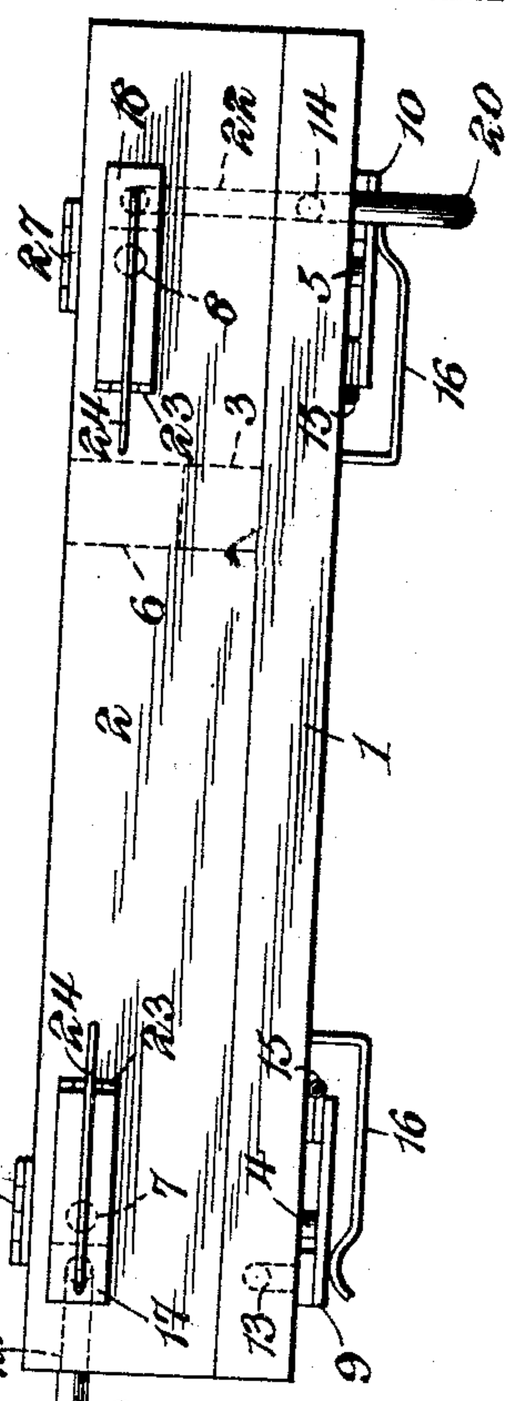
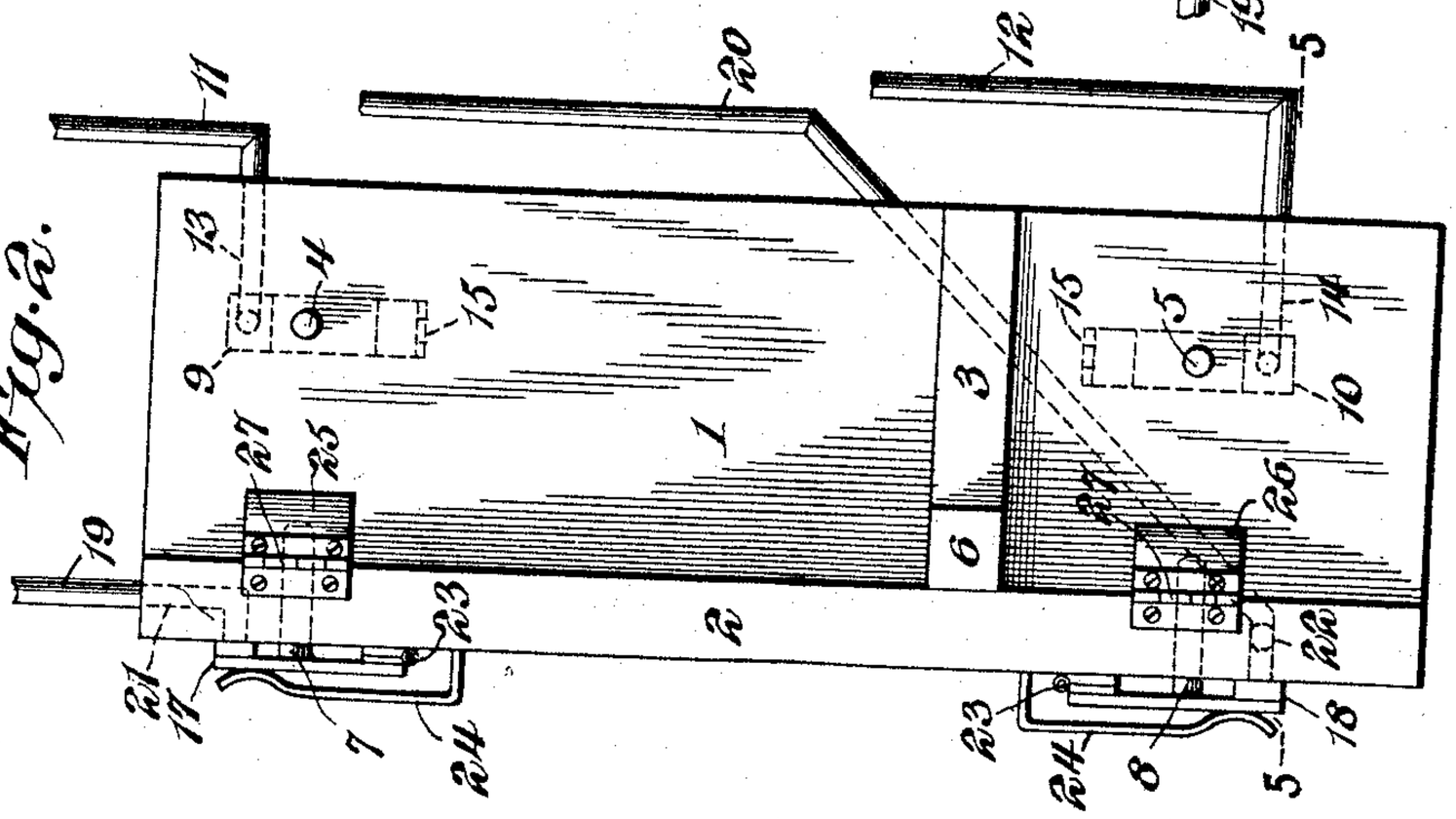


Fig. 2.



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UNITED STATES PATENT OFFICE.

OSCAR HERRMANN, OF BROWN STATION, NEW YORK.

FOOT-RELEASE VALVE FOR PNEUMATIC ACTIONS FOR ORGANS AND PIANOS.

No. 812,995. Specification of Letters Patent. Patented Feb. 20, 1906.

Application filed October 18, 1905. Serial No. 283,318.

To all whom it may concern:

Be it known that I, OSCAR HERRMANN, a citizen of the United States, residing at Brown Station, Ulster county, and State of New York, have invented a new and useful Foot-Release Valve for Pneumatic Actions for Organs and Pianos, of which the following is a specification.

The invention relates to improvements in foot-release valves for pneumatic actions for organs and pianos.

The object of the present invention is to improve the construction of foot-release valves for pneumatic actions for organs and pianos and to provide a simple, inexpensive, and efficient valve mechanism which will enable four distinct pneumatic actions to be controlled by each foot of a performer.

A further object of the invention is to provide valve mechanism of this character which will require only a slight movement of the foot to operate the actions and which will also enable two actions to be simultaneously operated by either the heel or toe of either foot.

With these and other objects in view the invention consists in the construction and novel combination and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended, it being understood that various changes in the form, proportion, size, and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is an elevation, partly in section, showing the foot-release valve mechanism connected with four distinct pneumatic actions. Fig. 2 is a plan view of the foot-release mechanism. Fig. 3 is a side elevation of the same, one end being in section to illustrate the arrangement of one of the vertically-movable valve-operating flanges and the valve thereof. Fig. 4 is a side elevation showing the opposite side of the foot-release valve mechanism. Fig. 5 is a transverse sectional view taken substantially on the line 5 5 of Fig. 2.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a foot-piece consisting of a horizontal board or piece arranged to receive the foot of a performer and provided at the inner side with a vertical wall or portion 2, which is preferably mounted upon the upper face of the foot-piece, as clearly illustrated in Fig. 5 of the drawings, but which may be constructed in any other desired manner, as will be readily understood. The foot-piece is provided with a horizontal fulcrum 3, consisting of a transverse bar or piece secured to the upper face of the foot-piece and arranged to receive the foot beneath the instep thereof to permit the foot to be rocked vertically to actuate either a front plunger 4 or a rear plunger 5. The transverse fulcrum 3 is arranged slightly in rear of the center of the foot-piece, which is also provided with a vertical fulcrum 6, extending upward from the inner end of the horizontal fulcrum and secured to and projecting from the wall 2, as clearly illustrated in Figs. 2, 3, and 5 of the drawings. The vertical fulcrum offsets the foot from the wall 2 and enables the foot to be conveniently oscillated horizontally for actuating either a front horizontally-movable plunger 7 or a rear horizontally-movable plunger 8.

The front and rear vertically-movable plungers 4 and 5, which are guided in suitable apertures of the foot-piece, have their lower ends resting upon hinged spring-actuated valves 9 and 10, which control the escape of air from pipes 11 and 12. The pipes 11 and 12 communicate with suitable bores or passages 13 and 14, provided in the foot-piece and forming continuations of the air-pipes 11 and 12. Each of the valves 9 and 10 is connected at one end with the lower face of the foot-piece by a hinge 15 and is held normally closed by a spring 16. The other end of each of the valves 9 and 10 is provided with felt or other suitable means for effecting an air-tight joint or connection when the valve is closed. Each spring 16 is substantially L-shaped and consists of a vertical portion and a horizontal portion, the vertical portion being embedded in or otherwise secured to the foot-piece, and the horizontal portion being provided at its outer end with a curved portion or bend for engaging the lower face of the valve. Each of the valves 9 and 10 may be opened by actuating its plunger, which may be conveniently depressed by the foot.

The horizontally-movable plungers 7 and 8 are guided in suitable horizontal openings of the side wall or portion 2 of the foot-piece, and their outer or rear ends are arranged to engage spring-actuated valves 17 and 18,

which control the escape of air from pipes 19 and 20, connected with suitable bores or passages 21 and 22 of the foot-piece. The valves 17 and 18 are mounted on the rear face of the vertical wall or portion 2 by means of hinges 23, and their outer faces are engaged by substantially L-shaped springs 24, disposed horizontally and constructed the same as those heretofore described. The inner ends of the horizontally-movable plungers project from the inner face of the side wall 2 when the valves 17 and 18 are closed and their projecting portions are arranged to be engaged by oscillatory plates or members 25 and 26, connected at their upper ends to the upper edge of the side wall 2 by hinges 27 and normally arranged at an inclination. These plates or members 25 and 26, which are arranged at an inclination, are disposed laterally of the foot-piece and are adapted to be actuated by a laterally or horizontally swinging movement of the toe and heel portion of the foot of the performer. As the plates or members 25 and 26 are arranged in advance and in rear of the vertical fulcrum-piece 6, the foot of the performer is adapted to be readily oscillated to actuate either of the said plates or members, and thereby open either of the valves 17 and 18. Also this lateral movement may be effected by either the toe or heel of the operator while such portion of the foot depresses or is holding depressed either of the vertically-movable plungers 4 and 5. This will enable two valves to be simultaneously controlled by either the heel or the toe of the performer. As soon as the valves are released the springs will close the same, as will be readily understood.

The pipes 11, 12, 19, and 20 are connected with pneumatic actions 28, 29, 30, and 31, respectively, as clearly indicated in Fig. 1 of the drawings. Wind is supplied to the air-trunk 32 by a bellows (not shown) in the usual manner. The wind-trunk communicates with the wind-chest 33, and the passage of the wind to the pipe 34 is controlled by a spring-actuated valve or pallet 35. The valve or pallet 35 is hinged at one end at 36 and is engaged by a spring 37. The other end is connected with the main pneumatic 38, having an aperture 39 communicating with a passage 40. The passage 40 is provided with alined apertures 41 and 42, communicating, respectively, with the wind-chest and with the outside air and adapted to be alternately covered and uncovered by disks 43 and 44, mounted on a rod 45, which is connected with the primary pneumatic 46 of the action. When one of the foot-release valves is opened, the air exhausts from the pipe leading therefrom to the primary pneumatic, which collapses and raises the stem 45 to cover the opening 41 and uncover the opening 42, leading to the outside air. This permits the air within the main pneumatic to exhaust, and the said main pneumatic opens the valve or pallet 35 to permit the wind to enter the pipe 34. The foot-releasing valve mechanism may be advantageously employed for controlling various pneumatic actions, and it will enable four distinct actions to be controlled by each foot of a performer. Also by it two independent actions may be simultaneously operated by either the heel or the toe.

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

1. In a device of the class described, the combination of a foot-piece having a foot-receiving fulcrum and provided at opposite sides of the same with valves, and valve-actuating mechanism projecting from the foot-piece and arranged to be operated by the foot.

2. In a device of the class described, the combination of a foot-piece having a foot-receiving fulcrum and provided at opposite sides of the same with valves, and valve-actuating mechanism projecting from the foot-piece and embodying a reciprocatable plunger.

3. In a device of the class described, the combination of a foot-piece having a fulcrum, front and rear valves, and vertically-reciprocatable plungers mounted on the foot-piece and arranged to engage the valves.

4. In a device of the class described, the combination of a foot-piece having an upright fulcrum, valves, and valve-operating mechanism arranged to be actuated by a horizontal oscillatory movement of the foot and embodying horizontally-reciprocatable plungers.

5. In a device of the class described, the combination of a foot-piece having a foot-receiving fulcrum and provided at opposite sides of the same with valves, and valve-actuating mechanism projecting from the foot-piece and embodying a reciprocatable plunger, and a movable plate or member arranged to be engaged by the foot for actuating the plunger.

6. In a device of the class described, the combination of a foot-piece having a foot-receiving fulcrum and provided at opposite sides of the same with valves, and valve-actuating mechanism projecting from the foot-piece and embodying a reciprocatable plunger, and a plate or member hinged to the foot-piece and projecting therefrom at an angle.

7. In a device of the class described, the combination of a foot-piece having a fulcrum and provided in advance and in rear of the same with upright and horizontal foot-receiving fulcrums, valves arranged in pairs, and valve-operating mechanisms embodying vertically and horizontally reciprocatable plungers.

8. In a device of the class described, the

combination of a foot-piece provided with valves, a vertically-reciprocatable plunger engaging one of the valves and arranged to be directly operated by the foot, a horizontally-reciprocatable plunger engaging the other valve, and a movable plate or member arranged to be engaged by the foot for actuating the horizontally-reciprocatable plunger.

9. In a device of the class described, the combination of a foot-piece having horizontal and upright fulcrums, valves arranged in pairs, vertically and horizontally reciprocatable plungers arranged to engage the valves, the vertically-reciprocatable plunger being arranged to be directly engaged by the foot, and movable plates or members arranged to be engaged by the foot for actuating the horizontally-reciprocatable plungers.

10. In a device of the class described, the combination of a foot-piece having an upright supporting portion, a transverse fulcrum mounted on the foot-piece, an upright fulcrum arranged at the upright supporting portion, front and rear valves arranged in pairs, the members of each pair being located beneath the foot-piece and at the outer face of the upright supporting portion respectively, vertically-movable plungers guided on the foot-piece and engaging the valves beneath the same and arranged to be directly operated by the foot, horizontally-movable plungers engaging the valves of the upright supporting portion, and plates or members movably connected with the supporting portion and arranged to be engaged by the foot for actuating the horizontally-movable plungers.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

OSCAR HERRMANN.

Witnesses:
OTTO GREENBERGER,
B. B. ZIPPERT.