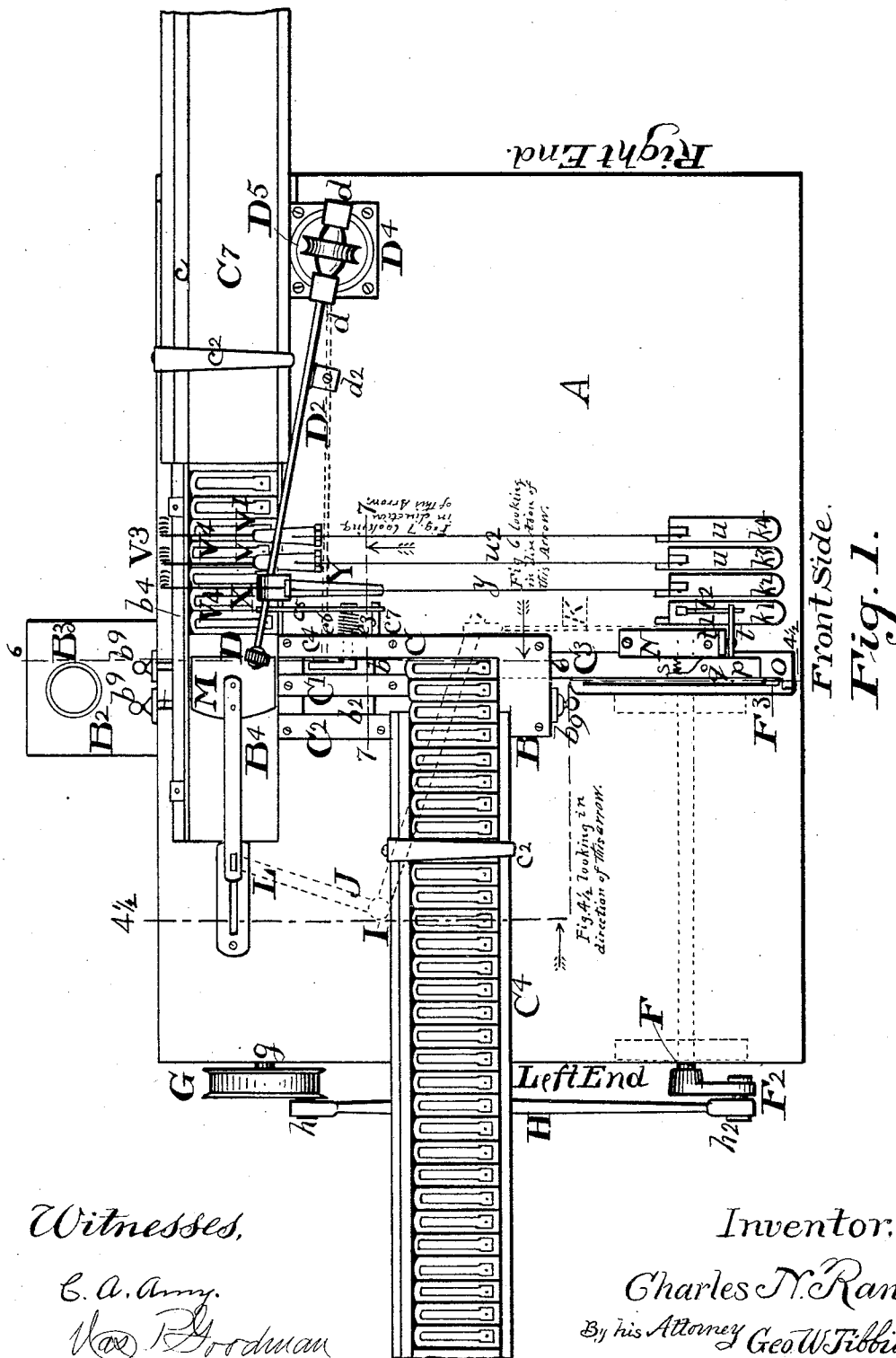


C. N. RAND.  
ORGAN REED TUNING MACHINE.

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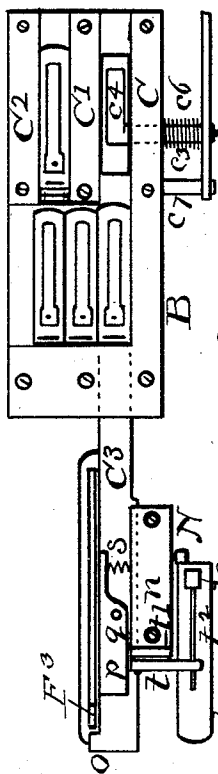


Fig. 3.

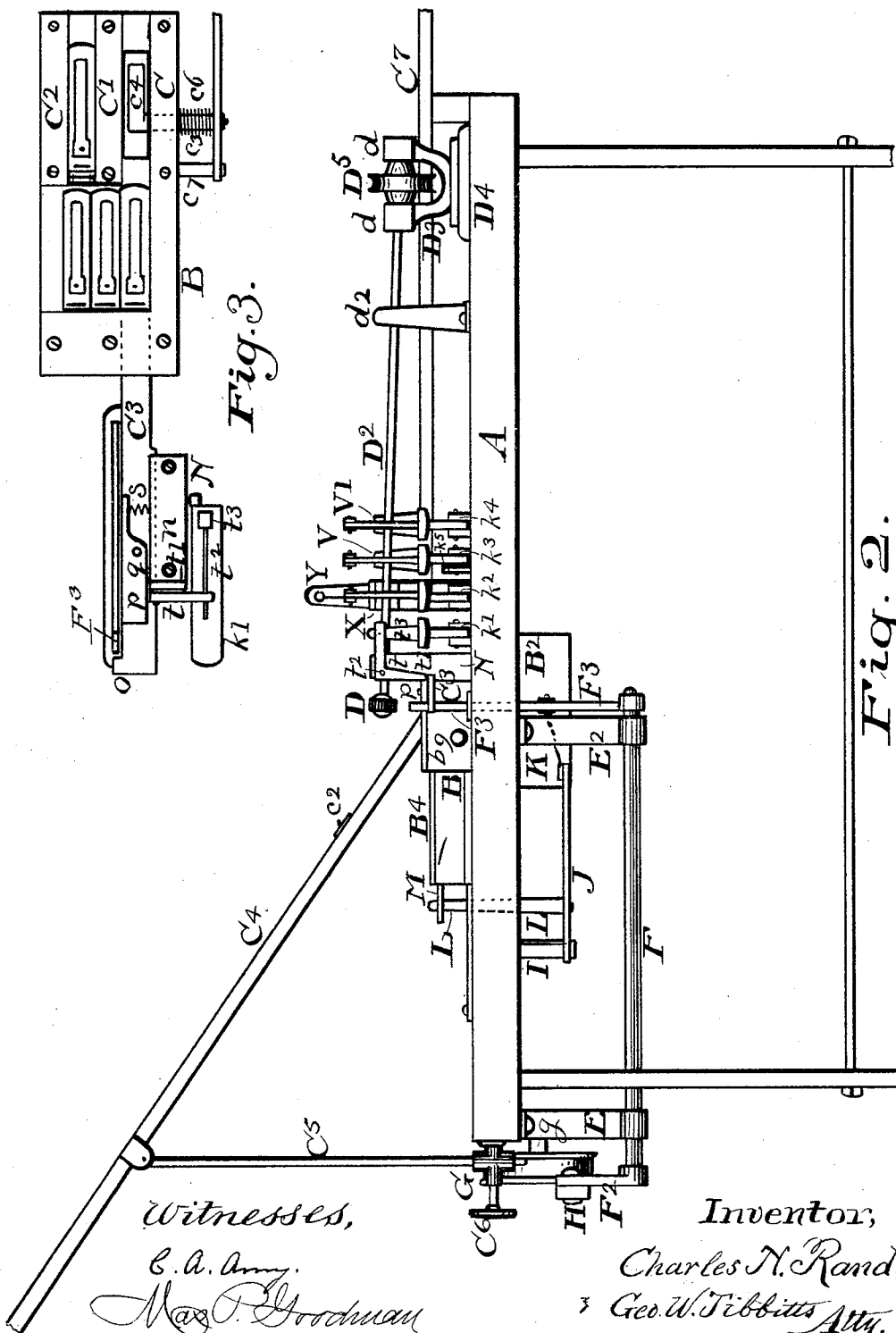


Fig. 2.

Witnesses,

C. A. Amy.

Max P. Goodman

Inventor,

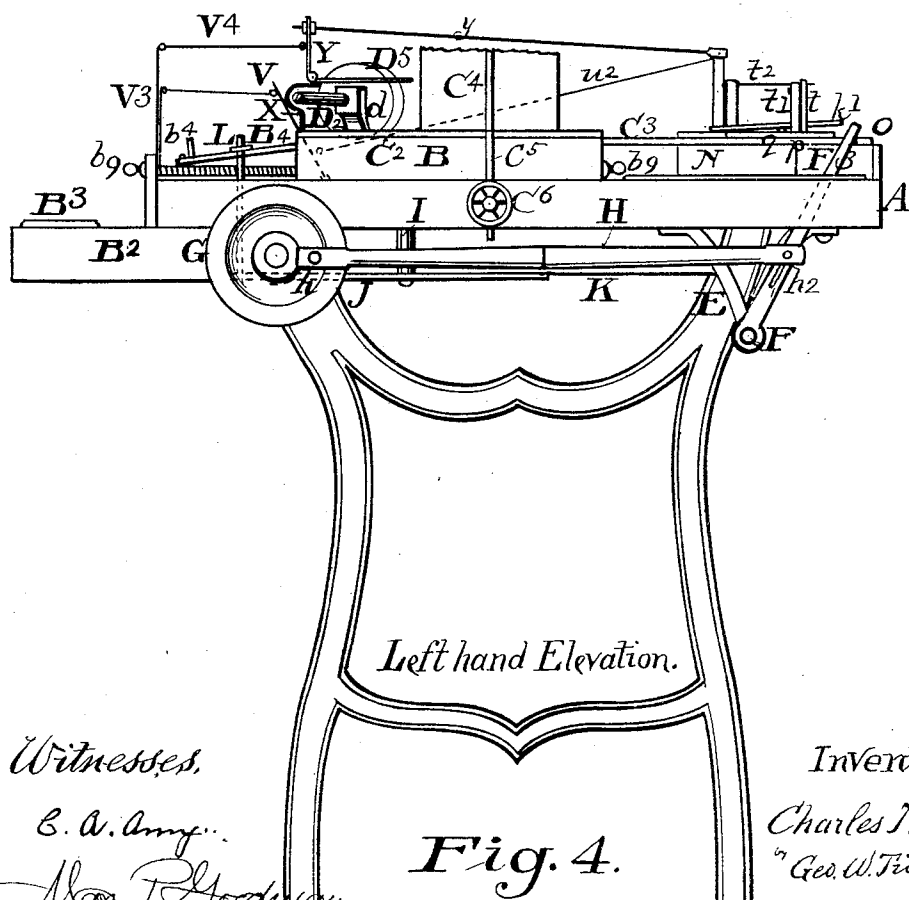
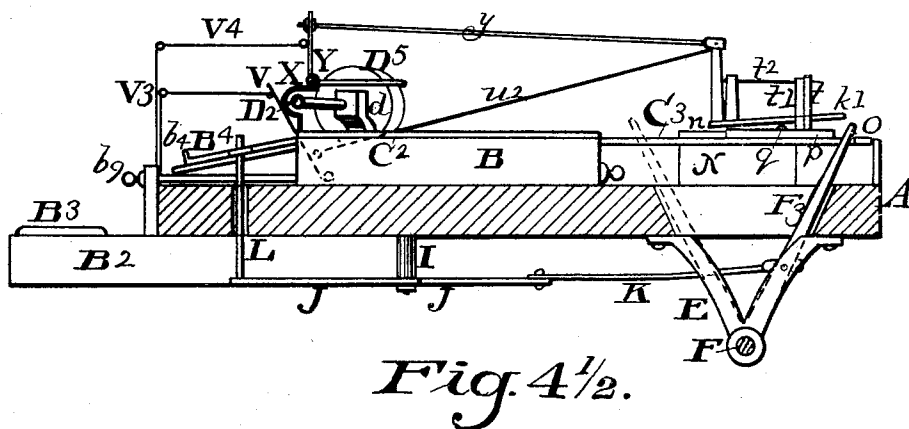
Charles N. Rand,

Geo. W. Tibbitts Atty.

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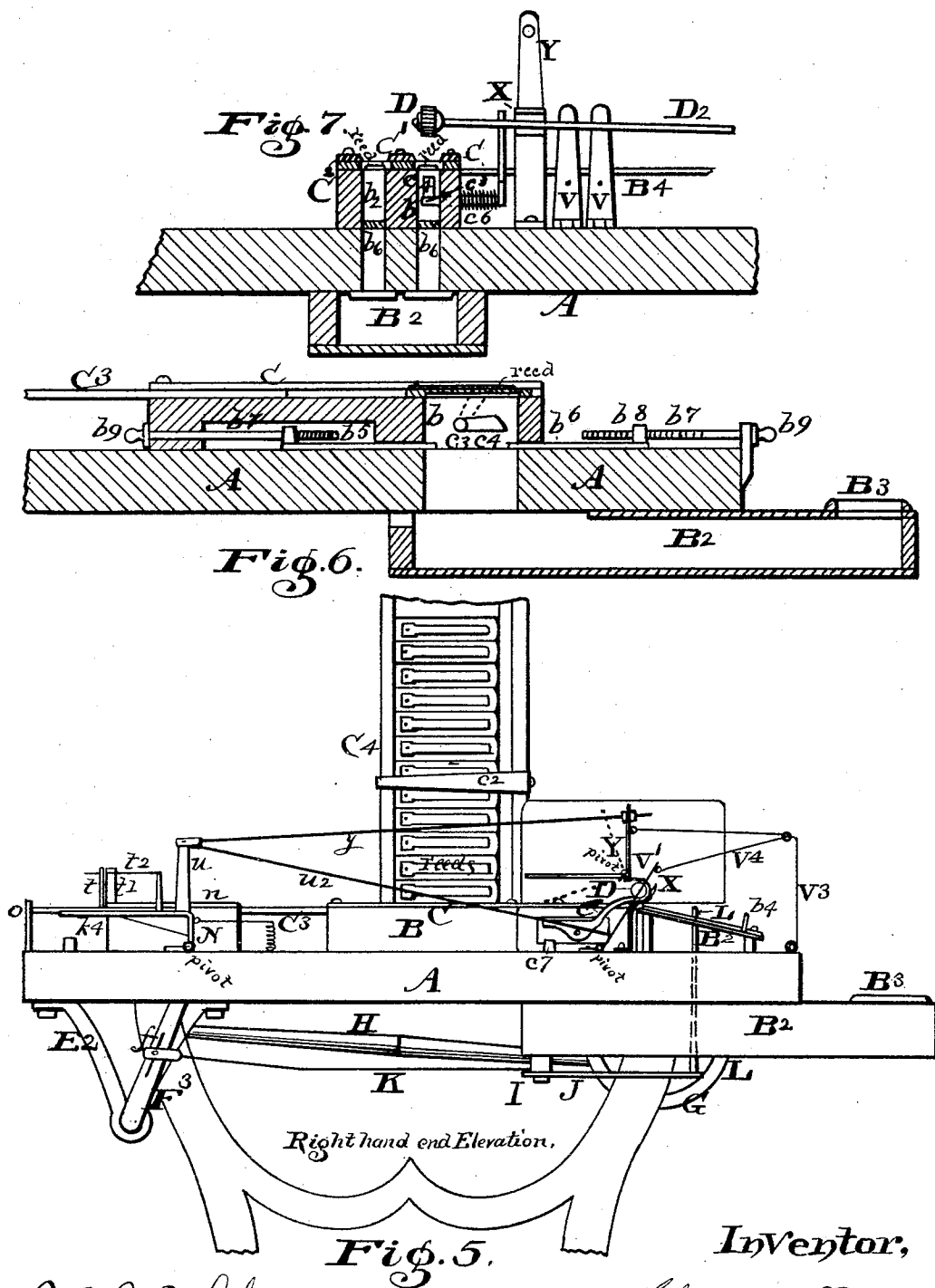
(No Model.)

4 Sheets—Sheet 4.

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W. W. Sly  
a. c. Lutz.

*Inventor,*  
*Charles N. Rand,*  
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# UNITED STATES PATENT OFFICE.

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

## ORGAN-REED-TUNING MACHINE.

SPECIFICATION forming part of Letters Patent No. 573,103, dated December 15, 1896.

Application filed December 24, 1894. Serial No. 532,897. (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 Tuning Organ - Reeds, of which the following is a specification.

This invention relates to tuning cabinet-organ reeds, having for its object to greatly facilitate, expedite, and perfect such work; and the invention consists in providing a machine constructed and arranged substantially as hereinafter described, and pointed out in the claims, and adapted for the purpose set forth.

In the accompanying drawings, Figure 1, Sheet 1, is a top or plan view of my new reed-tuning machine. Fig. 2, Sheet 2, is a front side elevation of same. Fig. 3 is a detail view of the slotted reed-holding block and tripper device on the end of the push feed-bar. Fig. 4, Sheet 3, is a left-hand end elevation of the machine. Fig. 4½ is a cross-section of table on line 4½ 4½, Fig. 1, showing vibrating feed-lever in slot in the table, &c. Fig. 5, Sheet 4, is a right-hand end elevation of machine. Fig. 6 is a longitudinal section of the table and reed-block, showing the air-ducts and means for regulating the same on line 6 6 on Fig. 1. Fig. 7 is a transverse section of the same on line 7 7 on Fig. 1.

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

B is a block secured onto the central part of the table. Through said block and the table are made two vertical slots *b* and *b*<sup>2</sup> in communication with an air-chamber B<sup>2</sup>, attached to the under side of the table and extending beyond the rear side and is provided with an opening B<sup>3</sup>, to which a bellows (not shown) is to be attached.

C C' C<sup>2</sup> are guide-strips attached to the top side of the block B, under which the reeds are placed and held over the said slots to be operated upon.

At the junction of the block B and the table A are provided adjustable slide valves or gates, two for each slot, *b*<sup>5</sup> *b*<sup>5</sup> *b*<sup>6</sup> *b*<sup>6</sup>. (Seen in Figs. 6 and 7.) Said valves are for regulating or directing and controlling the volume of air to the reeds. *b*<sup>7</sup> are screws working in

lugs *b*<sup>8</sup> on the said valves. Their outer ends are held in plates attached to the forward end of the block B and to the rear side of the table and are provided with knobs *b*<sup>9</sup> *b*<sup>9</sup> for operating the valves.

*c*<sup>3</sup> is a short shaft set in the side of block B, having on its inner end an arm or anvil *c*<sup>4</sup> and on its outer end a lever *c*<sup>5</sup>, extending at an angle upward and back of the bur-shaft D<sup>2</sup>.

*c*<sup>6</sup> is a spring on the shaft *c*<sup>3</sup> between the block B and the lever *c*<sup>5</sup>, designed for turning the shaft *c*<sup>3</sup> and bringing the anvil *c*<sup>4</sup> into an upright position, which it is free to do whenever the bur-shaft D<sup>2</sup> is moved forward. The anvil is designed for supporting the reed-tongue when operated upon by the bur.

*c*<sup>7</sup> is a stop-pin set in the block B for the short end of lever *c*<sup>5</sup> to rest against as a limit to the movement of the anvil.

C<sup>3</sup> is a push feed-bar playing in the end of the block B for pushing reeds under the guides C C' and over the slot *b*. The push-bar is also supported in the side of a block N on the table forward of the block B by means of a guide-plate *n* on the top of said block.

C<sup>4</sup> is a removable galley or tray for holding reeds. It is supported at an angle of about forty-five degrees by a vertical rod C<sup>5</sup>, adjustably held by a screw-clamp C<sup>6</sup>, attached to the end of the table. *c* are loose guide-sticks in the galleys, held by cross-springs *c*<sup>2</sup>, attached to one side. Reeds are placed in the galley side by side, as seen in Fig. 1. The guide-sticks are to be adjusted to the length of reeds, so they will slide down, side by side, onto the block B by gravity.

B<sup>4</sup> is a receiving-table supported transversely to and against the end of block B, upon which the reeds are conveyed after being operated upon, and from which they are conveyed onto a removable galley C<sup>7</sup>, supported on the table A and joined to the table B<sup>4</sup>.

D is a fine milling-bur fixed on the end of a swinging and rapidly-rotating shaft D<sup>2</sup>, supported in bearings *d d* of a yoke D<sup>3</sup> at the right-hand end of the table A. The yoke is fixed on a center-pin, so that the bur and shaft may be swung forward to bring the bur over the reeds.

*d*<sup>2</sup> is a spring-arm attached to the table A

by the side of the shaft  $D^2$  and bearing against the front side, and is provided for holding the shaft back.

$D^5$  is a belt-pulley on the shaft  $D^2$  between the bearings  $d$   $d$ .

$E$   $E^2$  are shaft-hangers secured to the under side of the table  $A$ , one at the front left-hand corner and the other at the front side near the middle; in which is supported a rock-shaft  $F$ . (Seen in full in Fig. 2 and in dotted lines in Fig. 1.) On the outer end of said shaft is attached a lever  $F^2$  and on the inner end a vibrating lever  $F^3$ , which extends upward through a slot in the table and is employed for operating the push feed-bar  $C^3$ .

$G$  is a driving-pulley mounted on a stud-pin  $g$ , fixed to the under side of table  $A$ .

$H$  is a connecting-rod connecting said pulley  $G$  with the lever  $F^2$ . The connecting-rod is attached to an adjustable wrist-pin on the driving-pulley  $G$ . The other end is also adjustably attached in a slot in the lever  $F^2$ . This enables the connecting-rod to be adjusted at required distances from the centers of the driving-pulley and rock-shaft to give the proper stroke to the push feed-bar  $C^3$  for feeding the reeds accurately. The bar  $C^3$  is pushed back by the lever striking lug  $O$  on the end of the bar.

$I$  is a hanging-post attached to the under side of the table, (seen in Figs. 2 and 4 $\frac{1}{2}$ .) to the lower end of which is fulcrumed at its angle an angle-lever  $J$ , one arm of which is connected by a rod  $K$  with the lever  $F^3$ . The other arm of said lever  $J$  has a vertical arm  $L$ , which extends up through a slot in the table  $A$  and moves back and forth a push-plate  $M$  on the table  $B^4$  for conveying finished reeds onto the receiving-galley  $C^7$ .

On the push feed-bar is provided a tripper consisting of a short bar  $p$ , fulcrumed at its middle on a pin  $q$  on said push-bar and held parallel with the bar by a spring  $s$ .

$t$  is an angle-lever pivoted at its angle to a small post  $t'$  on the end of block  $N$ . The depending arm of the lever  $t$  rests against the right side of the tripper-bar  $p$ , as seen at  $t'$ , Fig. 2, its upper horizontal arm being connected and actuated by a rod  $t^2$  on the upright arm  $t^3$  on the key  $k'$ .

$k'$   $k^2$   $k^3$   $k^4$  are keys pivotally mounted at the front side of the table at the side of the block  $N$ , provided for manipulating the several working parts of the machine.

$X$  is a post standing by the side of the table  $B^4$  and near block  $B$ , having a curved top end in which the shaft  $D^2$  rests when in its normal position.  $Y$  is an angle-lever pivotally attached at its angle to the top of said post  $X$ . (Seen in Figs. 4 and 4 $\frac{1}{2}$ .) The upper arm of said lever is connected by a rod  $y$  to the upright arm on key  $k^2$ . This key and lever  $Y$  are for depressing the shaft  $D^2$  when brought forward over the reeds by the horizontal arm of the lever when said key is pressed.

The keys  $k^2$  and  $k^4$  are for bringing the bur  $D$  forward over the reeds.  $V$   $V'$  are levers pivoted to the table beneath the shaft  $D^2$ , and they are held back at an angle of about forty-five degrees behind said shaft by rods connected with springs  $V^3$ . These levers are also connected by rods  $u^2$  with the upright arms on the keys  $k^2$   $k^4$ . The depression of  $k^3$  is limited to a short stroke by a stop-pin  $k^5$  for the purpose of pulling the bur  $D$  over the point of the reed-tongue. The full depression of key  $k^4$  pulls the bur over the heel of the tongue. A rod  $V^4$  connects lever  $Y$  with a spring  $V^3$ , by which it is held back in like manner to levers  $V$   $V'$ .

The operations of this machine are as follows: A tuned reed to which new ones are to be tuned is placed under the guides  $C'$   $C^2$  over the slot  $b^3$ . The valves  $b^5$   $b^6$  are then adjusted so the correct volume of air may pass through said slot and in the right direction. A feed galley or tray loaded with new reeds of the same letter as the sample is placed in position, as seen in Figs. 1 and 2, and an empty galley placed to receive the new reeds, as seen at  $C^7$ , Fig. 1. Power having been applied and motion given to the pulleys  $G$  and  $D^5$ , the machine is ready for operation. Now by pressing key  $k'$  the tripper is thrown out and the vibrating lever  $F^3$  pushes forward the bar  $C^3$ , and a reed is pushed under the guides  $C'$   $C^7$  and over the slot  $b$ . The push-plate  $M$  is also drawn back. The valves  $b^5$  and  $b^6$  are then adjusted to give the same volume and direction of air to the new reed as to the sample reed. Now by pressing key  $k^3$  the shaft  $D^2$  will be swung and the bur brought over the reed. At the same time, the lever  $c^5$  being freed, the arm or anvil  $c^4$  turns up under the reed-tongue, as seen at  $c^4$  in Fig. 7. Then by pressing key  $k^2$  the lever  $Y$  bears down the bur to touch the tongue by springing down the shaft  $D^2$ , and the point of the tongue will be ground or filed off. If the pitch of the reed is too high, the key  $k^4$  is pressed and the bur  $D$  is brought over the heel of the tongue. Then, pressing key  $k^2$ , the bur may be made to grind or file off sufficient metal to lower the pitch of the reed to correspond with the sample reed. When found to be correct in pitch, keys  $k^2$   $k^3$   $k^4$  are released from pressure. Then the levers  $Y$ ,  $V$ , and  $V'$  move back to first position. Now by pressing key  $k'$  again the tripper is thrown out and the push-bar  $C^3$  moves and pushes the next reed at the base of the column. This pushes the finished reed out onto the table  $B^4$ , and the new reed takes its place over the slot  $b$ , ready to be operated upon in like manner to the former one.

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

1. In an organ-reed-tuning machine, the combination of the table  $A$ , block  $B$  mounted on the table, slots  $b$ ,  $b^2$ , through said block and table in communication with air-chamber  $B^3$ , guide-strips  $C'$   $C^2$ , on the block

for holding reeds over said slots, valves  $b^5$ ,  $b^5$ ,  
 $b^6$ ,  $b^6$ , set in grooves in the block, screws  $b^7$ ,  
 $b^7$ , for adjusting said valves, shaft  $c^3$  set in  
 5 the side of the block B, arm or anvil  $c^4$  on its  
 inner end within the slot  $b$ , lever  $c^5$  on its  
 outer end, spring  $c^6$  on the shaft between the  
 block and lever, adapted for turning the an-  
 vil up in the slot  $b$  to support the tongue,  
 substantially as described.

10 2. In an organ-reed-tuning machine, the  
 combination of the shaft  $D^3$ , bur D mounted  
 on the swinging end of the shaft, and the  
 shaft journaled in the yoke  $D^3$ , mounted on  
 the swivel-block  $D^4$ , pulley  $D^5$  on the shaft,  
 15 spring  $d^2$  on the table and bearing against  
 the shaft, curved top post X mounted on the  
 table, angle-lever Y pivoted on the top of the  
 post X, connecting-rod  $y$  connecting lever Y  
 with the key  $k^2$  at the front side of the table,  
 20 levers V and V' pivotally mounted on the  
 table by the side of the post X, connecting-  
 rods  $w^2$  connecting said levers with the keys  
 $k^3$  and  $k^4$ , constructed and adapted to operate  
 for manipulating the bur-shaft substantially  
 25 as described.

3. In an organ-reed-tuning machine, the  
 combination with the push feed-bar  $C^3$  and  
 the vibrating lever  $F^3$ , mounted on the rock-  
 shaft F, of the tripper  $p$  fulcrumed at its  
 middle onto the bar  $C^3$ , spring  $s$  for holding  
 30 the tripper in normal position, post  $t'$  mounted  
 on block N, angle-lever  $t$ , pivoted at its angle  
 to the post  $t'$ , having its lower end bearing  
 against the tripper, its upper end connected  
 by rod  $t^2$  to the arm  $t^3$  on key  $k'$ , and adapted  
 35 for operating the tripper and throwing it into  
 the path of the vibrating lever  $F^3$  as and for  
 the purpose specified.

4. The combination in an organ-reed-tun-  
 ing machine with the block B, guides C C' 40  
 on said block, and the push feed-bar  $C^3$ , of  
 the inclined reed-tray  $C^4$ , adapted to deliver  
 reeds by gravity onto the block as the push-  
 bar conveys them forward from the base of  
 the column, substantially as described.

CHARLES NEWELL RAND.

Witnesses:

HENRY B. TIBBITTS,  
 SARAH TIBBITTS.