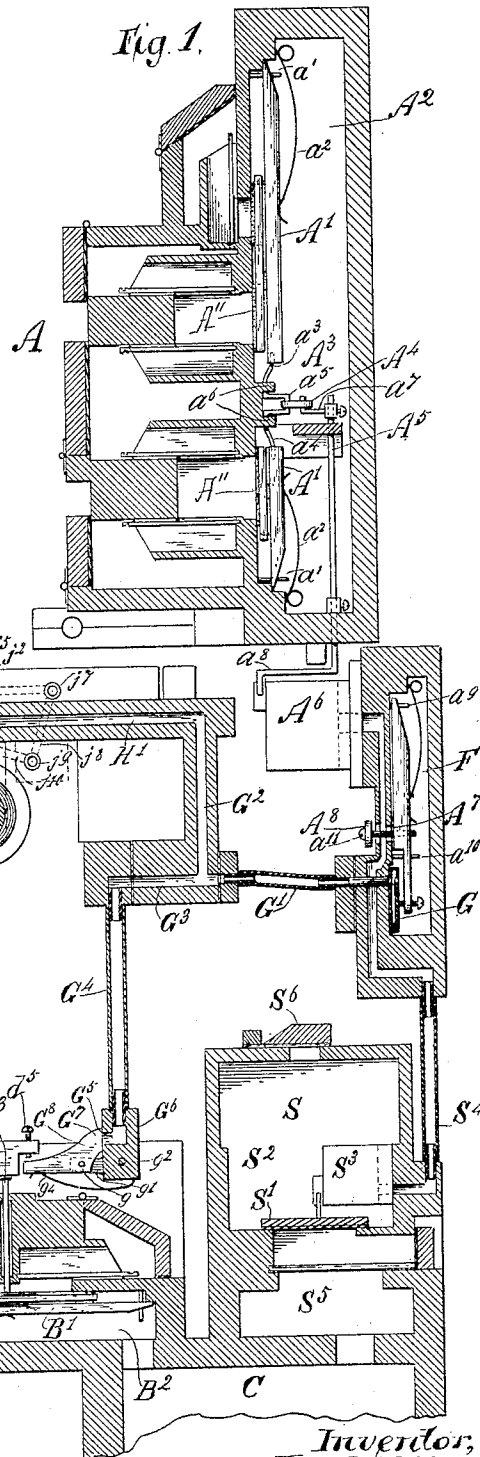
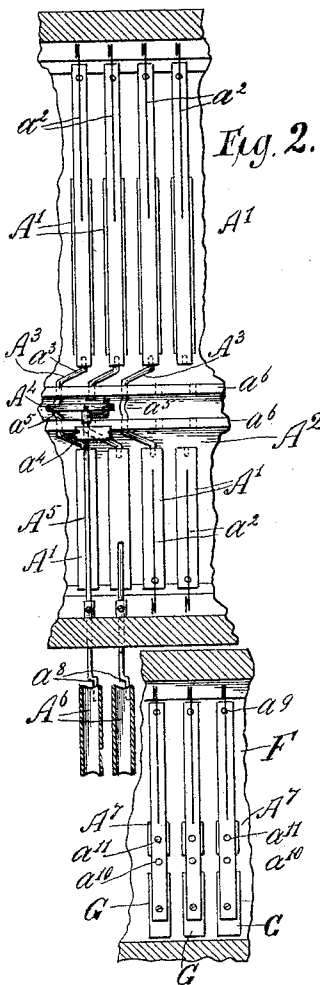


(No Model.)

J. H. CHASE.
ORGAN.

No. 570,200.

Patented Oct. 27, 1896.



Witnesses
Jac. Ollemann Jr.
Paisson L. Wells.

Inventor,
Joseph H. Chase,
by his attorney,
Edwin H. Brown

UNITED STATES PATENT OFFICE.

JOSEPH H. CHASE, OF MERIDEN, CONNECTICUT, ASSIGNOR TO THE AEOLIAN COMPANY, OF NEW YORK, N. Y.

ORGAN.

SPECIFICATION forming part of Letters Patent No. 570,200, dated October 27, 1896.

Application filed December 31, 1894. Renewed September 2, 1896. Serial No. 604,674. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH H. CHASE, of the city of Meriden, county of New Haven, and State of Connecticut, have invented certain new and useful Improvements in Organs, of which the following is a specification.

This improvement relates particularly to organs of the kind which may be played mechanically under control of a perforated music-sheet or which may be played manually.

I will describe an organ embodying my improvement, and then point out the novel features in claims.

In the accompanying drawings, Figure 1 is a vertical section of an organ-action embodying my improvement. Fig. 2 is a partial back view and partial section of certain parts.

Similar letters of reference designate corresponding parts in both figures.

I have illustrated my improvement in an organ-action which is intended to have suction or exhaust bellows, and which is provided with two different sets of sound-producing devices and, if desirable, a third set for a solo or subbass, the sound-producing devices being indicated as consisting of reeds.

A designates one of the main sets of sound-producing devices, and B designates the other set. Each set may consist of a number of different banks of sound-producing devices. Each bank of sound-producing devices will be provided with a mute in the usual way. In the illustrated organization the set A may be played either manually or mechanically, but the set B can only be played manually.

B' designates one of a number of valves controlling the speaking of the set of sound-producing devices B. They are fitted in a chamber B², that communicates with a wind-chest C.

B³ designates one of a number of pins which pass through the block in which the set of sound-producing devices B are fitted and at the lower ends impinge against the valves B'. At their upper ends they impinge against levers D. These levers D are fulcrumed at their forward ends by pins d to brackets d'. Springs B⁴, arranged within the chambers B², normally hold the valves B' up in their closed position, and through the agency of the pins B³ sustain the levers D in their upper posi-

tions. The levers D near their rear ends are guided by pins d².

E designates the manual-keys. They may be supported in the usual manner. On their under sides they are provided with projections e, that coact with regulating-screws e², fitted in the levers D.

When the keys E are depressed, the corresponding levers D will be similarly depressed, and thus valves B' will be opened properly for the playing of a tune. The sound-producing devices A are controlled by valves A'', located in a chamber A², which communicates with the wind-chest C. The valves A'' are arranged in pairs, both valves of a pair relating to the same note to be played. As shown, there are two distinct valve-levers A' for each note, and each of these valve-levers operates one or more valves. The valve-levers are supported at reverse ends upon pins a' and held normally by spring a² in position to keep their valves seated. The opposite or adjacent ends of each pair of valve-levers A' are connected by rods A³, so constructed as to form triple cranks, one crank, a³, being formed at one end for one valve-lever, another crank, a⁴, being formed at the other end for the other lever, and a third crank a⁵ midway between the ends. The portions of the rods intermediate of the cranks are journaled in bearings a⁶. The cranks a³ a⁴ are fitted to holes formed in the opposite ends of the valve-levers A', and the crank a⁵ is connected by a link A⁴, which is also connected with an arm a⁷, affixed to the vertical rock-shaft A⁵.

The rock-shaft A⁵ at its lower end is provided with a crank-arm a⁸ and the latter is connected with a pneumatic motor A⁶. Whenever this pneumatic motor is collapsed, the valve-levers A' will be moved outwardly, so as to open their valves. There will of course be a rock-shaft A⁵ and a pneumatic motor A⁶ for each note.

The pneumatic motors A⁶ communicate internally with the wind-chest F under control of valves A⁷. The valves A⁷ are shown as pivoted at one end to pins a⁹ and guided near the other end by pins a¹⁰.

The ducts which communicate with the motors A⁶ not only communicate with the wind-chest F, but also with the atmosphere by

means of cross-terminal portions. Hence with each valve A^7 there must be combined a valve A^8 . As here shown, the valves A^8 are connected by screws a^{11} with the valves A^7 , so that when a valve A^7 is opened the corresponding valve A^8 will be closed, and vice versa. When one of the valves A^7 is closed and the corresponding valve A^8 opened, the corresponding pneumatic motor A^6 will be in communication with the atmosphere, and hence will be expanded. When the position of the valves is reversed, communication will be established between the corresponding pneumatic motor and the wind-chest F. This will result in the collapsing of said pneumatic motor and cause the speaking of the corresponding sound-producing devices of the set A.

The valves A^7 A^8 are controlled by pneumatic motors G, located within the wind-chest F. These pneumatic motors communicate with tubes or ducts G' and the latter communicate with tubes or ducts G^2 G^3 G^4 . Preferably the ducts G' G^4 will be made of flexible rubber tubes. The ducts G^4 communicate with ducts G^5 in a block G^6 , the ducts G^5 being controlled by valves G^7 , arranged upon levers G^8 , which are fulcrumed by pins g to brackets g' , affixed to the forward side of the block G^6 . The block G^6 is pivoted upon a pin or pins g^2 , and hence is free to rock.

Of course it will be understood that there is a duct G' , a duct G^2 , a duct G^3 , and a duct G^4 for each note that is to be produced by the sound-producing devices A.

The block G^6 is rocked into one or other of its extreme positions by the hand of the player operating, preferably through a lever or arm. The levers G^8 are held in a position to keep the valves G^7 closed by means of springs g^4 , fitted in the block G^6 .

Whenever it is desired to play the sound-producing devices A by means of the manual-keys the block G^6 is rocked into such position that the levers D may operate the levers G^8 to open the valves G^7 . Preferably the levers D will be provided with regulating-screws d^5 at the ends where they are adapted to coact with the levers G^8 .

It will of course be understood that when the valve G^7 is opened the corresponding pneumatic motor G will be expanded and the corresponding pneumatic motor A^6 will be collapsed, so as to cause the speaking of corresponding sound-producing devices A.

I will now turn to the means for playing the instrument mechanically. The ducts G^3 communicate with ducts H' in a tracker-board II. Over the open ends of the ducts II' a perforated music-sheet I moves, as usual. When playing is to be done manually only, a cover J is moved over the open ends of the ducts II' in the tracker-board H. The cover J may be made of two side pieces j' , fastened together by rods j^2 j^3 j^4 j^5 . Within the frame thus formed a pad of leather or similar ma-

terial is made by taking a strip and forming it into a belt extending around the rods j^4 j^5 . The rod j^2 is at the end pivotally connected to a cross-rod j^7 . Arms j^8 are pivotally connected to the latter. These arms j^8 extend across the sides of the tracker-board. They are affixed to the rock-shaft j^9 , which is journaled in the cheek-pieces at the sides of the tracker-board. A crank-arm j^{10} , affixed to the rock-shaft j^9 , serves to oscillate the latter, and hence to slide the cover J, which normally rests upon the upper side of the tracker-board. When pushed forward, it may move the music-sheet away from the end of the tracker-board and then drop down over the end of the tracker-board, so that its pad will close the ends of the ducts II'. The music-sheet may be re-wound while the cover is in place at the end of the tracker-board. The reverse movement of the rock-shaft j^9 will shift the cover to a position above the tracker-board, thus opening the ducts II'. The arm j^{10} of rock-shaft j^9 may be connected to the means which are employed for reversing the music-sheet, so that the cover will always close the ducts II', except when the music-sheet is driven in the direction to play a tune.

It will be obvious that while the manual-keys E are not being used the valves G^7 will close the ducts G^5 and keep them closed. If during such time air is admitted through perforations in the music-sheet to the ducts G^2 , the pneumatic motors G' will be operated in the manner and with the result before described while explaining the operation of the manual-keys.

The sound-producing devices S of the solo or subbass set are controlled by valves S' , arranged in a chest S^2 and operated by pneumatic motors S^3 , which communicate with ducts S^4 , that are controlled by the valves A^7 A^8 . Of course there will be a valve S' , pneumatic motor S^3 , and a duct S^4 for each sound-producing device in the solo or subbass set.

The sound-producing devices of the subbass are indicated as being reeds, and the reed-cells communicate with a wind-chest S^5 , leading to the exhaust-bellows.

The chamber S^2 communicates with the atmosphere under control of a valve S^6 , which is operated in any suitable manner, as, for instance, by an ordinary stop-rod. Only when this valve S^6 is opened can the sound-producing devices of the subbass speak.

Obviously this instrument may be played not only manually or mechanically, but both manually and mechanically at the same time.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a mechanical musical instrument, the combination of sound-producing devices, a tracker-board comprised in mechanism for controlling said sound-producing devices, a music-sheet for traveling over the end of the tracker-board, mechanism for rewinding the music-sheet after playing, and a cover or stop for said tracker-board operated by said re-

winding mechanism independently of the music-sheet, substantially as specified.

2. In a mechanical musical instrument, the combination of sound-producing devices, a tracker-board comprised in mechanism for controlling said sound-producing devices, a music-sheet for traveling over the end of the tracker-board, means for propelling the music-sheet, in one direction for playing, and in another direction for rewinding, and a cover or stop shifted at the commencement of the rewinding of the music-sheet to close or stop air-ducts of the said tracker-board, the said cover or stop being constructed to slide adjacent to one side of the tracker-board and to drop over the end of the tracker-board, substantially as specified.

3. In an organ, the combination of manual-keys, sound-producing devices controlled by said keys, an independent set of sound-producing devices, valves for controlling the independent set of sound-producing devices, and a rocking bar provided with valve-seats and supporting the valves for the independent set of sound-producing devices, substantially as described, whereby the independent set of sound-producing devices may be put out of or under control of the said keys.

4. In an organ, the combination of manual-keys, sound-producing devices controlled by said keys, an independent set of sound-pro-

ducing devices, valves for controlling the independent set of sound-producing devices, a rocking bar provided with valve-seats and supporting the valves for the independent set of sound-producing devices, substantially as described, and adjustable ducts leading from the valve-seats, and, by their adjustability, permitting the movement of the said rocking bar.

5. In an organ, the combination of manual-keys, sound-producing devices controlled by said keys, an independent set of sound-producing devices, valves for controlling the independent set of sound-producing devices, a rocking bar provided with valve-seats, and flexible tubes communicating with the valve-seats and extending from said rocking bar, substantially as specified.

6. In an organ the combination with a tracker-board and a cover comprising a frame resting upon one side of the tracker-board, rods for shifting said frame, arms for shifting said rods and their rock-shaft carrying the said arms, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH H. CHASE.

Witnesses:

A. C. BUMPUS,

WILBUR H. SQUIRE.