

(No Model.)

2 Sheets—Sheet 2.

J. T. AUSTIN.
PIPE ORGAN.

No. 537,664.

Patented Apr. 16, 1895.

Fig. 4.

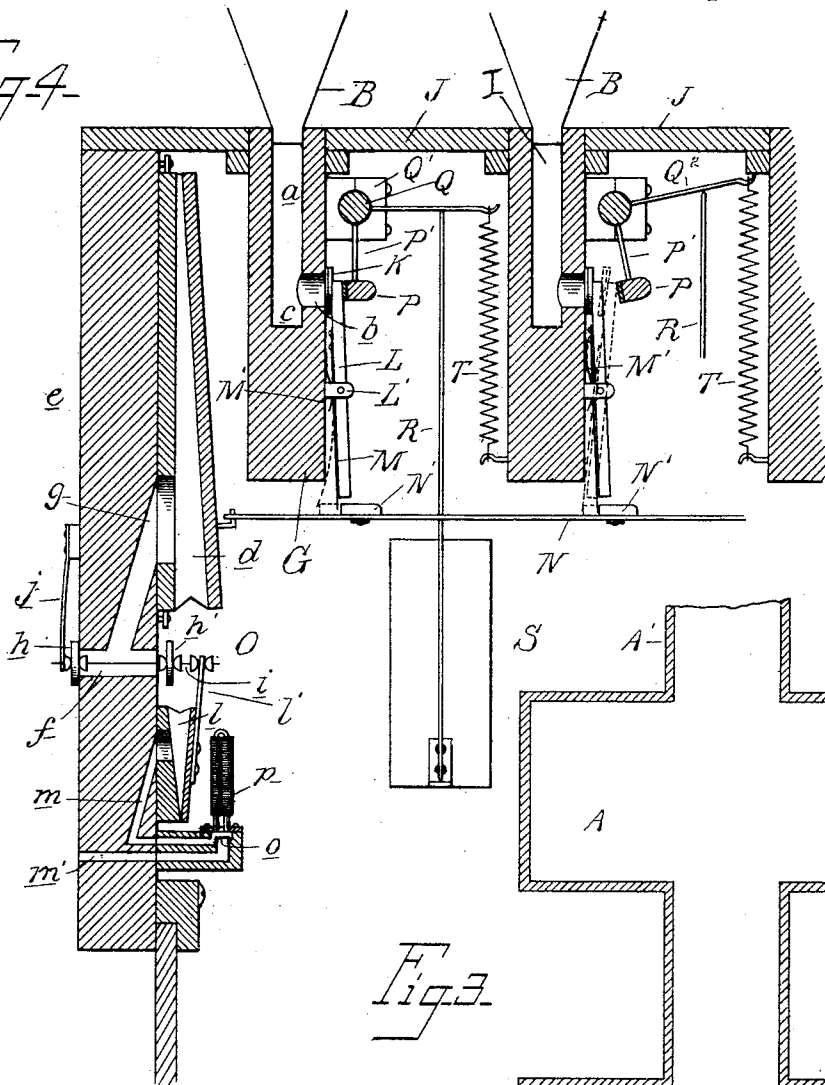
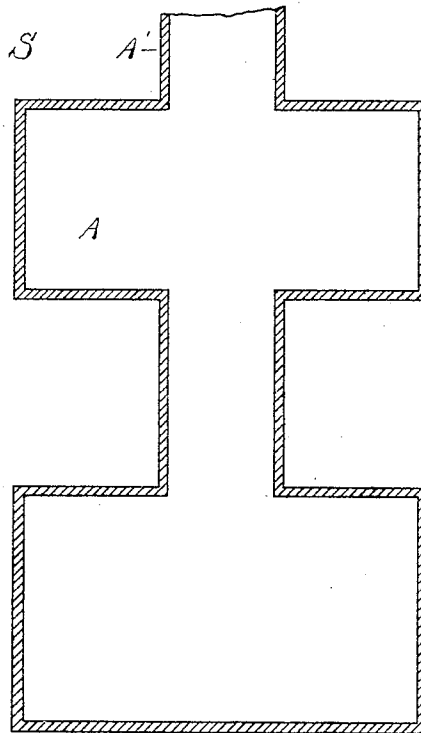


Fig. 3.



—Witnesses—

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UNITED STATES PATENT OFFICE.

JOHN T. AUSTIN, OF DETROIT, MICHIGAN.

PIPE-ORGAN.

SPECIFICATION forming part of Letters Patent No. 537,664, dated April 16, 1895.

Application filed April 4, 1893. Serial No. 468,983. (No model.) Patented in Canada January 23, 1895, No. 47,992.

To all whom it may concern:

Be it known that I, JOHN T. AUSTIN, a subject of the Queen of Great Britain, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Pipe-Organs, of which the following is a specification, reference being had therein to the accompanying drawings.

The object of my invention is to simplify the construction, reduce cost of manufacture, to give more ready access to the valves and the other parts of the mechanism; and further to allow access to said parts while the organ is in use.

My invention consists in the peculiar construction, arrangement, and combination of the various parts, all as more fully hereinafter described.

This invention I have made the subject-matter of Canadian Letters Patent No. 47,992, dated January 23, 1895.

In the drawings, Figure 1 is a vertical, longitudinal section through my organ. Fig. 2 is a cross section at right angles to Fig. 1. Fig. 3 is a diagram of a modified form of chest, and Fig. 4 is an enlarged view of some of the parts shown in Fig. 1.

A is the wind chest preferably of rectangular form above which are arranged the pipes B. Where there is sufficient floor space the chest is preferably made of a single casing having all the pipes above it, but where cramped for room it may be built in sections or stories (as shown in Fig. 3), connected by a wind trunk A'.

C is a man-hole or entrance to the chest closed by an air tight door C' arranged preferably in one of the side walls.

D is the vestibule chamber into which the door C opens and D' is a second door opening into the organ.

I preferably provide the walls of the chest with one or more transparent panels A² through which light may be admitted. Where an electric motor is used electric lights may be employed for illuminating the interior of the chest.

E are feeders or pumping bellows and F a pressure regulating bellows arranged within the chest preferably upon the side walls. In the drawings I have shown the bellows F

hinged at the bottom and provided with a weighted arm F² for holding it normally distended.

F³ is a check valve normally closed and adapted to be opened by striking against the arm F⁴ to act as a safety valve.

An electric motor E' is shown for operating the feeders provided with a rheostat E² controlled by the movement of the bellows F.

G are a series of bars extending across the upper part of the chest. The pipes B are arranged in rows on the bars G, and I are a series of ports of air passages formed in said bars, one for each pipe. These ports are preferably formed by first boring a hole *a* in the upper edge of each bar, adapted to receive the nose of the corresponding pipe, and then boring corresponding hole *b* in the side of the bars joining the hole *a*, so as to leave a well or dust pocket *c* below the juncture.

J are panels closing the space between the bars G, and together with said bars forming the cover of the chest.

K are valves normally closing the passages *b*, secured to the upper end of the levers L which are fulcrumed in brackets L' upon the bars G with their free ends extending below said bars. Each lever is provided with a spring arm M, preferably formed of a flat piece of spring metal secured at one end to the lever and extending slightly beyond the end thereof.

M' is a second lighter spring bearing against the lever L, acting to hold the valve closed.

N are trackers arranged below the levers L having buttons N' adapted to strike the spring arms M of all the valves controlled by a single key. These trackers are secured at one end to spring hangers N² and at the other end to pneumatic motors O preferably of the following construction: *d* is a bellows secured to the board *e* forming a part of the side walls of the chest. To this bellows air is admitted or exhausted through ports *f* in the board *e* and the inclined passages *g* joining the port *f*. *h h'* are valve disks arranged on a common stem *i*, the one on the outside and the other on the inside of the chest. *j* is a spring holding the valve *h* normally closed and the valve *h'* open. *l* is a smaller bellows having arm *l'* secured to the stem *i*. *m m'* are supply and exhaust passages leading to the bellows *l*.

is an armature controlling said passages and
 p an electro magnet for operating said arma-
 ture connected in an electric circuit with one
 of the keys of the key board of the organ, not
 5 shown.

P are universal bars extending across the
 chest and adapted to lock the valve lever L
 from being operated. These bars I prefer-
 ably secure by hangers P' to the rock shaft
 10 Q, journaled in bearings Q' on the bars G.

Q² are rock arms attached at one end of the
 rock shafts Q which are connected by sticker
 rods R to the pneumatic motors S, similar in
 construction and operation to the motors O,
 15 and controlled through suitable electric con-
 nection by the stop knobs of the organ. T is
 a spring attached to the rock arm Q² tending
 to hold the universal bar P in contact with
 the levers L.

20 The operation of the parts is as follows: Air
 is supplied to the chest through the pumping
 bellows E operated by the motor E' and is
 kept at uniform pressure by the regulator bel-
 lows F which alternately collapses and ex-
 25 pands as the air is supplied or exhausted from
 the chest. When the stops of the organ are
 closed all of the valves K are locked from op-
 eration by the universal bars P, each bar con-
 trolling the valves of a musical register, but
 30 if one or more of the stop knobs be drawn, the
 pneumatic motor S will raise the sticker rods
 R rocking the rock shafts Q and retracting
 the bars P. Now if any key of the organ is
 depressed its corresponding tracker N will be
 35 drawn by the operation of the pneumatic mo-
 tors O in the manner before described, the
 buttons N' impinging against the spring arms
 M' of the valve levers L. As each tracker is
 arranged in proximity to the corresponding
 40 valves of the different musical registers, some
 of which are locked, and others unlocked, the
 buttons N' striking the spring arms of the
 locked levers will simply bend said springs
 without moving the levers to which they are
 45 attached, but the unlocked valves will be
 opened. Thus but a single valve is used for
 each pipe of the organ, and this is controlled
 by both key and stop action.

It frequently happens during an organ re-
 50 cital that one of the valves becomes inopera-
 tive owing to the lodgment of dust on its seat,
 or from some other like cause. This causes
 the performer a great deal of annoyance as
 he is obliged to shut off the whole register, to
 55 prevent the sounding of this one pipe, which
 he cannot use again during the performance.
 With my construction a defect of this kind
 can be at once remedied even while the organ
 is in use as access to the interior of the chest
 60 may be had at any time without exhausting
 air pressure by entering through the vestibule
 chamber D. It is only necessary to press the
 valve C² in the door C' allowing whatever air
 pressure there may be in the vestibule to ex-
 65 haust and then the door may be opened.
 When once in the vestibule and the outside

door is closed the valve D² in the inner door
 D' may be opened to equalize the pressure in
 the chest and vestibule after which access
 may be had to the interior of the chest. 70

It is obvious that where the chest is divided
 into two or more separate compartments in
 which the air is maintained at different press-
 ures access may be had from one compartment
 to the other by providing a vestibule entrance 75
 between them similar to the vestibule D.

Where I use the words "universal wind
 chest" in the claims it is intended to mean a
 wind chest universal to a multiple of regis-
 ters of pipes. 80

What I claim as my invention is—

1. In an organ, the combination of a wind
 chest having portions formed of a single plank
 or section, having an air passage therethrough
 the pipes directly engaging in the outer end 85
 thereof, and an air-tight door for the chest
 substantially as described.

2. In an organ, the combination of a wind
 chest having portions of the outer wall formed
 of a single plank on edge, an air passage 90
 therethrough, the pipes secured directly in
 the outer end of said passages, a valve at the
 inner end thereof, whereby there are no joints
 in the passage between valves and pipes, sub-
 stantially as described. 95

3. In an organ, the combination of a uni-
 versal wind chest, the multiple stops of pipes
 connecting therewith, passages from the chest
 to the pipes, a valve controlling each pas-
 sage, a lock for said valve controlled by the 100
 stop and mechanism controlled by the keys
 to actuate the unlocked valves, substantially
 as described.

4. In an organ, the combination of an ac-
 cessible wind chest universal to a multiple of 105
 registers of pipes and having an inlet and out-
 let door, passages from the chest to each pipe,
 a valve controlling each passage, controlling
 devices for all the valves of each register of
 pipes actuated by a stop, and key actuated 110
 devices for all the corresponding valves in
 each register, these parts being located in the
 wind chest, substantially as described.

5. In an organ, the combination of the wind
 chest, the pipes connected therewith by pas- 115
 sages, valves controlling said passages, a lock
 for said valves controlled by the stop, a
 tracker, and a spring arm through which the
 tracker operates the valves, substantially as
 described. 120

6. In an organ the combination of the wind
 chest, the pipes connected therewith by pas-
 sages, valves controlling said passages, a lock
 for said valves controlled by the stops, a light
 spring acting to hold the valves closed a 125
 tracker, and a spring arm, of greater power
 than the closing spring through which the
 tracker operates the valves, substantially as
 described.

7. In an organ, the combination of the 130
 valves, the lock therefor, a spring acting to
 normally apply said lock, and a motor con-

trolled from the stop, for releasing said lock, substantially as described.

5 8. In an organ, the valve actuating mechanism comprising a pneumatic located on a plank forming a portion of the wall of the
10 wind chest, a passage leading from said pneumatic to a second passage formed through said plank, a valve stem having valves controlling the ports inside and outside the chest, and means for actuating said valves, substantially as described.

15 9. In a pipe organ, the combination of a series of registers of pipes, a valve for each pipe, valve controlling mechanism and an accessible universal wind chest therefor, in which the valves and valve controlling mechanism are contained and provided with an inlet and outlet door, substantially as described.

20 10. In an organ, the combination with a wind chest, universal to a multiple of registers of pipes and having an inlet and outlet door, pipes, passages from the chest to the pipes, a valve controlling each passage, key actuated
25 mechanism for the like valve of each register of pipes and mechanism for setting said valve in operative or inoperative position controlled

by a stop, all located within the wind chest, substantially as described.

30 11. In an organ, the combination with an accessible wind chest universal to a multiple of register of pipes and having an inlet and outlet door, pipes, passages from the chest to the pipes, a valve controlling each passage, of
35 key actuated mechanism for the like valves of each register of pipes, mechanism common to each register of pipes for setting the valves of such register in operative or inoperative position, all located within the wind chest, and stops for controlling the setting mechanism, substantially as described.

40 12. In an organ, the combination with an accessible wind chest common to all the pipes and having an inlet and outlet door, key and stop actuated valves and actuating mechanism all contained within the chest, substantially as described.

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

JOHN T. AUSTIN.

Witnesses:

JAMES WHITEMORE,
M. B. O'DOHERTY.