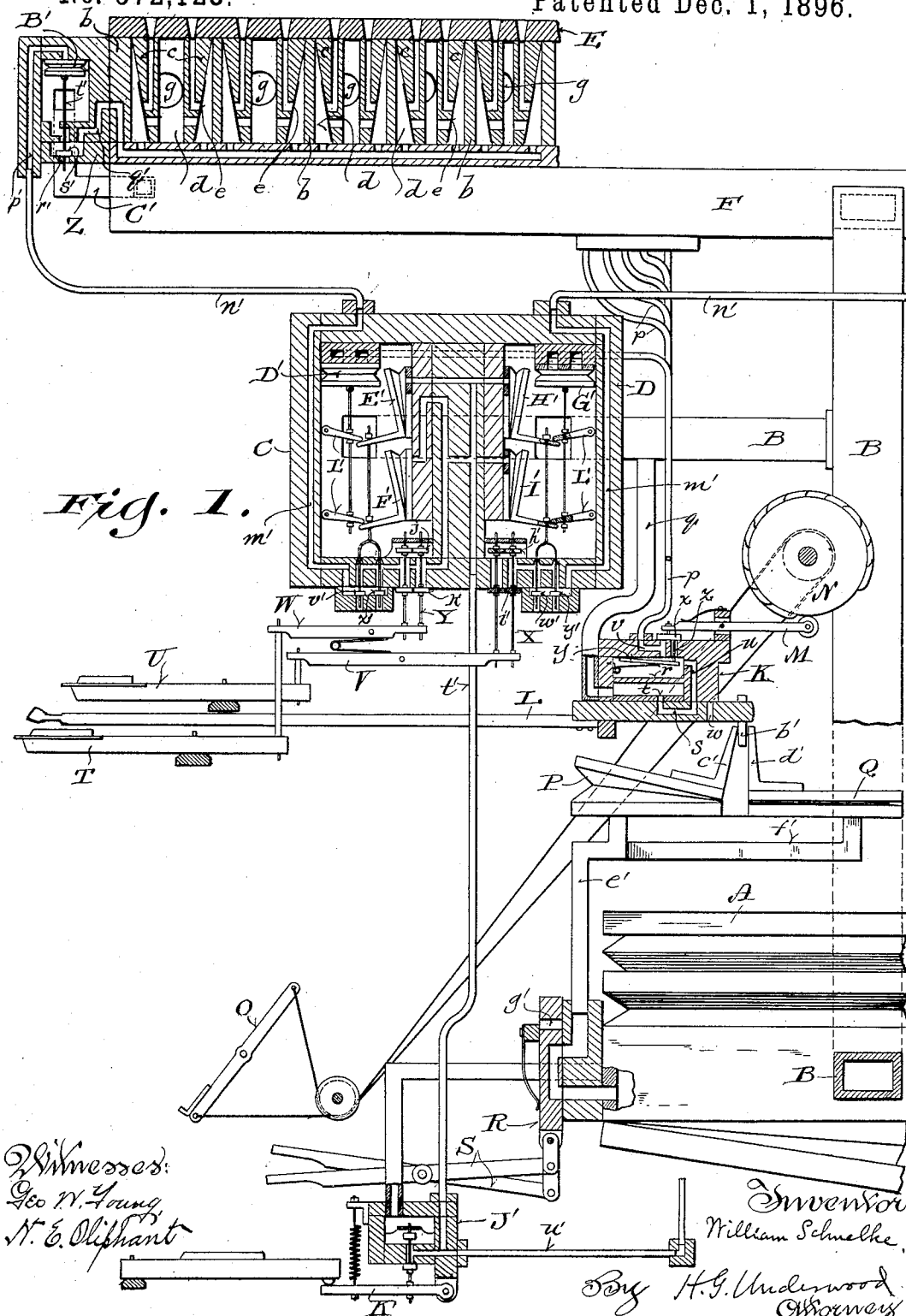


W. SCHUELKE.
ORGAN.

No. 572,128.

Patented Dec. 1, 1896.



(No Model.)

2 Sheets—Sheet 2.

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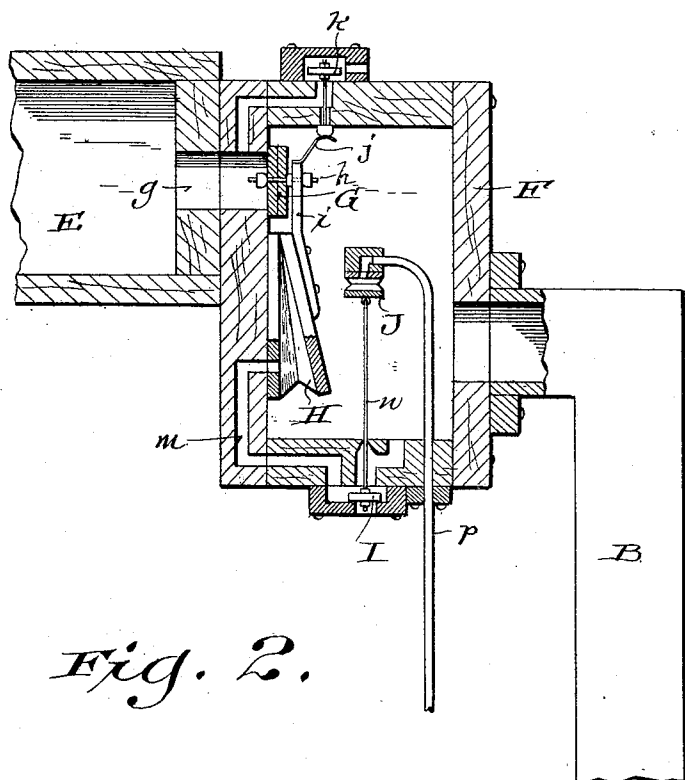


Fig. 2.

Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM SCHUELKE, OF MILWAUKEE, WISCONSIN.

ORGAN.

SPECIFICATION forming part of Letters Patent No. 572,128, dated December 1, 1896.

Application filed February 5, 1896. Serial No. 578,092. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM SCHUELKE, a citizen of the United States, and a resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Organs; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention has for its main objects to economize space, cheapen production, and do away with a multiplicity of lever-actions common in church and concert organs as ordinarily constructed.

Said invention also contemplates an instrument of the above-named variety that is not liable to get out of order and which will have the same key-leverage at all times independent of the number and variety of couplers employed, thus providing for easy playing with light touch.

In view of the foregoing the aforesaid invention consists in certain peculiarities of construction and combination of parts, hereinafter set forth with reference to the accompanying drawings, and subsequently claimed.

In the drawings, Figure 1 illustrates a practical application of my improvements, certain of the parts being in section. Fig. 2 represents a sectional view of a valve mechanism that constitutes one of the important features of my invention and which is provided for each stop or series of speaking reeds or pipes in the instrument to which said improvements are applicable.

Referring by letter to the drawings, A represents the bellows by which wind is supplied to the instrument; B, wind-trunks connecting the bellows with various chests and boxes in said instrument. As herein shown the key-boxes C D are for great and swell organs, although only a portion of the wind-chest E for the former has been made apparent, this wind-chest and those pertaining to all the organs in the instrument being, preferably, of the same construction and combination of parts set forth in my Patent No. 549,690, of November 12, 1895. In other words, each wind-chest has vertical ends and partitions b, a wall c, abutting each of these ends and partitions parallel thereto, but beveled away therefrom, each wall provided with a series of horizontal apertures, and a series of up-

wardly-extending passages above the apertures, other vertical partitions d at intervals intermediate of the former partitions, (with which they form right angles,) and beveled walls to isolate each wall-aperture and its companion passage from the others in the series, diaphragms e secured in place between each pair of isolating-partitions to constitute a valve for a wall-aperture and companion passage, and a wind-trunk beneath the aforesaid partitions is in practice provided with the usual divisions, having ports that communicate with spaces inclosing said diaphragms, it being understood that in practice each compartment of said wind-chest controlled by a diaphragm communicates with a reed or pipe of the instrument of which it forms a part. It has been deemed necessary to show more than one division of the wind-trunk.

A port g leads from a register-box F into each compartment of the wind-chest pertaining to each organ in the instrument, and each port is controlled by a valve G, that in turn is controlled by a small bellows H, to which the term "pneumatic" is commonly applied. As a matter of detail the valve-stem is shown in rigid connection with a bracket i, fast on the pneumatic, and a finger j on the bracket supports a gravity-valve k when said pneumatic is inflated, this latter valve being employed to control the exhaust-passage for wind left in the chest-compartment when the former valve is seated to close the aforesaid port.

Each pneumatic H is inflated by wind from the bellows A, this wind being supplied to the register-box and finding its way to said pneumatic through a passage m, having an exhaust-port controlled by a valve I on the end of a wire n, attached to another diminutive bellows or pneumatic J in said register-box, the latter pneumatic being connected, by one of a series of pipes p, with a stop-box K, also supplied with wind from said bellows through a wind-trunk branch q, as shown in Fig. 1.

As a matter of detail the stop-box is divided into a series of compartments above a horizontal partition r, and the space below this partition is supplied with wind from the bellows A through the wind-trunk branch q, and each draw-stop L is provided with a passage

s, that normally connects a port *t*, leading from said wind-space, with another passage *u*, leading into a compartment of said stop-box. The pipe *p* of a pneumatic J registers with a passage *v*, leading from a stop-box compartment, and thus it will be seen that when a draw-stop is pushed in the relative pneumatic J will be inflated to seat the valve I, that depends therefrom, thus closing the exhaust-port of passage *m*, above specified, whereby a pneumatic II is also inflated to seat the valve G of the stop or series of reeds or pipes corresponding to said draw-stop, the relative gravity-valve *k* being lifted to permit exhaust of wind left in the chest-compartment pertaining to said stop of reeds or pipes.

Each draw-stop L is provided with a transverse aperture *w*, that comes into register with a passage *u* when said draw-stop is pulled out to cut off the passage *s*, and thus the wind is let out of pneumatics J II to bring valves I G away from their seats for the purpose of supplying wind to a chest-compartment with which the reeds or pipes comprising a stop are registered.

If a crescendo and decrescendo action be employed, as herein shown, each stop-box compartment will have its passage *v* provided with an exhaust branch controlled by a valve *x*, this valve being lifted by means of a spring-controlled lever M, operated upon by a lug on the rotative drum N of said action. The drum-lugs are at intervals in the direction of a spiral, and the rotation of said drum is effected by belt-and-pulley gear controlled by a rock-lever O, arranged to be operated by the foot of the organ-performer.

A spring-controlled check-valve *y* is arranged in each compartment of the stop-box and provided with a wire *z*, extending through an aperture in the top of said box to oppose the valve *x*, above specified. When a valve *x* is lifted, its companion check-valve *y* will automatically close by the expansion of its controlling-spring, thereby preventing loss of wind from the stop-box, the wind from pneumatic J being then exhausted through the branch of passage *v* that is normally closed by the former valve. A drum-lug having passed out of contact with a lever M, the controlling-spring of this lever will operate to automatically seat valve *x*, and the latter pressing on wire *z* will open check-valve *y*, thereby permitting another inflation of the aforesaid pneumatics, for the purpose above specified.

In order that a combination of draw-stops may be operated, each one in the combination will be provided with finger *b'*, arranged to come intermediate of brackets *c' d'* on diminutive bellows or pneumatics P Q, supplied by wind from the bellows A through suitable wind-conveyers *e' f'*, each of the latter being controlled by a slide-valve R, having a pedal S in link connection therewith. As shown in Fig. 1, one of the slides R has

been adjusted to open a passage from the bellows, thus permitting inflation of pneumatics P through conveyer *e'* and its several branches, a retraction of all the draw-stops in a combination being the result. The pneumatics Q are deflated when the ones P are inflated, it being understood that each slide R is provided with an exhaust-port *g'* for the relative wind-conveyer, this port coming into working position when said slide is adjusted to cut off wind from the bellows, as will be apparent from the showing in Fig. 1. It also follows that the pneumatics Q are inflated simultaneous with a deflation of pneumatics P to thereby push out all the draw-stops in a combination by one impulse.

Each key of a manual has sticker connection with a lever opposing a button on a wire that constitutes the stem for gravity-valves controlling ports leading from passages in the key-boxes C D, above specified. The great and swell natural or white keys herein shown are respectively indicated by the letters T U, the levers in sticker connection therewith are marked V W, and the letters X Y are applied to the valve stems or wires that operate in conjunction with said levers. There is a pair of valves *h' i'* on the stem or wire X and another pair of valves *j' k'* on the stem or wire Y, each pair of valves being normally in the position herein shown.

The passages *m'* in the key-boxes are connected by pipes *n'* with other passages *p'* in a box Z, containing diminutive bellows or pneumatics B', corresponding to each key in a manual, this box being provided with passages *q'*, communicating with the trunk of a wind-chest, to which it is connected. A wind-trunk branch C' leads into the box Z, and exhaust-ports *r'*, belonging to said box, are controlled by valves *s'* on wire stems *t'*, depending from the pneumatics B', the latter being normally inflated to seat said valves.

Assuming that key T of the great organ be played, the valves *j' k'* will drop from their normal position to shut off a passage *m'* from the key-box C and at the same time open this passage for the escape of wind from a pneumatic B', deflation of the latter causing a lift of a valve *s'* to permit escape of the wind that has previously been in pressure against a diaphragm *e* to cut off a reed or pipe corresponding (in any open stop) to said key of the great organ manual. Upon release of key T and restoration of valves *j' k'* the pneumatic B' is again inflated to lower valve *s'* and thereby close the exhaust from the wind-trunk having communication with the diaphragm-spaces of the aforesaid wind-chest.

Shown in the key-box C are diminutive bellows or pneumatics D' E' F', and a like series of such bellows or pneumatics G' H' I' are shown in key-box D, these several pneumatics being parts of coupler-actions. The pneumatics D' G' are each connected by one of the pipes *p* in a series with a stop-box and have their inflation and deflation governed by a

draw-stop and valve mechanism similar to what has been hereinbefore specifically set forth.

The pneumatics F' I' in the key-boxes connect with wind-passages leading to exhaust-ports controlled by key-operated valves, and the other pneumatics E' H' in said boxes are in communication with a passage connected by a pipe *t'* with a wind-box J', having exhaust-ports controlled by valves in stem connection with spring and pedal controlled levers K', as plainly shown in Fig. 1, this box in practice being also connected by pipes *u'* with the pneumatics governing the pedal-organ of an instrument embodying my improvements.

The pneumatics D' G' have depending wires provided with lift-buttons opposing check-levers L', that normally bear against brackets on the pneumatics E' F' H' I' when the latter are inflated. The draw-stop for octave-coupling of the great organ being pulled out, a pneumatic D' will be deflated to lift the check-lever L' that ordinarily prevents collapse of pneumatics E', and a key of said organ being depressed the wind in a corresponding pneumatic F' of another octave will escape through the exhaust-port opened incidental to depression of said key, the deflation of this pneumatic resulting in lift of a valve *v'*, controlling the exhaust-port for key-pneumatic of the octave reed or pipe.

In a like manner the great and swell organs are coupled by a draw-stop action, causing deflation of a pneumatic G' to cause a lift of check L', that holds pneumatics I' inflated, the latter pneumatics controlling valves *w'*, that open and close exhaust-ports of wind-passages in pipe connection with key-pneumatics of said swell-organ, the latter operation taking place when keys of said great organ are played upon, the corresponding keys of the aforesaid swell-organ remaining inactive. Hence it will be seen that there is no increase of key-leverage incidental to the coupling.

The pneumatics E' may be deflated when their check L' is lifted by a deflation of a pneumatic D', brought about by a draw-stop action to thus couple the great organ of the instrument with the pedal-organ. The former pneumatics have their exhaust through passages connected by pipes *t'* with exhaust-passages of pedal wind-box J' and operate in conjunction with valves *x'*, that open and close exhaust-ports of passages in pipe connection with great-organ key-pneumatics.

A deflation of pneumatic G', brought about by a draw-stop action, will lift the check for the pneumatics H' to thus couple the swell and pedal organs of the instrument. The latter pneumatics have their exhaust through passages also connected by pipes *t'* with exhaust-passages of the pedal wind-box J' and operate in conjunction with valves *y'*, that open and close exhaust-ports of swell-organ key-pneumatics.

While I have shown and described four coupler-actions, the latter may be indefinitely multiplied without increase of key-leverage.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of an organ wind-chest and its register-box having communicating stop-ports governed by valves, pneumatics attached to the valves, other valves arranged to control inflation and deflation of the pneumatics, other pneumatics controlling the latter valves, a box having compartments each of which communicates with a pneumatic of the latter series, and a draw-stop controlling admission and exhaust of bellows-wind with reference to each box-compartment.

2. The combination of an organ wind-chest and its register-box having communicating stop-ports governed by valves, pneumatics attached to the valves, other valves arranged to control inflation and deflation of the pneumatics, other pneumatics controlling the latter valves, a box having compartments each of which communicates with a pneumatic of the latter series, a draw-stop controlling admission and exhaust of bellows-wind with reference to each box-compartment, and wind-chest exhaust-valves coöperating with the pneumatics governing the stop-port valves.

3. The combination of an organ wind-chest and its register-box having communicating stop-ports governed by valves, pneumatics attached to the valves, other valves arranged to control inflation and deflation of the pneumatics, other pneumatics controlling the latter valves, a box having compartments each of which communicates with a pneumatic of the latter series, a draw-stop controlling admission and exhaust of bellows-wind with reference to each box-compartment, and a pneumatic pedal-controlled action for operating a plurality of draw-stops.

4. The combination of an organ wind-chest and its register-box having communicating stop-ports governed by valves, pneumatics attached to the valves, other valves arranged to control inflation and deflation of the pneumatics, other pneumatics controlling the latter valves, a box having compartments each of which communicates with a pneumatic of the latter series, a draw-stop controlling admission and exhaust of bellows-wind with reference to each box-compartment, a finger extended from the draw-stop, pneumatics provided with brackets for coöperation with a series of draw-stop fingers, and pedal-controlled valves operative to govern inflation and deflation of the latter pneumatics whereby a plurality of draw-stops may be simultaneously operated.

5. The combination of an organ wind-chest and its register-box having communicating stop-ports governed by valves, pneumatics attached to the valves, other valves arranged to control inflation and deflation of the pneu-

matics, other pneumatics controlling the latter valves, a suitable wind-box having passages in communication with the latter pneumatics, draw-stops having supply and exhaust passages for registration with said box-passages, and a crescendo-decrescendo action operating in conjunction with exhaust and check valves to accomplish deflation of the aforesaid pneumatics independent of an adjustment of draw-stops for the same purpose.

6. The combination of an organ wind-chest and its register-box having communicating stop-ports governed by valves, pneumatics attached to the valves, other valves arranged to control inflation and deflation of the pneumatics, other pneumatics controlling the latter valves, a suitable wind-box having passages in communication with the latter pneumatics, draw-stops having supply and exhaust passages for registration with said box-passages, exhaust and check valves arranged to permit deflation of the aforesaid pneumatics independent of an adjustment of draw-stops for the same purpose, spring-controlled levers connected to said exhaust-valves, a lever-actuating drum, and suitable foot-controlled mechanism for imparting rotation to the drum in either direction.

7. The combination of an organ wind-chest and its register-box having communicating stop-ports governed by valves, pneumatics attached to the valves, other valves arranged to control inflation and deflation of the pneumatics, other pneumatics controlling the latter valves, a wind-box that has communication with the latter pneumatics and is divided by a horizontal partition into upper and lower sections, the former section being subdivided into compartments, draw-stops having passages that normally connect ports in the lower section of the wind-box with passages leading to said compartments and also provided with exhaust-passages for registration with the former passages, a normally open spring-controlled check-valve in each of the aforesaid compartments opposing a passage that communicates with one of the aforesaid latter pneumatics, a normally-seated valve controlling an outlet of said passage, a spring-controlled lever connected to the latter valve, a lever-actuating drum, and suitable means for imparting rotation to the drum.

8. The combination of an organ wind-chest and its register-box having communicating ports governed by valves, pneumatics attached to the valves, other valves arranged to control inflation and deflation of the pneumatics, other pneumatics controlling the latter valves, a box having compartments each of which communicates with a pneumatic of the latter series, a draw-stop controlling admission and exhaust of bellows-wind with reference to each box-compartment, valves governing exhaust-ports of the wind-chest, pneumatics controlling these valves, and key-con-

trolled valves governing inflation and deflation of the last-named pneumatics.

9. The combination of an organ wind-chest of that class comprising ends and partitions abutted by walls parallel thereto but beveled away therefrom, each wall being provided with a series of horizontal apertures and corresponding series of upwardly-extended passages above the apertures, other partitions at right angles to the ones aforesaid and at intervals intermediate of the same, diaphragm-valves for the wall-apertures and passages within compartments formed by the partitions, and a wind-trunk beneath the compartments having divisions in port communication with the same; a wind-box having passage communication with each wind-trunk division, valves governing exhaust-ports of said box, pneumatics controlling these valves, a key-box having passages communicating with the pneumatics, key-controlled valves governing supply and exhaust ports of the key-box passages, a register-box having port communication with the wind-chest, a valve governing each register-box port, a pneumatic attached to this valve, another valve arranged to control inflation and deflation of the pneumatic, another pneumatic controlling the latter valve, a box having compartments each of which communicates with a pneumatic of the latter order, and a draw-stop controlling admission and exhaust of bellows-wind with reference to each box-compartment.

10. The combination of an organ key-box a series of valves in the key-box controlling inflation and deflation of key-pneumatics, other pneumatics controlling the valves, key-valves controlling inflation and deflation of the valve-pneumatics, a check for holding the latter pneumatics distended, another pneumatic operative to bring the check in and out of working position, and suitable means for opening and closing a wind-passage in communication with the latter pneumatic.

11. The combination of an organ key-box, plural series of valves in the key-box controlling inflation and deflation of key-pneumatics, other pneumatics controlling the valves, key-valves controlling inflation and deflation of the valve-pneumatics, checks for holding the latter pneumatics distended, and still other pneumatics operative to bring the checks in and out of working position, wind-passages in communication with the last-named pneumatics being governed by draw-stops and pedal-controlled slides.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

WM. SCHUELKE.

Witnesses:

N. E. OLIPHANT,
B. C. ROLOFF.