(No Model.) 2 Sheets—Sheet 1.

H. RICHARDSON.

REED ORGAN.

No. 516,990. Patented Mar. 20, 1894.

Fig. 1.

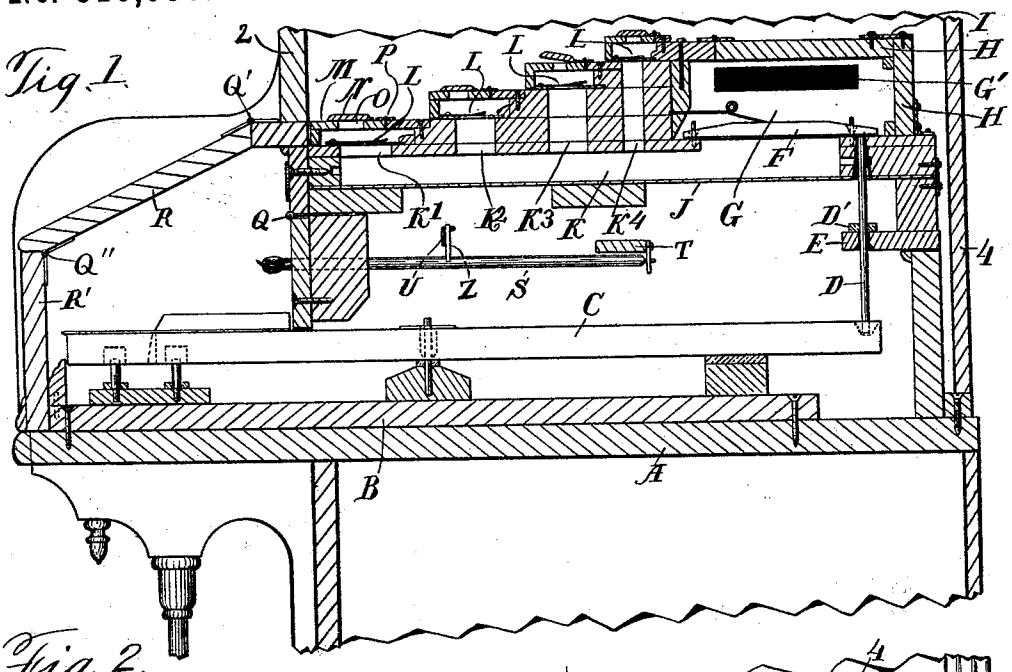
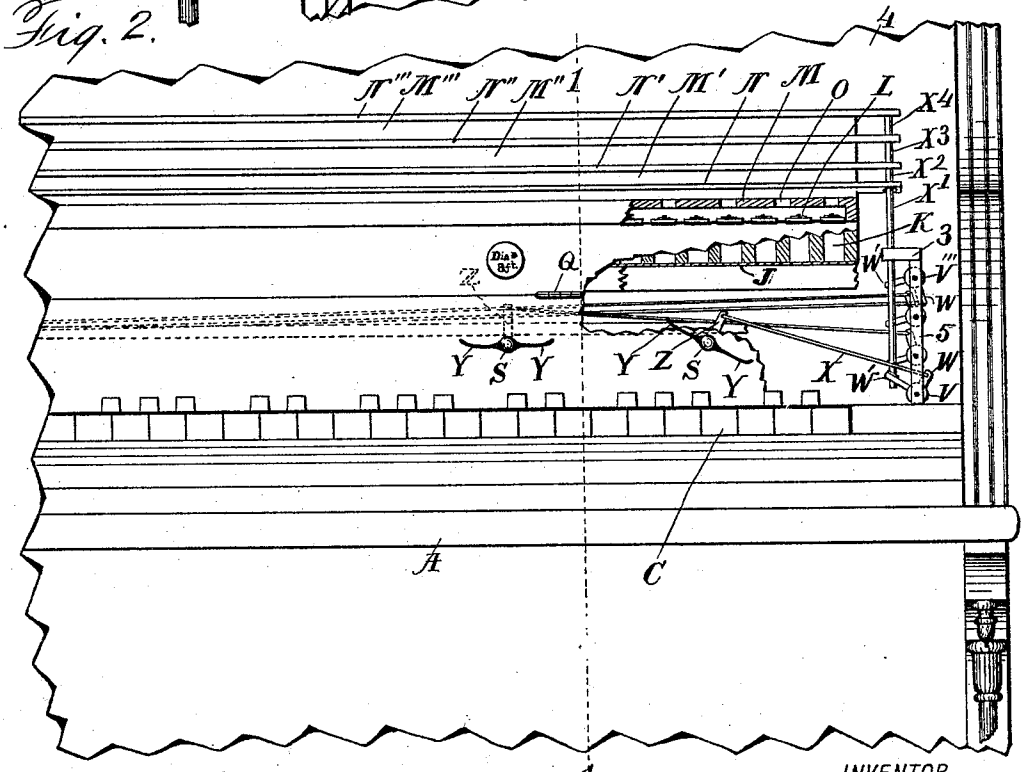


Fig. 2.



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Lois A. Moulton.

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(No Model.) 2 Sheets—Sheet 2.

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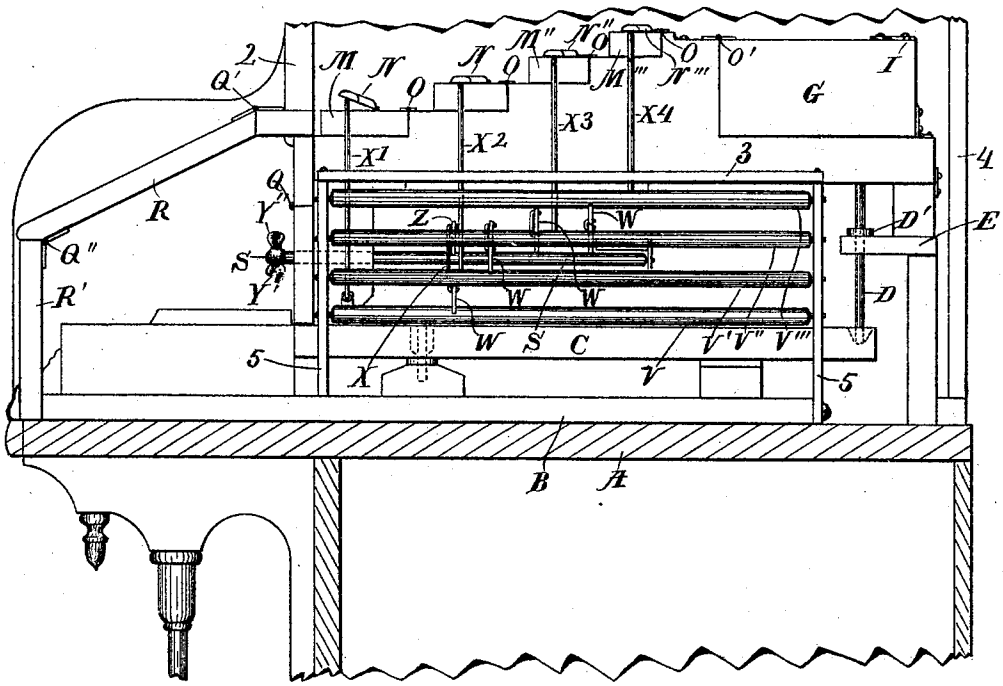

Fig. 3.

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UNITED STATES PATENT OFFICE.

HERBERT RICHARDSON, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR OF ONE-HALF TO FRANK W. TIDBALL, OF SAME PLACE.

REED-ORGAN.

SPECIFICATION forming part of Letters Patent No. 516,990, dated March 20, 1894.

Application filed May 8, 1893. Serial No. 473,348. (No model.)

To all whom it may concern:

Be it known that I, HERBERT RICHARDSON, a subject of the Queen of Great Britain, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Reed-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.

My invention relates to improvements in reed organs, and its object is to provide the same with certain new and useful features, hereinafter more fully described and particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical section on the line 1—1 of Fig. 2; Fig. 2 a front elevation of a part of an organ embodying my invention, having parts broken away to show the construction; and Fig. 3 an end elevation of the same with the end of the case removed.

Like letters and numerals refer to like parts in all of the figures.

A represents the bed or table of the case. Upon this is detachably secured the key frame B, upon which is suitably pivoted the keys C, which consist of straight bars pivoted near the middle, and at their rear or inner ends engaging push pins D, which pins extend vertically through a guide strip E, and engage and lift the valves F; said pins are prevented from falling out of the guide strip by washers D′, fixed on the same. Said valves F are within the wind chest G, and arranged to open upward, and close both the air passage and the pin opening in the bottom of the wind chest, whereby settling of dust on the valve face and air leakage around the pin are prevented. The wind chest is connected with any suitable bellows by means of the wind trunk G′. It is also located at the top and rear of the device, and has its top H and rear H′ made removable by being hinged and secured by a detachable hook or fastening I, said wind chest may thus be readily opened to clean or repair the valves without disturbing, or removing any of the other parts. Extending forward from the wind chest are a series of reed boards arranged in horizontal planes, in descending series toward the front. In these reed boards are vertical passages K′, K^2, K^3, K^4, one in each board in line with each of the valves F, and a horizontal transverse passage K, connects each series of vertical passages and extends to, and opens into the wind-chest beneath each valve. Below the reed-board and wind-chest is a sound-board J, upon which is attached the described wind-chest, and reed-boards, said sound-board at the front is attached to the name-board, and at the rear to the guide strip E, which latter is not otherwise attached to the case. Said name-board is horizontally divided and hinged below the sound-board, so that the latter together with the parts attached may be raised at the rear, and turned upon said hinges, to open up the space below said sound-board, and thus gain access to the keys C, and stop-action or other mechanism. The fall-board hinge Q′, turns downward and the hinge Q″ turns outward to permit this movement. Over each of the openings K′, K^2, &c., is a suitable reed L, engaging suitable grooves in the reed-board to prevent displacement of said reed, and each bank or set of reeds is inclosed in a box M, M′, M″, M‴, the bottom of said box being the reed-board, the rear of the same being the front of the next higher board these two parts being fixed, and the top and front of said box are attached to each other and hinged to open upward at the front. By so opening said box the reeds are all accessible and can be examined or cleaned without removal from place, or disturbing any other part of the structure, and by means of suitable levers, and vertical push pins, (not shown) said boxes may be opened to produce the usual swell effect, without interfering with the above operation. In the top of each box M are the openings O, which are closed by a continuous stop valve N, there being one such valve to each box and set of reeds; said valves N are opened by push pins X′, X^2, X^3, X^4, which pins engage the overhanging ends of said valves at their upper ends and extend vertically through the guide strip 3, and at their lower ends engage the arms W′, which arms are attached to rock shafts V, which shafts are journaled in posts 5—5, which posts also support the guide strip 3. Other arms W are attached to the said rock shafts, which are

connected to corresponding arms Z on other rock shafts S, which latter are journaled in and extend through the fixed portion of the name-board at their outer ends, and also journaled in supports attached to a fixed bar T, at their inner end. Said stop-shafts are operated by lateral keys Y, Y; by depressing which keys, each shaft is rotated in either direction thus turning the corresponding shaft V, and opening or closing the corresponding valve N. This movement is preferable to pulling out, and pushing in the usual stop, as one finger may be applied to any one of the keys Y without removing any of the other fingers, or the thumb from the keys C, this movement is also quicker as several stops may be manipulated at once.

The parts 2 and 4 indicate portions of any suitable back and front of the case, which are made removable to gain access to the parts described.

What I claim is—

1. In an organ, a wind-chest, passages from the bottom of the same to a series of reeds, valves within said wind-chest and arranged to open upward, and a removable side to said wind-chest, substantially as described.

2. In an organ, a wind-chest, having a hinged top and side secured by a detachable fastening, passages extending from the bottom of said chest to the reeds, valves within said wind-chest closing said passages, and opening upward, openings beneath said valves, push pins vertically movable in said openings, and keys engaging said pins, substantially as described.

3. In an organ, a wind-chest in the upper part of the organ, a reed-board in the plane of said wind-chest, vertical passages in the reed-board, horizontal passages beneath the reed-board and wind-chest, and connecting the vertical passages with the interior of said wind-chest, valves within the wind-chest closing said passages, vertically movable pins beneath said valves, and engaging the same, and keys engaging said pins, substantially as described.

4. In an organ, horizontal reed-boards, arranged in series descending toward the front of the case, grooves in each reed-board to retain the reeds vertical passages in said reed-boards connected to the wind-chest in transverse series, a movable top and front above each reed-board and inclosing the reeds, substantially as described.

5. In an organ, in combination with horizontal reed-boards, arranged in series descending toward the front of the case, and a movable top and front above each reed-board, inclosing the reeds, a series of openings in each of said tops, a stop-valve on each top closing said openings, and a series of mechanism connected to said valves to open the same, substantially as described.

6. In an organ in combination with a stop-valve, a rock-shaft connected to said valve, and operating the same by a rotary movement, and lateral keys on the outer end of said rock-shaft, to rotate the same, substantially as described.

7. In an organ, in combination with a series of reed-boards, having openings connected to the wind-chest, and inclosed reeds on said reed-board, a series of valves admitting air to said reeds, a series of push pins engaging said valves, a series of rock-shafts connected to said push pins, and operating the same, and lateral keys on the outer ends of said rock-shafts to operate the same, substantially as described.

8. In an organ, a stop-valve adapted to open upward, a vertically movable push-pin beneath and engaging the end of the same, a rock-shaft having lateral keys on its outer end, and journaled in the name-board, an arm on said rock-shaft, and an intermediate rock-shaft having bell crank arms, one of which engages said push pin, and the other of which is connected to the arm on the first named rock-shaft, substantially as described.

9. In an organ, a movable sound-board, a wind-chest and reed board attached to the same, transverse passages adjacent to said sound-board, having lateral openings through said reed-board and wind-chest, valves within said wind-chest opening inward, a removable side to said wind-chest, opposite said sound-board, substantially as described.

10. In an organ, keys pivoted near the middle, a series of push-pins above said keys and engaging the same, a removable sound-board above said keys, a guide strip engaging said pins, and attached to said sound-board, washers on said pins engaging said guide strip, a wind-chest and reed-board attached to said sound-board, passages connecting said wind-chest and reed-board, valves in the wind-chest closing said passages and operated by said push-pins, substantially as described.

11. In an organ, a key-board, having a series of keys, vertically movable pins above said keys, and operated thereby, and a series of vertically movable rods to operate the stop valves, and mechanism to operate said rods, a removable sound-board above said key-board and stop mechanism, a wind-chest and series of reed-boards above and attached to said sound-board, transverse passages connecting the reed-boards and wind-chest, inclosed reeds above said reed-boards, valves above said reeds and operated by the vertically movable stop-valve rods, and valves in the wind-chest operated by the rods engaging the keys, and closing the openings to the reed-boards, substantially as described.

12. In an organ, in combination with a series of keys, and a series of mechanism to operate stop-valves, all operating by vertically movable push-pins extending upward from the same; a removable sound-board, having attached, and removable therewith, the wind-chest, reed-boards, reed-valves, and stop-valves, substantially as described.

13. In an organ, a key-board, having keys

engaging vertically movable push-pins above the same, rock-shafts having lateral keys on their outer ends, and connected to, and operating vertically movable stop-valve pins; a name-board divided horizontally and hinged, and having its upper part movable, a sound-board above said keys and rock-shafts, and attached at the front to the upper part of the said name-board, a wind-chest, and a series of reed-boards above and attached to said sound-board, transverse passages from said reed-board to said wind-chest, valves within said wind-chest closing said passages, and operated by the pins engaging the keys, a removable top on said wind-chest, movable boxes above said reed-boards inclosing said reeds, openings in the tops of said boxes, stop-valves closing said openings, and operated by said stop-valve pins, substantially as described.

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

HERBERT RICHARDSON.

Witnesses:
LUTHER V. MOULTON,
LEWIS E. FLANDERS.