

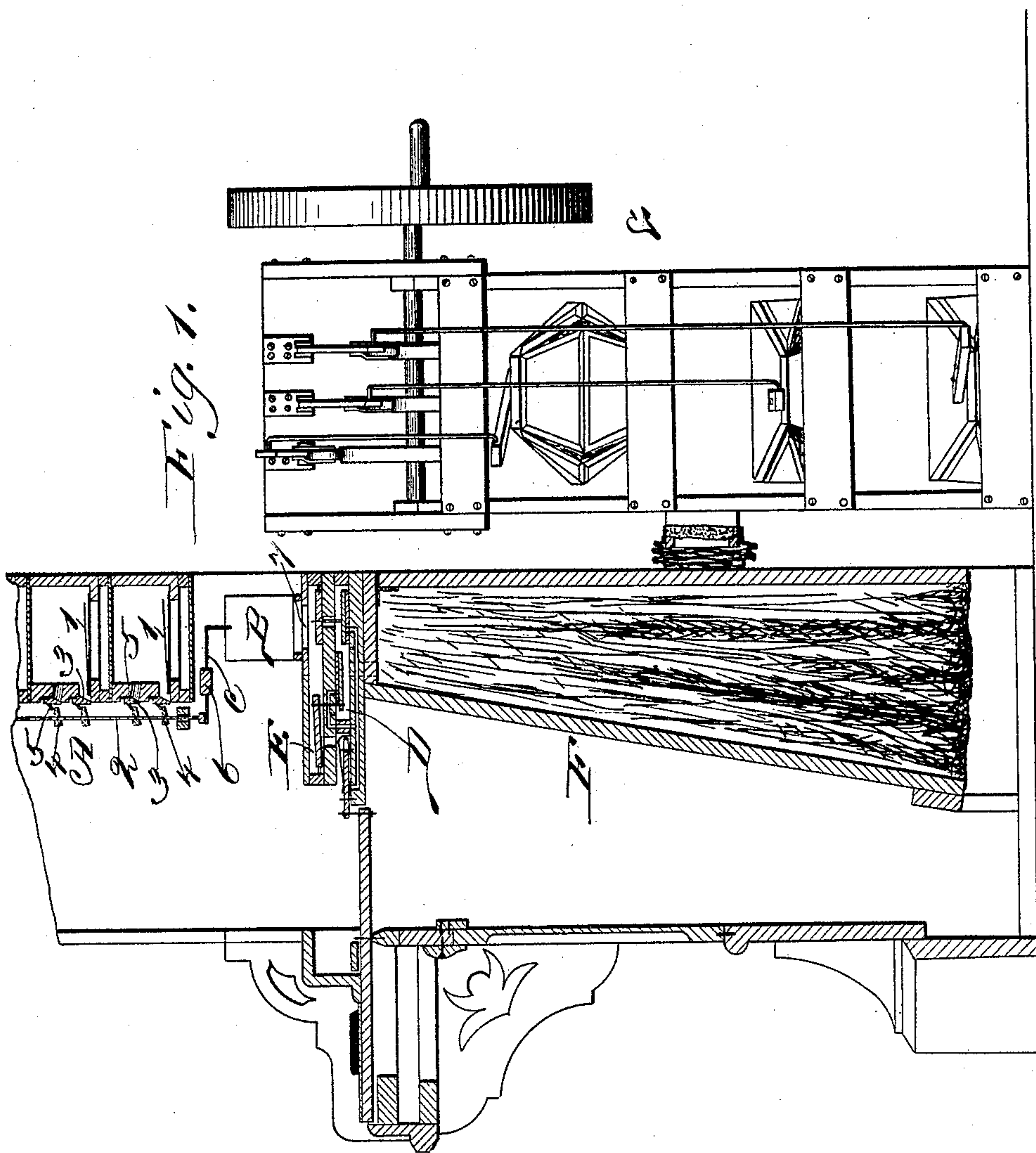
(No Model.)

3 Sheets—Sheet 1.

J. PELOUBET.
PNEUMATIC ACTION FOR ORGANS.

No. 487,767.

Patented Dec. 13, 1892.



Witnesses
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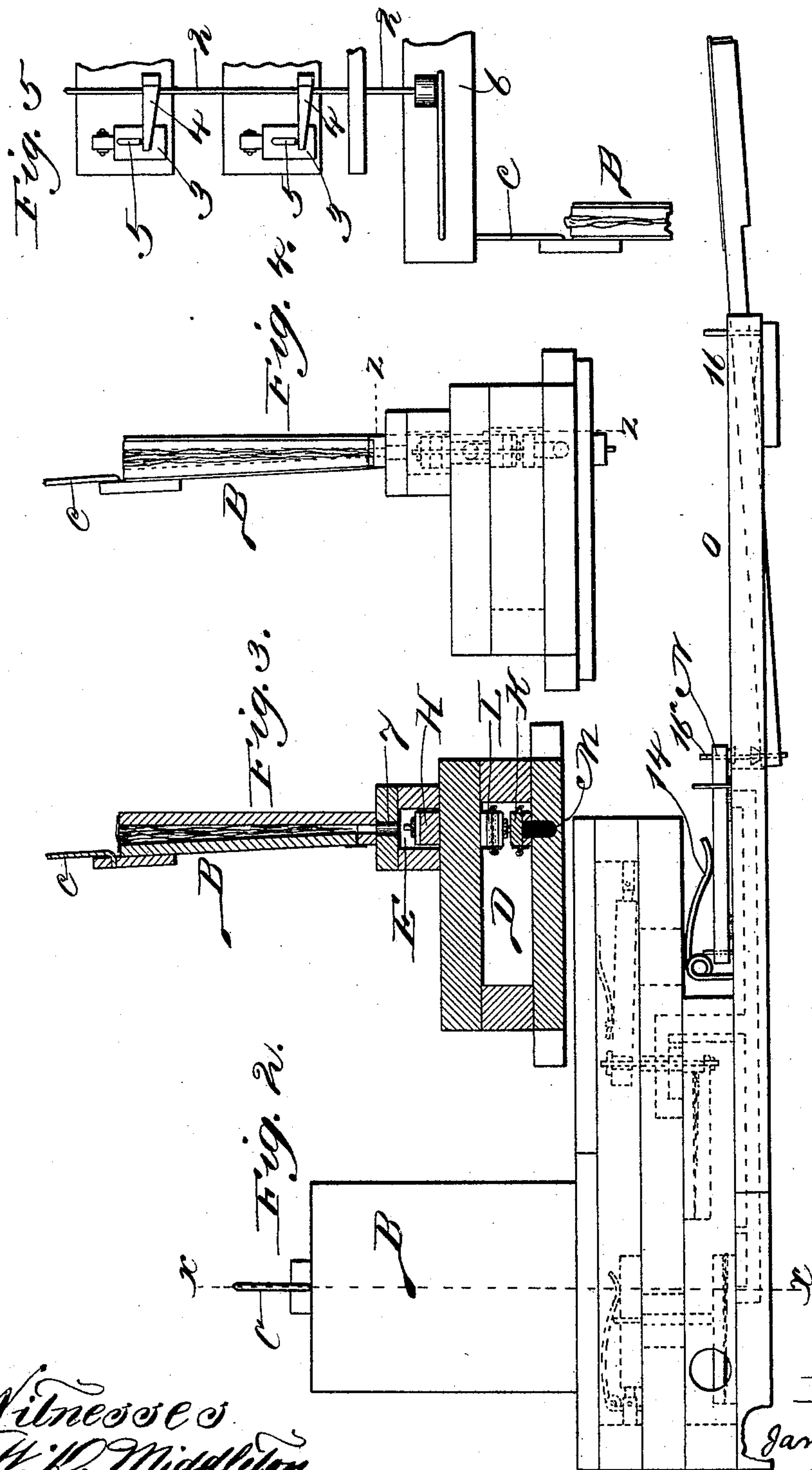
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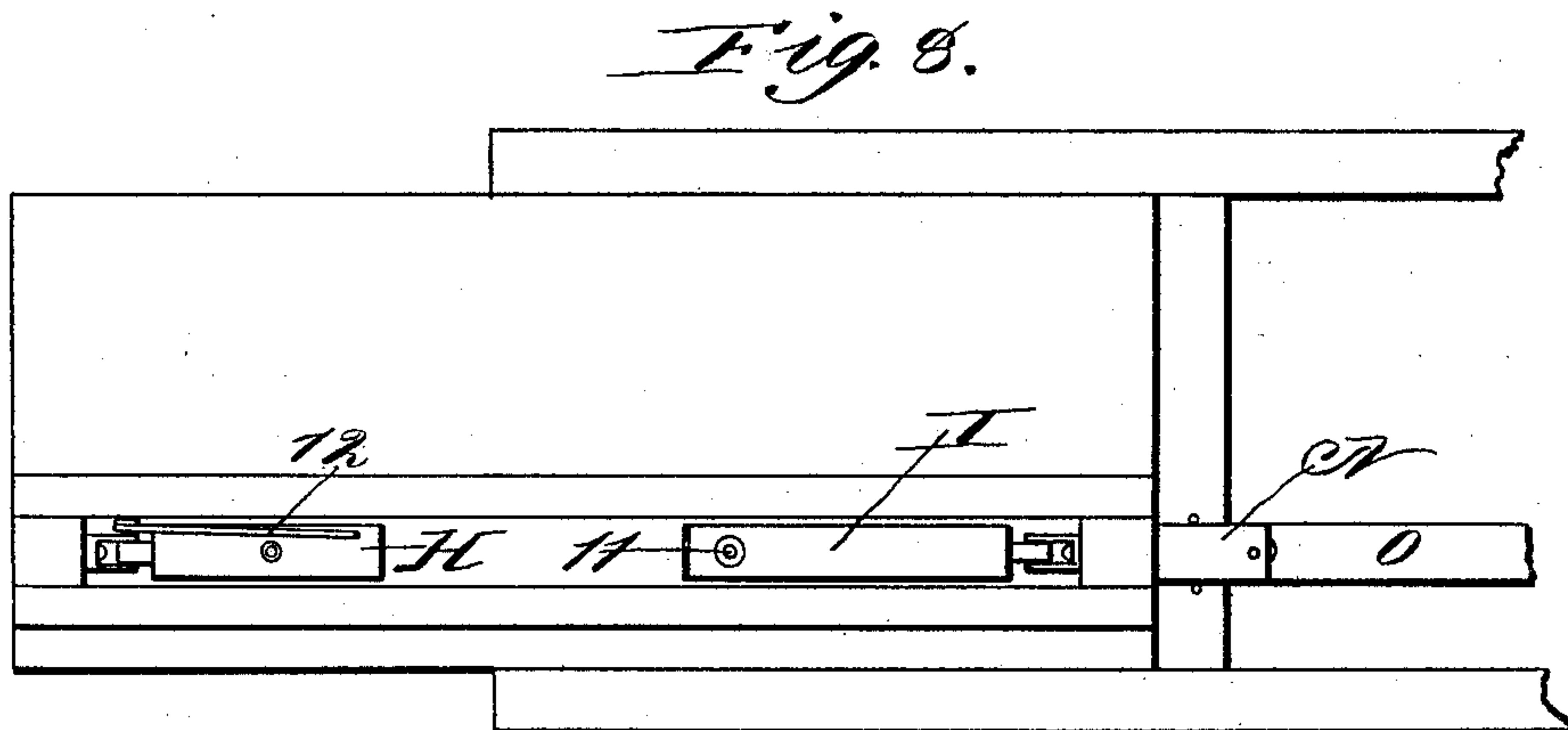
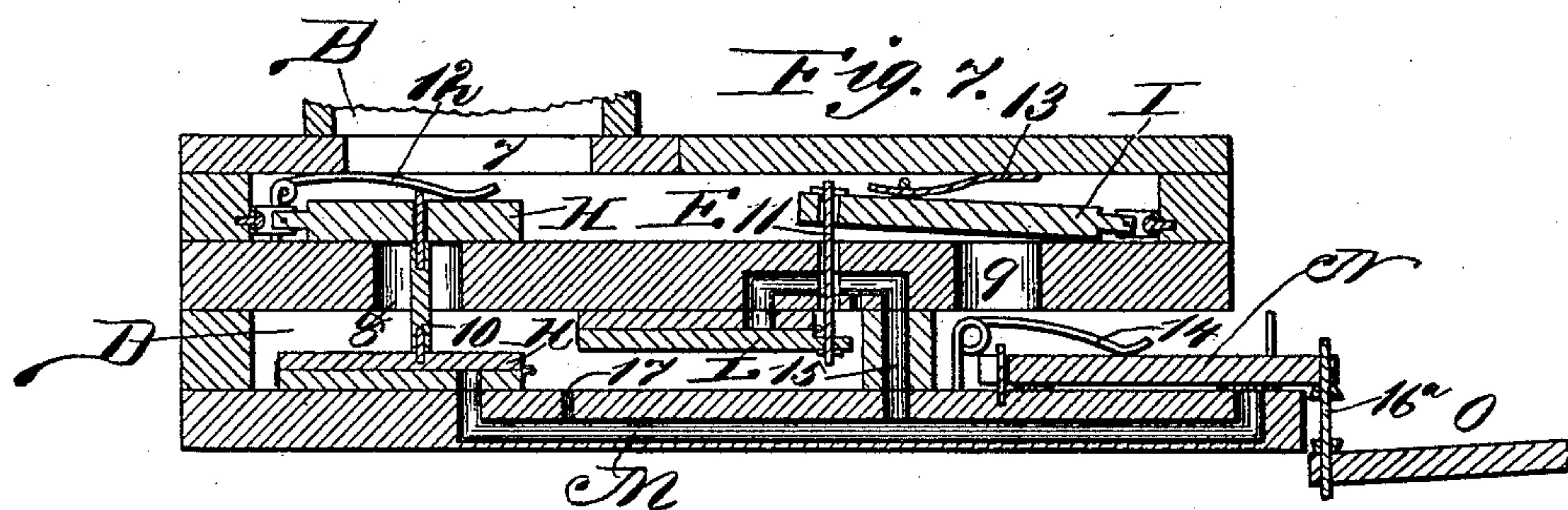
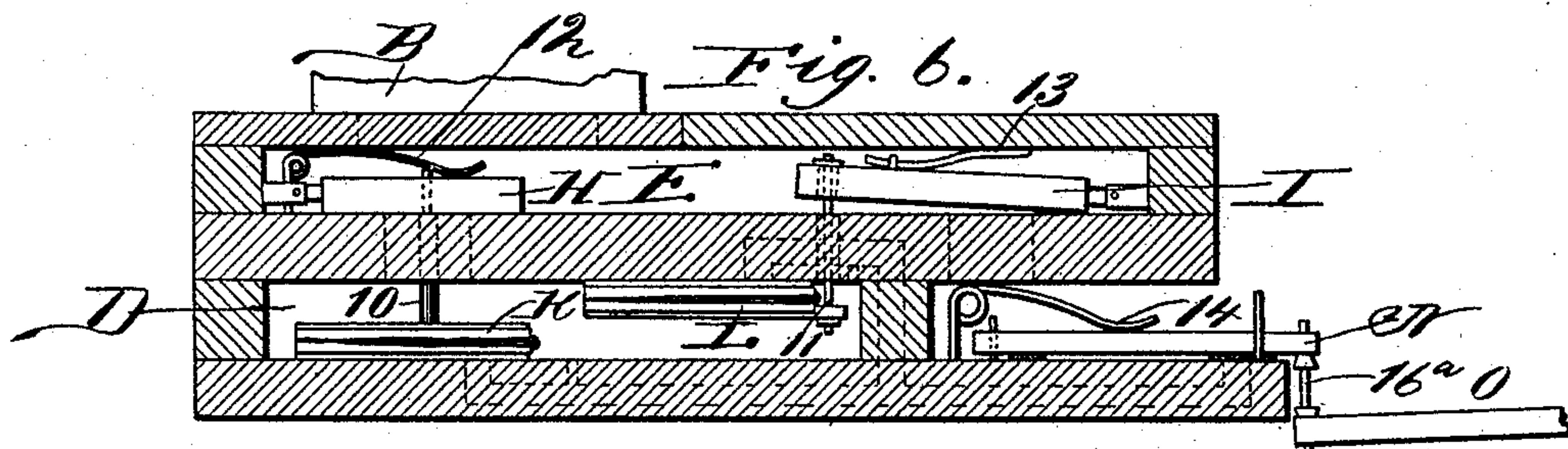
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UNITED STATES PATENT OFFICE.

JARVIS PELOUBET, OF CHICAGO, ILLINOIS, ASSIGNOR TO LYON & HEALY, OF
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PNEUMATIC ACTION FOR ORGANS.

SPECIFICATION forming part of Letters Patent No. 487,767, dated December 13, 1892.

Application filed May 23, 1892. Serial No. 434,091. (No model.)

To all whom it may concern:

Be it known that I, JARVIS PELOUBET, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Pneumatic Actions for Organs, of which the following is a specification.

The principal object of my invention is to provide a highly-sensitive and quick action in a large working pneumatic; and to such end I provide a couple of simultaneously-operating primary pneumatic valves which are independent of one another and actuated by separate pneumatic valve-actions, in which way, in place of providing one large and comparatively-slow-working primary valve to do the work, I am enabled to divide such work between two small, sensitive, and quick-acting primary valves, which are readily responsive to atmospheric pressure momentarily communicated through comparatively-small ducts or passages. One of these two primary valves is applied for opening and closing communication between an exhaust-chamber and pneumatic bellows, so that when open the pneumatic bellows shall be subject to the exhaust, while on the other hand the other primary valve is applied for placing the pneumatic bellows in communication with the open air. With reference to the two primary valves allotted to any one key the pneumatic valve-actions which actuate such valves are subject to weight or spring power tending to maintain the valves in what may be termed their respective "normal positions"—that is to say, to maintain one valve in position to close communication between the exhaust-chamber and pneumatic bellows and maintain the other valve in position to establish communication between the pneumatic bellows and the open air. When the two valves are in such positions and the exhaust-bellows is operated to exhaust from the exhaust-chamber, each valve-action is so subject to an equilibrium of pressure that it will remain closed until such equilibrium is destroyed at one side of the action; and to such end the valve-actions are made expansible and internally connected with an air-duct which can be opened and closed by a valve. This valve is in turn operated by depressing the key, so

that when the key is depressed the air-duct will be open to the external air, and thereby permit the valve-actions to be actuated by atmospheric pressure. I may use any suitable form or construction of valve-action which will operate when subject at one side to a partial vacuum and subject at the other side to atmospheric pressure, and I may provide any suitable connection between the valve proper and its action or incorporate one with the other in any suitable way, it being understood that the effect herein attained is that of two primary pneumatic valves operated by the change of pressure as herein set forth.

In the accompanying drawings, Figure 1 represents a vertical section through an organ embodying my invention, the feeder being shown in elevation. Fig. 2 represents in elevation the pneumatic action and key. Fig. 3 is a section through Fig. 2 on line $x x$. Fig. 4 is another view of Fig. 2 in elevation. Fig. 5 shows a portion of the upright action of the organ. Fig. 6 is a longitudinal vertical section through the pneumatic action on a plane indicated by line $z z$ at one side of the valves and pneumatic valve-actions. Fig. 7 is a like view on a plane through the valves and pneumatic valve-actions. Fig. 8 is a top plan of the bottom of the secondary exhaust-chamber and further illustrates the two pneumatic valves.

In Fig. 1 I have illustrated a portion of an upright action A, wherein the reeds 1 are understood to be arranged in rows or series, one above the other. The lifting-rod 2 (shown arranged for operating a set of pallets 3) is provided with buttons 4, which engage with pins 5 upon the pallets during the rise of the rod, and thereby permit the same to operate the pallets. The lifting-rod is operated from the pneumatic bellows B through the medium of a crank-rod or crank rock-shaft C. (Shown journaled between its ends in a bearing 6.) The rise on the part of the lifting-rod is effected by the contraction of the exhaust-bellows, the latter being opened or expanded by the weight of such operative portion of the upright action as it is called upon to lift during its contraction. Below or in other suitable relation to the pneumatic bellows B are a couple of connecting exhaust-chambers D

and E. These exhaust-chambers are shown arranged over the exhaust-bellows F, which latter is connected with a feeder G, made and arranged separate from the organ. Referring, also, to the remaining figures of the drawings, the exhaust-chamber D, hereinafter termed the "primary" exhaust-chamber, is understood to be connected with the exhaust-bellows F through the medium of any suitably-arranged passage, while the exhaust-chamber E, hereinafter termed the "secondary" exhaust-chamber, is connected with the pneumatic bellows through a port or passage 7, as illustrated in Fig. 7. These two exhaust-chambers are connected with one another through the medium of a port 8, which can be opened and closed by one of a couple of separately-arranged primary pneumatic valves H and I. The primary valve H is shown allotted to port 8, which serves as a connection between the two exhaust-chambers, while, on the other hand, the remaining independently-arranged primary valve I is allotted to a port 9, which serves to establish communication between the secondary exhaust-chamber E and the open air. The two primaries or primary valves are subject to and operated by small pneumatic or bellows valve-actions K and L, arranged within the primary exhaust-chamber and connected with said valves, respectively, through the medium of stems 10 and 11. These stems are extended upwardly from said bellows valve-actions, so as to engage the valves, which are shown arranged within the secondary exhaust-chamber, so as to conveniently operate for the purpose of opening and closing the ports to which they are respectively allotted. The primary valve H is also subject to and normally closed by any suitably-applied weight or spring 12, while, to the contrary, the primary valve I is normally held open in like manner—for example, by a spring 13. The interior of the bellows valve-action K is in communication with an air duct or passage M, arranged so that its inlet end can be opened and closed by a valve N, which latter is normally closed by a weight or spring 14 and opened by the action of one of the keys O of the customary keyboard. The port or duct M when opened by the valve N communicates with the open air, but is normally closed by said valve. The duct M also connects with the interior of the bellows valve-action L through the medium of a branch duct 15. (Best illustrated in Fig. 7.) The key is fulcrumed as a lever at 16, Fig. 2, and connects with the valve N by a rod or tracker 16^a, so that when the key is depressed in playing the organ such act will serve to open the valve N, and thereby place the interior of each of the two valve-actions K and L in open communication with the external air. The ducts or passages M and 15 also connect with the primary exhaust-chamber D through the medium of small ports 17. When, therefore, the air is exhausted from the primary exhaust-chamber by the exhaust-bellows and the valve N is closed, there

will be an equilibrium of pressure both within and surrounding the valve-actions K and L, whereby said valve-actions will be closed or contracted by their allotted springs, and thus respectively hold the valve H closed and the valve I open. When the valve N is opened, atmospheric pressure will at once be transmitted to the interior of the valve-actions and overcome the spring resistances, so as to open the primary valve H and close the primary valve I. This action on the part of the primary valves instantly establishes communication between the secondary exhaust-chamber E and the primary exhaust-chamber D through the medium of port 8 and closes port 9, so as to cut off communication between the secondary exhaust-chamber and the open air. Thereupon an exhaust from the secondary exhaust-chamber will necessarily take place through port 8, which action serves to induce an exhaust from the pneumatic bellows B, which will contract and thereby operate the lifting-rod. The instant, however, the key is released the valve N will automatically close, so as to cut off the interior of the valve-actions from atmospheric pressure, and as an immediate result equilibrium of pressure will be again established within and around the valve-actions and the valve H will close, so as to cut off communication between the two exhaust-chambers, while, on the other hand, the valve I will open, so as to establish open communication between the secondary exhaust-chamber E and the open air, and thereby permit the pneumatic bellows B to open and the lifting-rod to drop and close the pallets.

By thus employing two separately-arranged primary valves, which are entirely independent of one another, I can employ small ducts and small and sensitive valves, which operate quickly and simultaneously, and in ready response to the action of the key.

I do not limit myself to the precise construction and arrangement of parts shown, since the same can be varied without departing from the spirit of my invention, as will be obvious to those skilled in the art to which my invention appertains.

The reed-boards and feeder herein illustrated involve matters of improvement embodied in my applications of even date herewith, and hence need not be herein particularly described.

What I claim as my invention is—

1. A pneumatic action comprising a couple of simultaneously-operating independent primary pneumatic valves, substantially as and for the purpose described.

2. A pneumatic action comprising primary and secondary exhaust-chambers, a primary pneumatic valve for opening communication between the two chambers, and an independently-arranged primary valve for opening and closing communication between the secondary exhaust-chamber and the open air, substantially as described.

3. The combination of a pneumatic bellows, an exhaust-chamber, a primary pneumatic valve for opening and closing communication between the pneumatic bellows and the exhaust-chamber, and a separately-arranged primary valve for opening and closing communication between the pneumatic bellows and the open air, substantially as described.

4. The combination of the primary and secondary exhaust-chambers, a primary pneumatic valve arranged for opening and closing communication between said chambers and including an expansible action subject to the exhaust, a primary valve arranged for opening and closing communication between the secondary exhaust-chamber and the open air and including an expansible action subject to the exhaust, and a valve applied for opening and closing communication between one side of each of said expansible actions and the open air and connected with and operated by one of the keys, substantially as described.

5. The combination of an upright action and a pneumatic action involving a couple of

independent primary valves, substantially as and for the purpose set forth. 25

6. The combination of the exhaust-bellows and a pneumatic action involving a couple of independent primary valves, substantially as set forth. 30

7. In a pneumatic action, the primary and secondary exhaust-chambers, the primary valve H, arranged for opening and closing communication between the two chambers and connected with the bellows valve-action K, arranged within the primary exhaust-chamber, the primary valve I, connected with the bellows valve-action L, arranged within the primary exhaust-chamber, a duct leading from the open air to the said two bellows valve-action, and a valve connected with a key and arranged for opening and closing said duct, substantially as described. 35 40

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Witnesses:

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