

(No Model.)

C. S. HASKELL.
PNEUMATIC ACTION FOR ORGANS.

No. 337,326.

Patented Mar. 2, 1886.

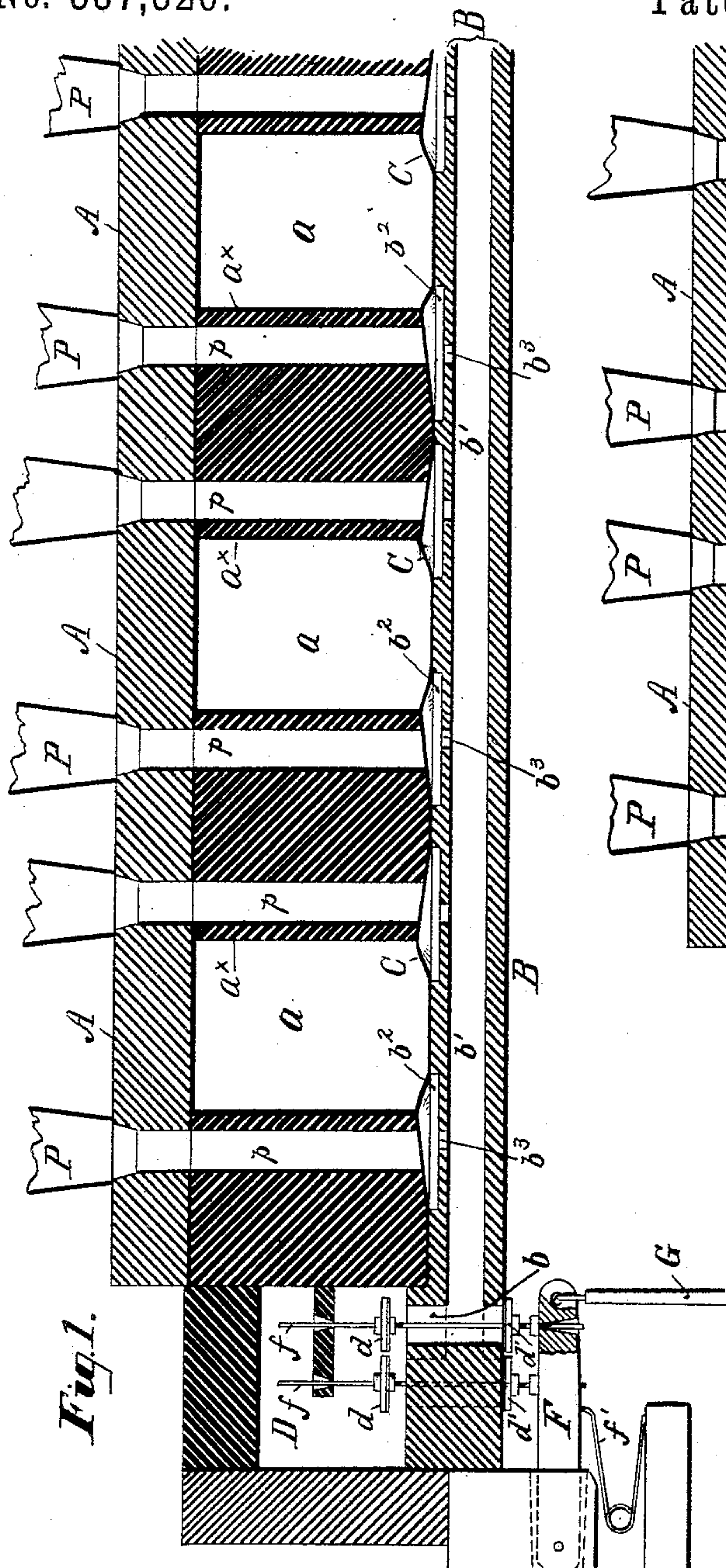


Fig. 1.

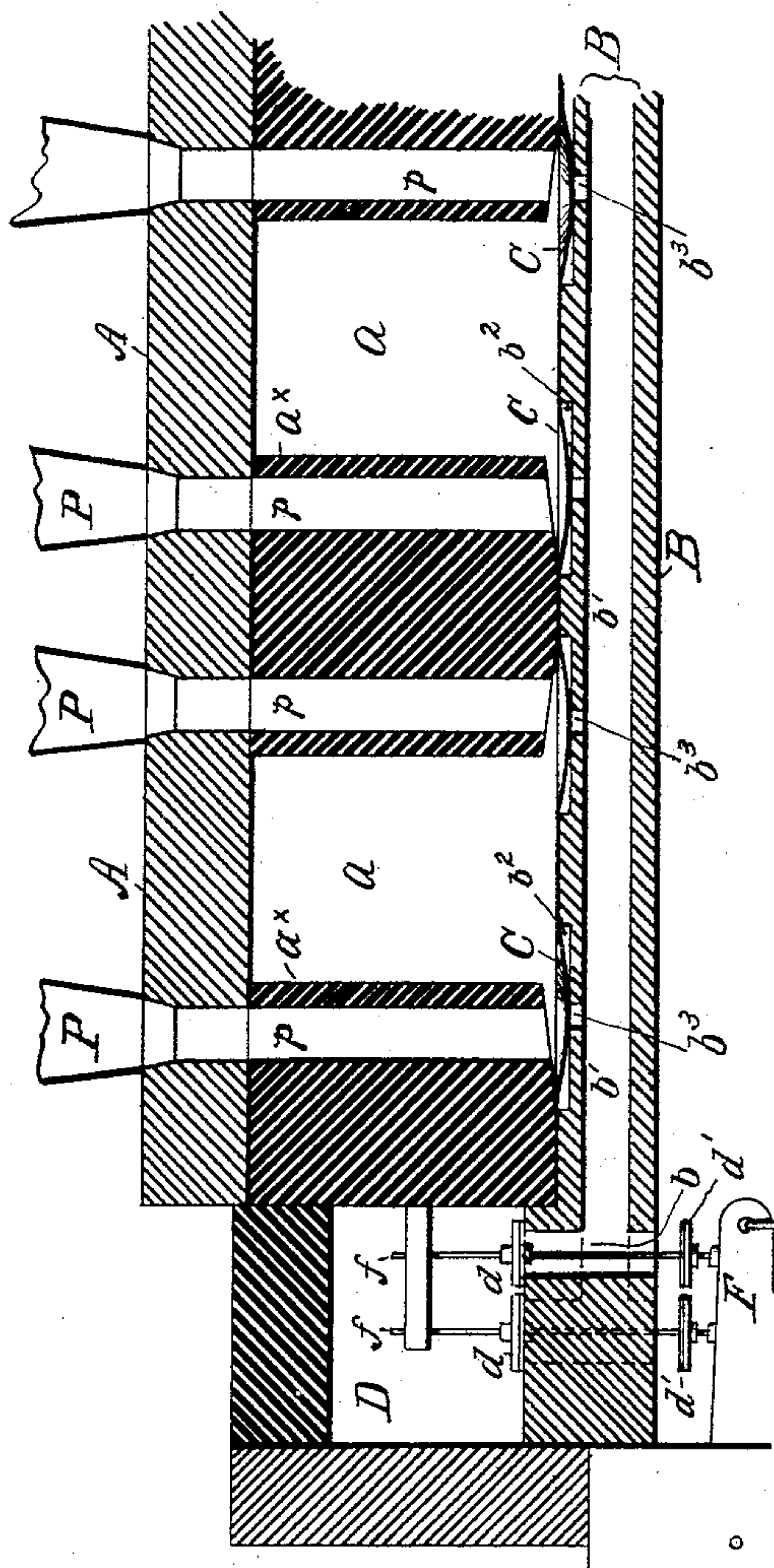


Fig. 2.

WITNESSES:

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PNEUMATIC ACTION FOR ORGANS.

SPECIFICATION forming part of Letters Patent No. 337,326, dated March 2, 1886.

Application filed July 24, 1884. Serial No. 138,623. (No model.)

To all whom it may concern:

Be it known that I, CHARLES S. HASKELL, a citizen of the United States, residing in the city and county of Philadelphia, in the State of Pennsylvania, have invented certain Improvements in Wind-Chests for Pipe-Organs, of which the following is a specification.

My invention relates in general to the wind-chests of pipe-organs, and relates specifically to the valves which control the escape of wind from out the wind-chambers of said wind-chest to the pipes, the improvement residing in a specific construction of valve, wind-chambers, and wind-chest, hereinafter set forth.

The object of my improvements is to dispense with the pneumatic bellows, and to render the construction of the wind-chest equally simple, less expensive, and more effective than when pneumatic bellows are employed.

The foregoing objects I attain by mechanical devices, a preferred form of a convenient embodiment of which is illustrated in the accompanying drawings and explained in the following description, the particular subject-matter claimed being hereinafter definitely specified.

In the drawings, Figure 1 is a transverse sectional elevation through a wind-chest embodying my improvements, the pipe-valves being represented in the position which they occupy when the pipes are silent. Fig. 2 is a similar view of the same contrivances, representing, however, the pipe-valves in the position which they occupy when the pipes are speaking.

Similar letters of reference indicate corresponding parts.

A is the wind-chest of a pipe-organ, and *a* are the wind-chambers, which extend longitudinally therethrough and are formed between the partition-bars *a*^x.

P are the pipes, and *p* the pipe-ducts which lead from out the wind-chambers to said pipes. These pipe-ducts are formed in the partition-bars, which latter are longitudinally beveled off as to portions of their under sides, as will be understood by a reference to Fig. 2, in order to afford access to the wind from the wind-chambers beneath the beveled surfaces of the partitioned bars to said pipe-ducts.

B is the bottom board of the wind-chest.

This bottom board is provided with a series of valveways, *b*¹, which communicate with the valve-throats *b* of the pallet-box.

Formed in the upper surface of the bottom board, partially beneath the beveled portions of the partitioned bars, and partially beneath a part of the wind-chambers, are what I term "valve-seats," *b*², the same being preferably circular depressions or excavations into the substance of the upper surface of the bottom board. Orifices *b*³ in the base of the valve-throats place the latter in communication with the valveway with which said throats are respectively aligned.

C are what I term "diaphragm-valves," being webs of air-tight pliable material, textile, fibrous, or of other composition—and such, for instance, as leather, parchment, india-rubber, water-proof cloth, or the like—which are disposed so as to completely cover the valve-seats, being made fast about all the edges thereof, and which are of sufficient pliability, or are applied in a sufficiently loose or baggy manner, to be capable of being, under the influence of the wind from the pallet-box, forced up into the position represented in Fig. 1, so as to close the throats of the pipe-ducts and exclude the air in the wind-chambers from access thereto, or else of being forced down into the position represented in Fig. 2, under the influence of the wind in the wind-chambers, and so as to either wholly or partially close the orifices *b*³ and open communication between the wind-chambers and the pipe-ducts. These diaphragm-valves may be applied either as separate suitably-shaped webs, one being connected with each valve-seat, or as a continuous web, or as a series of continuous strips interposed beneath the partition-bars and between the latter and the bottom board. It is proper for me to state, however, that diaphragm-valves as a mechanical contrivance for controlling the pipes of an organ are not novel with me, and that to such a valve, broadly, I lay no claim.

D is the pallet-box, which is in communication with a wind-trunk, (not shown,) and through the bottom of which extend to the bottom of the outer atmosphere valve-throats *b*, which midway of their depth are respectively in communication with the valveways

b' , formed in the bottom board of the wind-chest.

d d' are respectively the upper and lower puppet-valves, or "disk-pallets," as they are sometimes termed, which control the respective orifices of the valve-throats b , and the valve-stems or pallet-wires f of which connect below with the secondary lever F , controlled by the spring f' , and operated through the tracker G in the usual manner. Each of the wind-chambers of the chest is by means of suitable pallets in any usual manner in controllable communication with the wind-trunk and organ-bellows, there being no communication between the pallet-box and said chambers, but the arrangement being such that an excess of wind-pressure exists in the pallet-box over the pressure existing in the wind-chambers.

Such being a description of a preferred form of a convenient embodiment of my invention, its operation will be readily understood. Assume a pressure of condensed air in the wind-chambers and assume the puppet-valves and action in their normal position of rest, being that position represented in Fig. 1. The excess of wind-pressure in the pallet-box, finding vent through the valve-throat b into the valveway b' , vents through the orifices b^3 and blows up or expands the diaphragm-valves so as to cause them to seat themselves fixedly against the beveled under surfaces of the partition-bars and close the throats of the pipe-ducts so as to prevent the lesser air-pressure existing, as stated, in the wind-chambers from finding vent through said pipe-ducts. The result of the foregoing position of parts, which with respect to any given series or register of pipes is under the control of a given key or keys, is that the particular pipes so closed against the wind are silent. When, now, it is desired to

cause any series of pipes to speak, the key controlling the puppet-valves of the valveway which is aligned with the pipes in question is depressed, and the position of the puppets then being that represented in Fig. 2, the air in the valveway vents to the atmosphere, and the wind-pressure in the wind-chambers blows down the diaphragm-valves or clears them from their contact with the beveled surfaces of the partitioned bars, and so places the pipes controlled by said valves in communication with the wind in their chambers, thereby causing said pipes to speak.

Having thus described my invention, I claim—

1. The combination, in a pipe-organ, of a pallet-box, a wind-chest provided with partition-bars containing pipe-ducts and beveled off as to their under surfaces in the manners shown and described, a bottom board for the wind-chest provided with valve-seats, orifices, and valveways and diaphragm-valves, substantially as set forth.

2. The combination, in a pipe-organ, of a wind-chest provided with partition-bars which are beveled, as described, and which contain pipe-ducts opening upon the beveled surfaces, a bottom board containing valveways, orifices opening from said valveways below the pipe-ducts of the partition-bars, valve-seats formed in connection with said orifices, and diaphragm-valves applied to said valve-seats and adapted to close either the pipe-ducts or the orifices of the valveways, substantially as and for the purposes set forth.

In testimony whereof I have hereunto signed my name this 9th day of July, A. D. 1884.

CHARLES S. HASKELL.

In presence of—

JOHN W. HEINS,
JOHN ADATTE.