

C. N. RAND.
ORGAN REED VOICING MACHINE.

No. 550,644.

Patented Dec. 3, 1895.

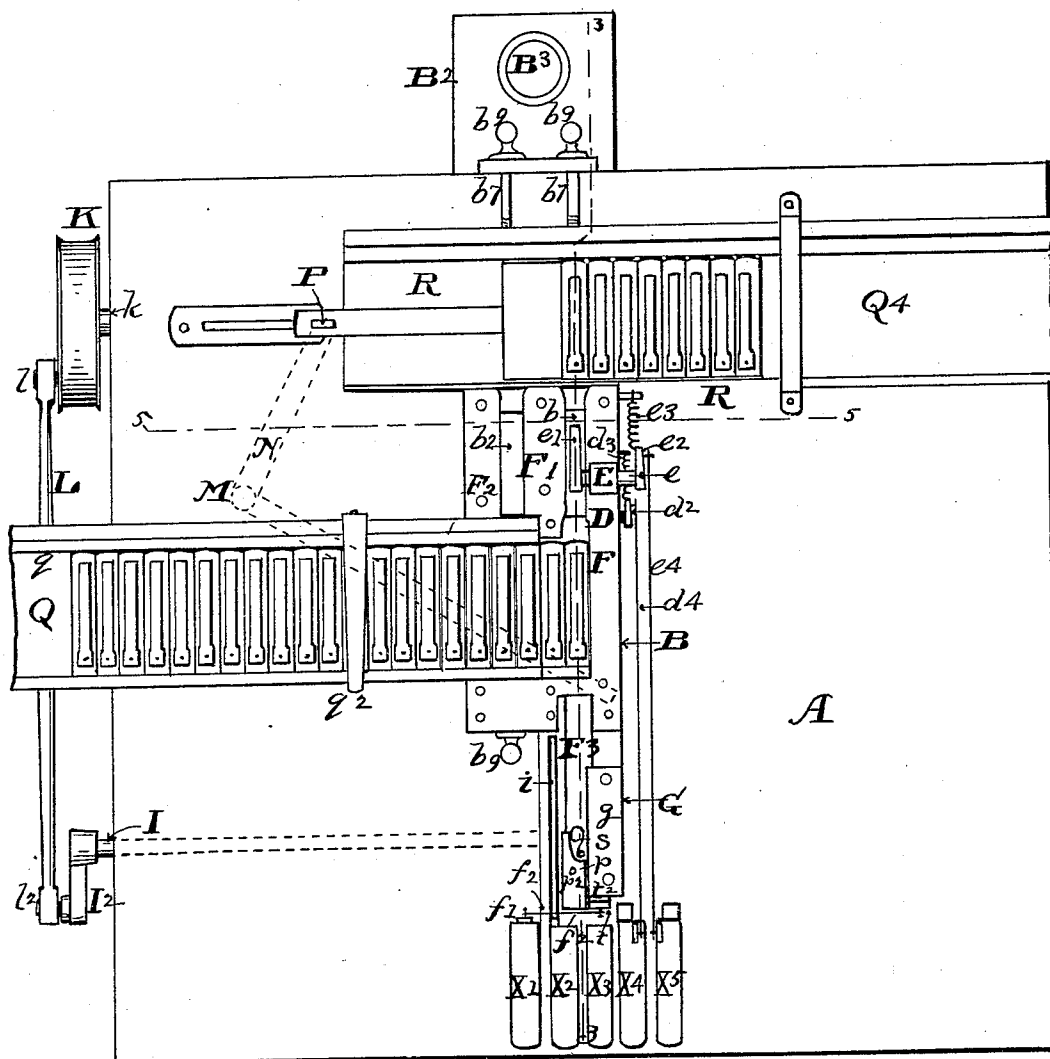


Fig. 1.

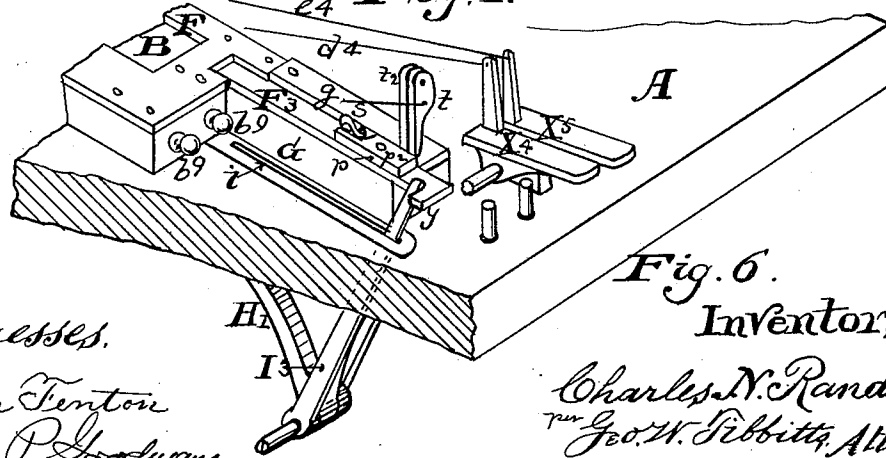


Fig. 6.

Witnesses.
Green Tinton
Max P. Goodwin

Inventor,
Charles N. Rand.
Per Geo. W. Tibbitts, Atty.

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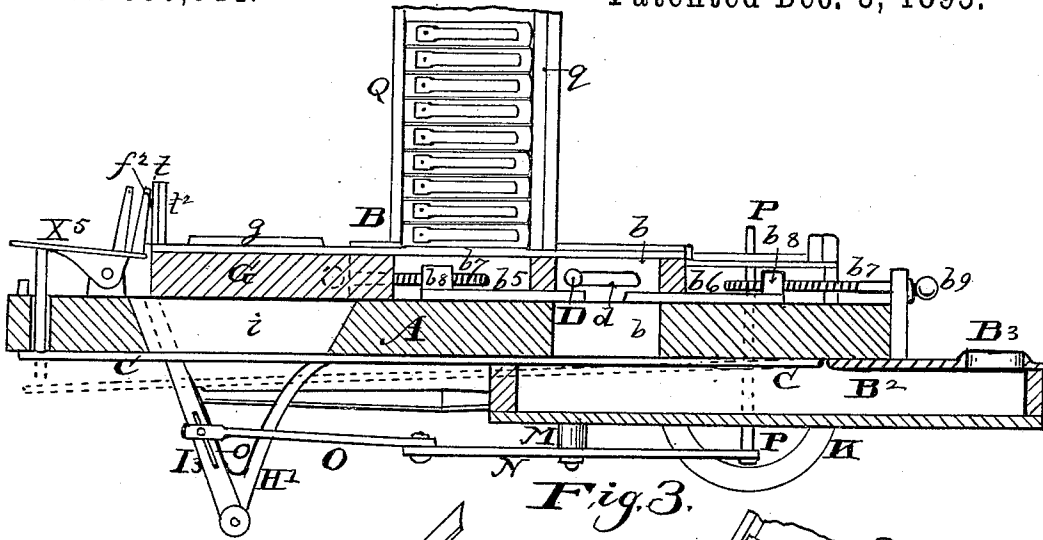


Fig. 3.

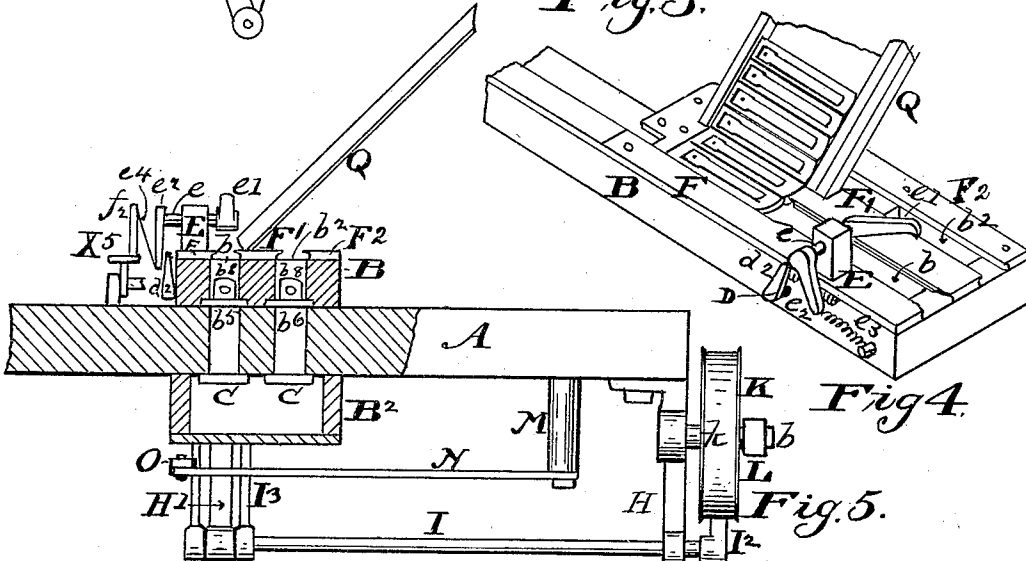


Fig. 4.

Fig. 5.

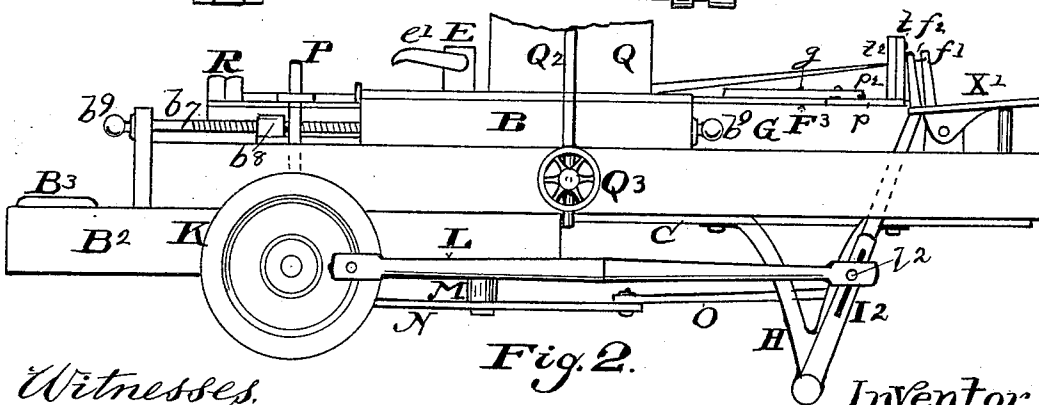


Fig. 2.

Witnesses,
Green Tinton
Max P. Goodman

Inventor,
Charles N. Rand.
Geo. W. Tibbitts, Att'y.

UNITED STATES PATENT OFFICE.

CHARLES NEWELL RAND, OF GENEVA, ASSIGNOR OF ONE-HALF TO
EMERY GALEN WETHERBEE, OF PAINESVILLE, OHIO.

ORGAN-REED-VOICING MACHINE.

SPECIFICATION forming part of Letters Patent No. 550,644, dated December 3, 1895.

Application filed December 24, 1894. Serial No. 532,898. (No model.)

To all whom it may concern:

Be it known that I, CHARLES NEWELL RAND, a citizen of the United States, residing at Geneva, in the county of Ashtabula and State of Ohio, have invented a new and useful Machine for Voicing Organ-Reeds, of which the following is a specification.

This invention relates to voicing organ-reeds, having for its object to greatly facilitate, expedite, and perfect such work; and the invention consists in the peculiar constructions and combinations of mechanisms substantially as hereinafter described, and pointed out in the claims.

In the accompanying drawings, Sheet 1, Figure 1 is a top or plan view of my new reed-voicing machine. Fig. 6 is a view in perspective of that part of the machine that contains the tripper mechanism on the push-bar, also showing the oscillating lever which actuates said push-bar. Sheet 2, Fig. 2 is an elevation of the machine viewed from the left-hand end. Fig. 3 is a cross-section through the machine on line 3 3 on Fig. 1. Fig. 4 is a detail view of the end of the reed-holding block, showing the mechanism for striking the reed. Fig. 5 is a transverse cross-section on line 5 5 on Fig. 1, showing the slots over which the reeds lie in the operations of the machine.

A is the table or bed of the machine supported on suitable legs.

B is a block mounted on the central part of the table, and upon it the reeds to be operated upon are to be placed and held. Two slots or openings b b^2 , Figs. 1 and 4, are made through said block and the table, connecting with an air-chamber B^2 , attached to the under side of the table and extending beyond the rear side and provided with an opening B^3 , to which a bellows (not shown) may be attached for exhausting the air in the operations of voicing the reeds.

In the lower part of the block B are provided two sets of slide-valves b^5 and b^6 , two for each of the slots b b^2 , fitted to slide in grooves and are designed for regulating and controlling the volume and direction of air to the reeds lying over the said slots b b^2 .

b^7 are screws working in lugs b^8 on the valves and have knobs b^9 on their outer ends, held

by plates fixed on the ends of the block A, by means of which the said valves may be adjusted for the purpose of opening or shutting the passages to the air-chamber B^2 and changing the direction of the air-current.

Two valves C are provided on the under side of the table, which close the slots or openings b b^2 at their connection with the air-chamber B^2 , which are manipulated by keys at the front side of the table, in like manner to ordinary organ keys, for the purpose of sounding the reeds at intervals during the operations of voicing.

D is a short shaft set in the side of the block B, having on its inner end an arm d and its outer end a lever d^2 , held back by a spring d^3 . Said lever d^2 is connected by a rod d^4 with a key at the front side of the table.

E is a post set on the block B at the right side of the slot b , in the top of which is journaled a short shaft e , having a striker-arm e' attached, which stands over the slot b , and on its other end is attached a depending lever e^2 , also held back by a spring e^3 . The lever e^2 is also connected by a rod e^4 , with a key at the front side of the table. The purposes of these devices will be hereinafter explained in the operations of the machine.

F F' F², Figs. 1, 4, and 5, are metal strips forming guides on the upper surface of the block B, in which the reeds are held over the said slots or openings b b^2 .

F³ is a push feed-bar fixed in the end of the block B to slide under the guide F. It is supported in a block G, having a guide, g for the purpose of holding it in line with the guide F.

The push feed-bar F³ is made to perform its operations intermittently by means as follows.

H H are shaft-hangers secured to the under side of the table, one at the front left-hand corner and the other near the middle, in which is journaled a rock-shaft I. On the outer end of said shaft is attached a lever I² and on the inner end a lever I³, which extends upward through a slot i , Figs. 1 and 3, in the table and is employed for operating the push feed-bar F³, as hereinafter shown.

K is a driving-pulley revolving on a short stud-pin k , supported on the under side of the table-corner at the left-hand end of the

machine, to which power is to be applied for operating the reed feeding and discharging portions of the machine.

L is a connecting-rod attached to a wrist-pin 5 l on the driving-pulley K, the opposite end connected to a crank-pin l^2 , adjustably set in a slot in the lever I^2 . (Seen in Fig. 2.)

M is a hanging post attached to the under side of the table, to the lower end of which is 10 pivoted at its angle an angle-lever N, one arm of which is connected by a rod O with the lever I^3 , Fig. 3, on the inner end of rock-shaft I, in which is made a slot o , by means of which the rod O may be adjusted for regulating the 15 strokes of lever N. The other arm of lever N carries the vertical arm P, which extends up through a slot in the table for operating the push-plate, which rides on the receiving-table R for pushing the discharged reeds onto 20 the receiving-galley.

Q is a removable feed galley or tray for holding a quantity of reeds, its lower end supported on the block B in a position to deliver reeds in succession onto the block to be conveyed by the push feed-bar F^3 to the guides 25 $F' F'$. Said galley or tray is supported at a suitable angle, whereby the reeds may slide by gravity down onto the block B, by means of an adjustable vertical rod Q^2 , held in a screw-clamp Q^3 , attached to the left-hand end of the table, as seen in Fig. 2. On said galley or tray is provided a loose guide-stick q , held down by spring q^2 , attached to one side of the galley 30 or tray and extending over to the opposite side, under which said guide-sticks may be moved and adjusted to accommodate the space to the different lengths of reeds to be held by them. Q^4 is a like removable receiving galley or tray situated to receive the reeds after they 35 have been operated upon. These galleys or trays are all alike and are interchangeable with other machines.

R is a receiving-table set transversely to and against the end of block B and is designed to 45 receive the reeds as they are discharged from the block.

At the front side of the table is provided a set of keys suitably connected, by which the operator manipulates the several working 50 mechanisms of the machine. These keys are five in number and are designated $X' X^2 X^3 X^4 X^5$. X' is used for manipulating the feed-bar F^3 . X^2 and X^3 are for manipulating the air-valves C C in the air-chamber under the 55 slots $b b^2$, and the keys X^4 and X^5 are for operating the levers d^2 and e^2 at the side of the block B. These keys are suitably hinged on to the table in convenient position for handling by the operator.

60 p is a short tripper-bar fulcrumed at about its middle part on a pin p^2 on the upper surface of the feed-bar F^3 near to its end and is held parallel with the feed-bar by a spring s . This tripper-bar is intended for use in pushing the said feed-bar F^3 forward whenever 65 required for conveying the reeds to the parts of the machine to be operated upon. The

tripper is thrown out at such times by means of a lever t , pivoted at its top end to a post 70 t^2 on the end of block G, the lower and swinging end resting against the side of the tripper. f' is an upright arm on the key X' and is connected by a link f^2 with the aforesaid lever t , as seen in Fig. 1. By pressure on 75 key X' the tripper is turned outward, so that the oscillating lever I^3 comes in contact with it and pushes the feed-bar forward, pushing before it the lowest reed in the column of reeds on the block B at the foot of the galley 80 Q to take the place of the reed just operated upon and which has been pushed out onto the table R. A lug y on the end of bar F^3 serves for the bar I^3 to strike and carry the said bar F^3 back again.

The keys are hinged to the table in convenient position for manipulation by the operator. 85

The operations of this machine are as follows: First, a voiced reed, to which the new reeds are to be compared, is placed over the slot b^2 , held by the guides $F' F^2$. Then the 90 valves b^5 and b^6 are properly adjusted, so that the correct volume of air may pass through the slots and in the right direction. Then the machine is ready for use. A feed galley or tray having a quantity of new reeds 95 of the same letter as that over the slot b^2 and with their points to the rear is placed upon the machine, and an empty galley also placed in position to receive the new reeds when done, and the operator is ready to proceed. Now 100 by applying the power the feed mechanism is set in motion. Then by pressing key X' the tripper is thrown so as to cause the feed-bar to move and push forward a reed under the guides F' into position over the slot b , and the 105 push-plate on the table R is drawn back. Now the keys X^2 and X^3 , which operate the valves under the slots b and b^2 , are struck alternately, and if the new reed over the slot b sounds louder than the sample reed over 110 the slot b^2 then the key X^5 , which operates the striking or depressing arm e' , is pressed down and the arm e' strikes the vibrating end of the reed-tongue, which is over the slot b , and bends it down or lowers it. After compar- 115 ing the tone with the sample, if the operator finds that the tongue has been lowered too much, or if the tone of the reed in the beginning was not as loud as the sample reed, then the key X^4 , which operates the inner or 120 raising arm D, is pressed down, and the end of the reed-tongue is thereby raised until the tone is of the same power as the tone of the sample reed. This operation is called "voicing" or "laying" the reed-tongue. Then 125 the key X' is pressed down and the finished reed is pushed out upon the receiving-table R, while a new reed takes its place over the slot b . These operations may be continued indefinitely. 130

Having described my invention, I claim—

1. In an organ reed voicing machine, the combination of table A supported on suitable legs; the block B, mounted on the table, slots,

by said shaft, striker arm e' attached to said
shaft and over the slot b , lever e^2 on opposite
end of said shaft, and a retracting spring e^3 20
attached to the lever e^2 and the block B; the
shaft D supported in the side of the block B,
arm d on said shaft inside of the slot b , and
lever d^2 on the outer end of said shaft, the
retracting spring d^3 attached to said lever d^2 25
and the block, the connecting rods e^4 and d^4
connecting said levers e^2 d^2 with the keys X^4
and X^5 , at the front of the table, constructed
and adapted to operate substantially as de-
scribed and for the purpose set forth.

2. In an organ reed voicing machine, the
combination of a block B, mounted on the
table A, provided with the slots b , b^2 , and
the valves or gates b^5 , b^6 , for regulating the
volume and direction of air through said
slots; guides F, F', F'', over said slots, the post
E mounted on the block B, shaft e supported

by said shaft, striker arm e' attached to said
shaft and over the slot b , lever e^2 on opposite
end of said shaft, and a retracting spring e^3 20
attached to the lever e^2 and the block B; the
shaft D supported in the side of the block B,
arm d on said shaft inside of the slot b , and
lever d^2 on the outer end of said shaft, the
retracting spring d^3 attached to said lever d^2 25
and the block, the connecting rods e^4 and d^4
connecting said levers e^2 d^2 with the keys X^4
and X^5 , at the front of the table, constructed
and adapted to operate substantially as de-
scribed and for the purpose set forth.

CHARLES NEWELL RAND.

Witnesses:

HENRY B. TIBBITTS,
SARAH TIBBITTS.