

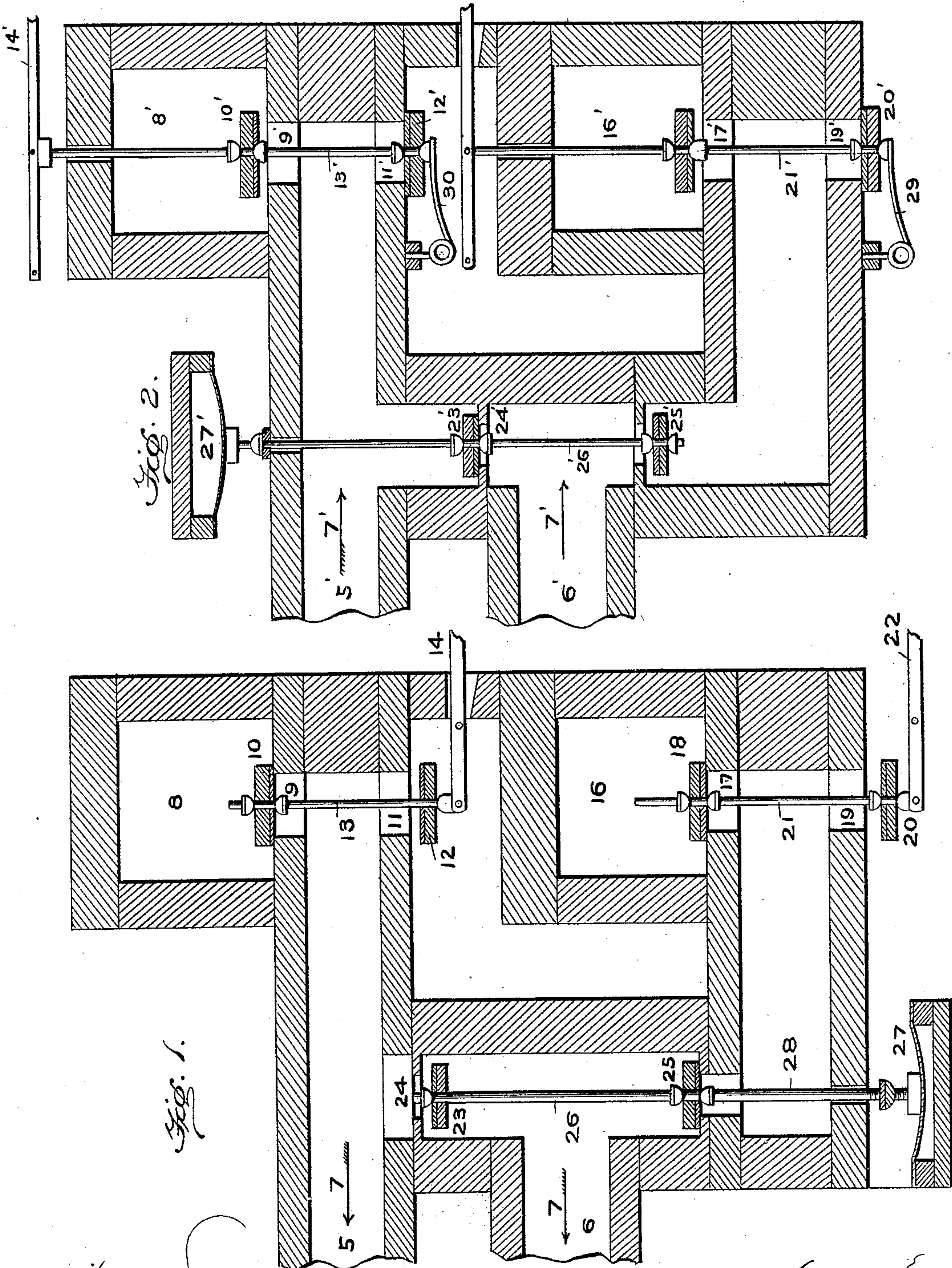
(No Model.)

J. V. PILCHER.

AUTOMATIC COUPLER FOR PNEUMATIC ORGANS.

No. 519,389.

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UNITED STATES PATENT OFFICE.

JOHN V. PILCHER, OF LOUISVILLE, KENTUCKY.

AUTOMATIC COUPLER FOR PNEUMATIC ORGANS.

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Application filed September 16, 1893. Serial No. 485,732. (No model.)

To all whom it may concern:

Be it known that I, JOHN V. PILCHER, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Automatic Couplers for Pneumatic Organs; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to that class of church organs either pipe or reed, which are provided with motors to be pneumatically operated for the purpose of controlling the supply valves to the various pipes or to the stop chambers, and its object is to provide means whereby the channels leading to two motors may be automatically connected so that both motors may be operated when the manual key for one of the two channels is pressed, and when the manual key of the other channel is pressed the communication between the two channels will be closed, then the motor belonging to the said other channel will be the only one operated.

To this end my invention consists in the construction and combination of parts forming an automatic coupler for pneumatic organs hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure I, represents a portion of an organ according to my invention partly in transverse vertical section and partly in side elevation, in which the action is by pneumatic pressure; and Fig. II, is a similar view representing a modification of my invention adapted to be used in connection with motors operated by pneumatic exhaust.

5 and 6 represent two air channels through which compressed air is to be forced in the direction of the arrow 7 to operate motors located at some distance in that direction upon the respective channels. The motors are not shown as they and their operation form no part of this invention, my present object being to control the passage of air to such motors along each channel and for the purposes of the claim I shall designate these

channels as "pneumatic motor-supply air channels."

8 represents an air chamber which is permanently supplied with compressed air whenever the organ is to be operated, and 9 represents a port communicating with the channel 5.

10 is a valve seated upon the port 9 to close the same.

11 is an exhaust port for the channel 5, and 12 is a valve located upon the same stem 13 as the valve 10. These two valves 10 and 13 are so adjusted in their location that when either one is opened the other is closed.

14 represents either a manual or pedal key, pivoted at 15 and adapted to open the port 9 and to close the port 11 whenever the said key is pressed upon.

16 is another air chamber permanently supplied with compressed air and communicating with the channel 6 by means of a port 17 which is provided with a valve 18.

19 is an exhaust port for the channel 6, and 20 is a valve for the said exhaust port. Valves 18 and 20 are both mounted upon one stem 21 and so adjusted that when either valve is open the other is closed.

22 is a key, either manual or pedal, whereby the valves 18, 20 may be operated.

23 is a valve for the port 24 which communicates between the channels 5 and 6 and couples them. This valve is adapted to be opened automatically by air pressure in channel 5, coming through the port 24, and adapted to be closed automatically by air pressure in the channel 6.

25 is a check-valve in channel 6 to prevent escape of air through exhaust port 19 when the air enters channel 6 by the coupler port 24. The valves 23 and 25 are connected by some means such as the stem 26 so that the closing of valve 23 opens valve 25, and vice versa.

27 is a motor connected by means of a stem 28 with the valves 23 and 25, and whenever it is desired to close the coupling valve 23 so as to render each channel independent of the other air is admitted by any usual means to the motor 27 whereby the valve 23 is closed and the valve 25 is opened, thus permitting

the air to travel freely along the passage 6 past the valve 25 and preventing any communication between the passages 5 and 6 through the port 24.

5 The operation is as follows: If key 14 be pressed the inlet port 9 will be opened and the exhaust port 11 be closed, causing air to flow from the chamber 8 into the passage 5, thence through the port 24 into the passage
10 6, so that the motors upon these two passages may both be put into action by the single key 14 through my coupler valve 23; at the same time the valve 25 is pressed upon its seat thus preventing the air from wasting
15 out through it and through the open port 19. Now if the key 14 be released and the key 22 be pressed down, the port 17 will be opened and the exhaust port 19 closed, thus admitting air from the chamber 16 to the channel
20 6, beneath the valve 25, whereby this valve is quickly opened and the valve 23 is closed. So that the air is permitted to pass freely along the channel 6 without communicating with the channel 5. When it is desirable to
25 use the channel 5 alone air is to be admitted to the motor 27, whereby the port 24 is closed and the valve 25 is opened, leaving each passage to be operated by itself independently of the other. In order to adapt the same
30 principle of operation to motors which are to be operated by air exhaust instead of air pressure, it is only necessary to reverse the position of the valve at each of the ports, as shown in Fig. II, in which, parts corresponding to Fig. I, are given the same numbers
35 with a prime mark each.

In Fig. I the device shown is intended to hold the motor distended by compressed air in the channels whenever it is desired to produce a sound upon the organ. In Fig. II the device is also intended to hold the motor distended by compressed air in the channels, but in this case the organ remains silent until the compressed air is permitted to exhaust
45 from the channels.

5' is one air channel and 6' another connected by a port 24' closed by a valve 23' when the valve 25' upon the same stem 26' leaves the passage 6' open.

50 27' is a motor adapted to close the valves 23' and 25'.

8' is a compressed air chamber communicating with the channel 5' by a port 9' which is provided with a valve 10'.

55 11' is an exhaust port of the channel 5' provided with a valve 12' upon the same stem 13' as the valve 10'. This exhaust port is kept normally closed by a spring 28 acting upon the valve 12', thus keeping the port 9' normally open. By this means the compressed air is normally free to pass from the chamber 8' through the port 9' into the channel 5' whereby a motor on that channel may be held inactive, and the port 24' will be held closed,
60 but if the key 14' be pressed the compressed air will be shut out of the passage 5' and the

air therein will be permitted to exhaust through the port 11' which will then be opened. The pressure being thus removed from above the valve 23' it will be raised, opening the
70 port 24' and permitting the compressed air in channel 6' to exhaust, at the same time closing the valve 25' so that the air may not escape through it from the chamber 16' by way of port 17'. Now if the key 22' be operated
75 instead of key 14' the port 17' will be closed and port 19' opened against the action of the spring 29. The valve 25' will be opened and the port 24' closed thus permitting the air to exhaust freely from channel 6' at port 19',
80 but not permitting communication by the coupler valve 23' with the channel 5'. Now if it is desirable to operate each key 14' and 22' independently of the other compressed air is admitted to the motor 27' whereby the
85 valve 23' is kept closed. It is possible that more channels than two may be connected to operate together by the action of a single key if it should be so desired, by merely multiplying the parts here shown and described.
90 As organ channels are made with different supply and exhaust valves from those shown, it would be possible in some cases to dispense with the check valves 25, 25' and yet obtain the advantage of my coupler valve 23, 23'.
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Having thus described my invention, what I believe to be new, and desire to secure by Letters Patent, is the following:

1. The combination in a channel-coupler for organs, of two pneumatic motor-supply
100 air channels, each provided with an independent inlet port and exhaust port; valves for the said ports; keys for the said valves; a compressed air chamber connected with each channel by its inlet port; a port communicating between the two channels; a valve for the said port, and connected with this valve, a check valve for the secondary channel substantially as described, whereby the action
105 which opens the said communicating valve will close the said check valve and the action which closes the communicating valve will open the check valve.

2. The combination in a channel-coupler for organs, of two pneumatic motor-supply
115 air channels, a port communicating between these channels; a check valve for one of the channels, and a valve for the communicating port connected with the check valve, substantially as specified.
120

3. The combination in a channel-coupler for organs, of two pneumatic motor-supply
125 air channels; a port communicating between the channels, a pneumatically operated valve for the said port, and a check valve for one of the channels adapted to be opened by the action which closes the communicating valve, and to be closed by the action which opens the same, substantially as described.

4. The combination in a channel-coupler
130 for organs, of two pneumatic motor-supply air channels; a coupler port communicating

between the channels; a pneumatically operated valve for the said port; a check-valve for one of the channels, and a motor adapted to close the coupler valve and to open the
5 check-valve substantially as described, whereby the coupled channels may be set free to operate independently of each other.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN V. PILCHER.

Witnesses:

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