(No Model.)

G. B. KELLY & E. H. SMITH.

APPARATUS FOR TUNING ORGAN REEDS.

No. 256,703. Patented Apr. 18, 1882.

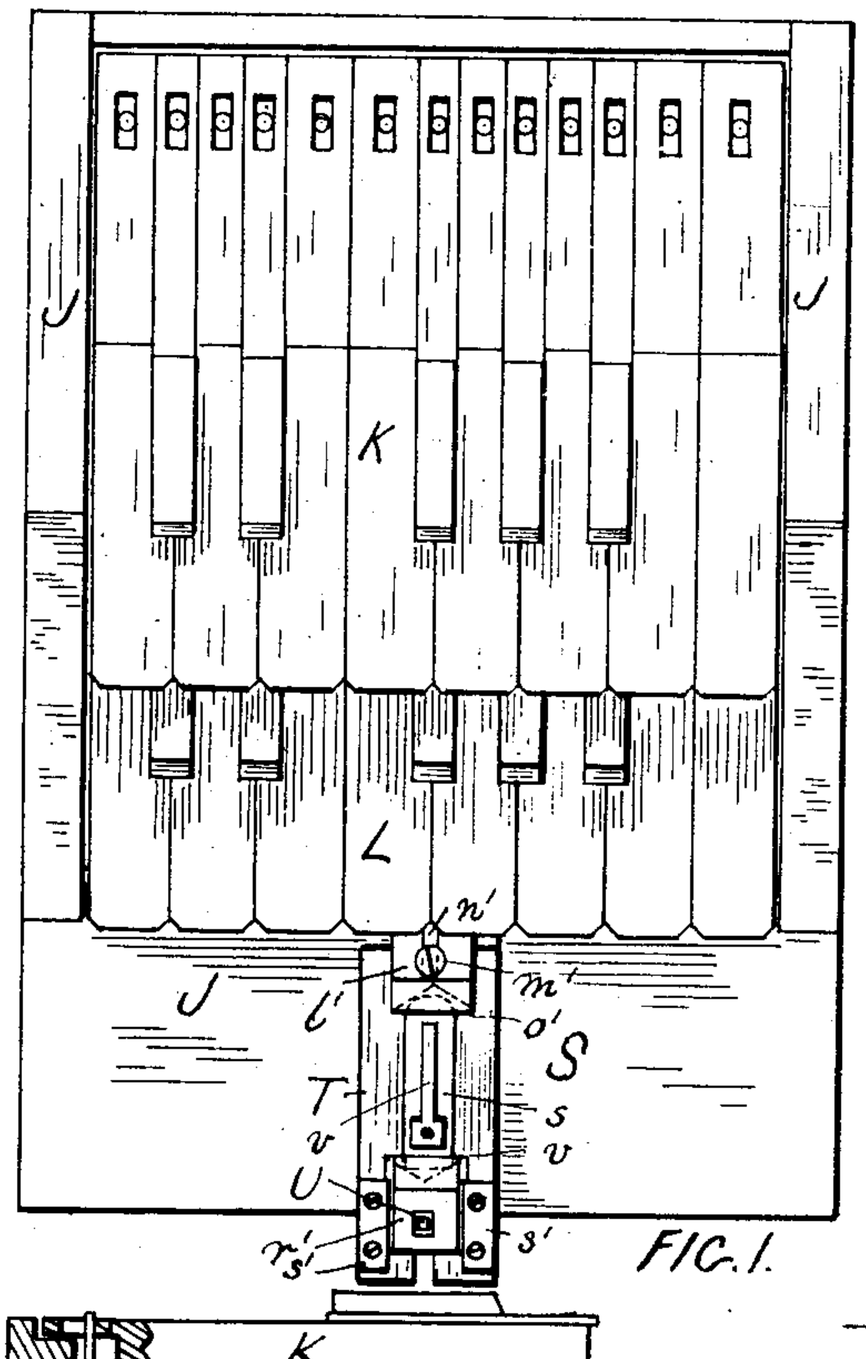

FIG. 1.

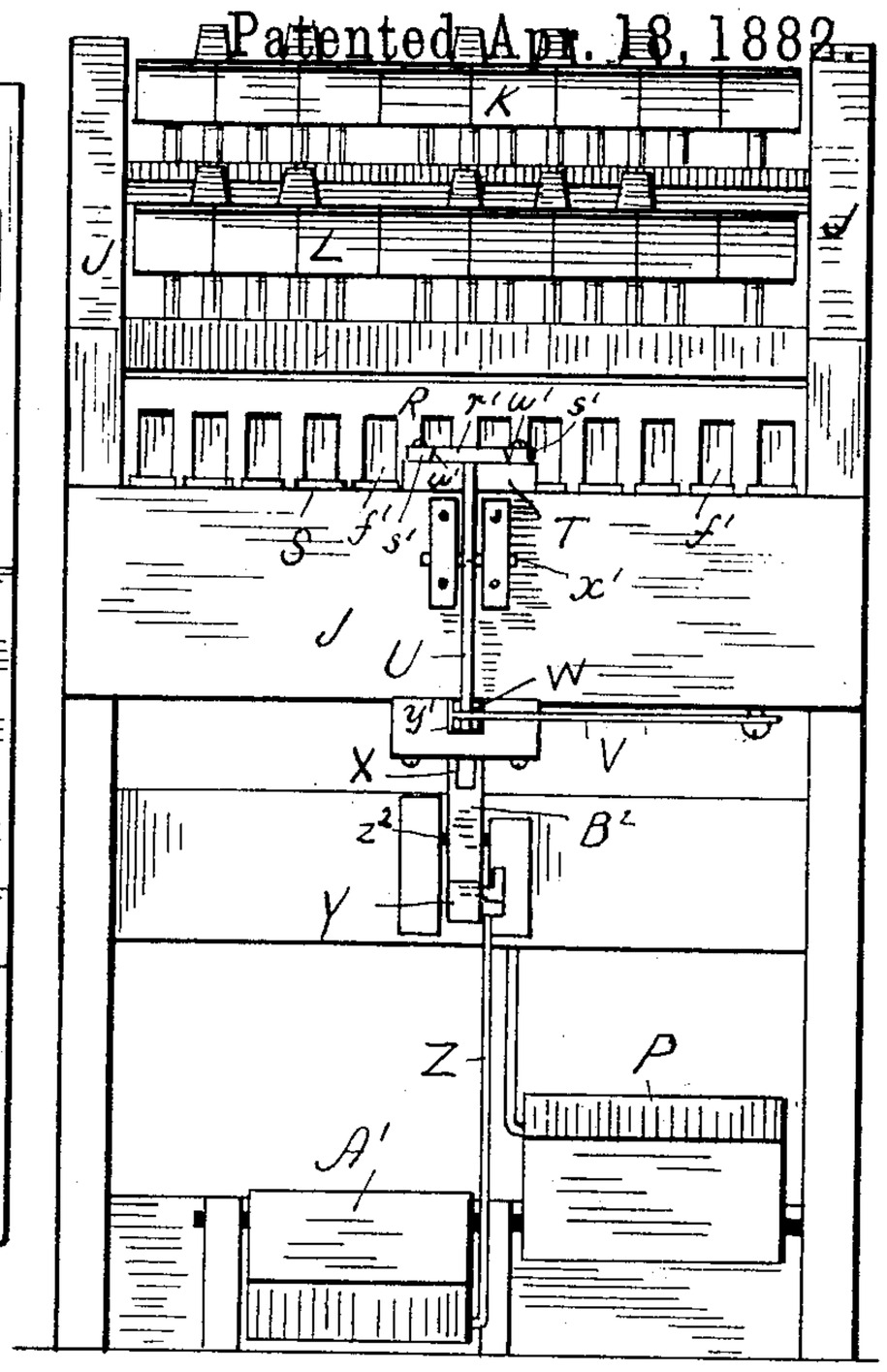

FIG. 2

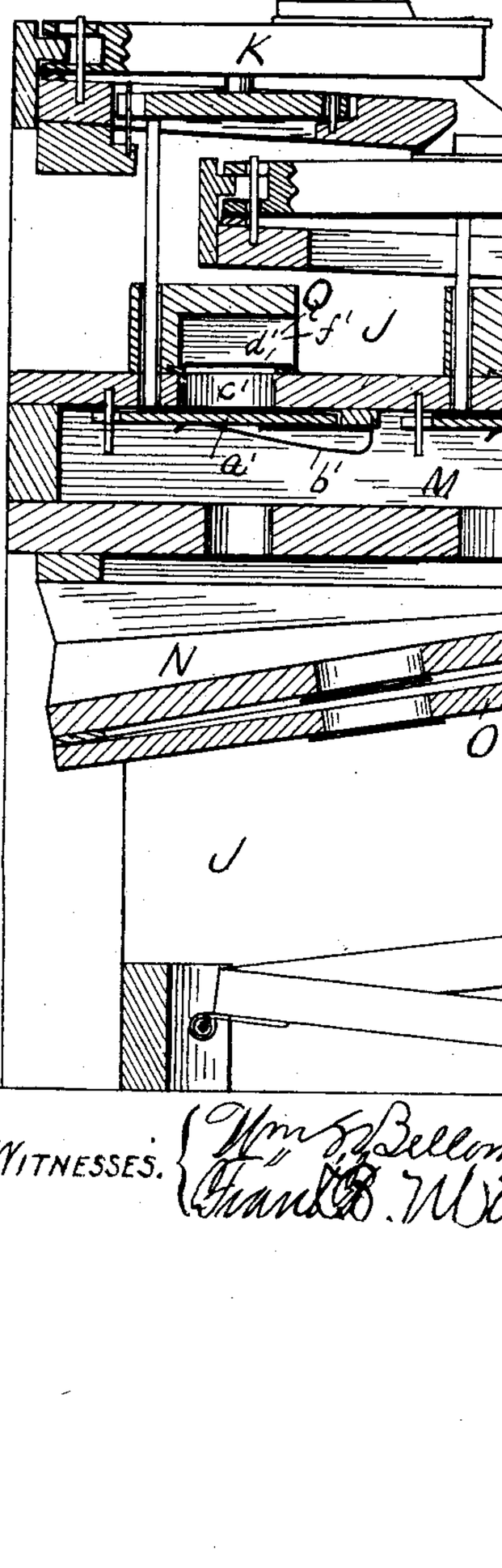

FIG. 3.

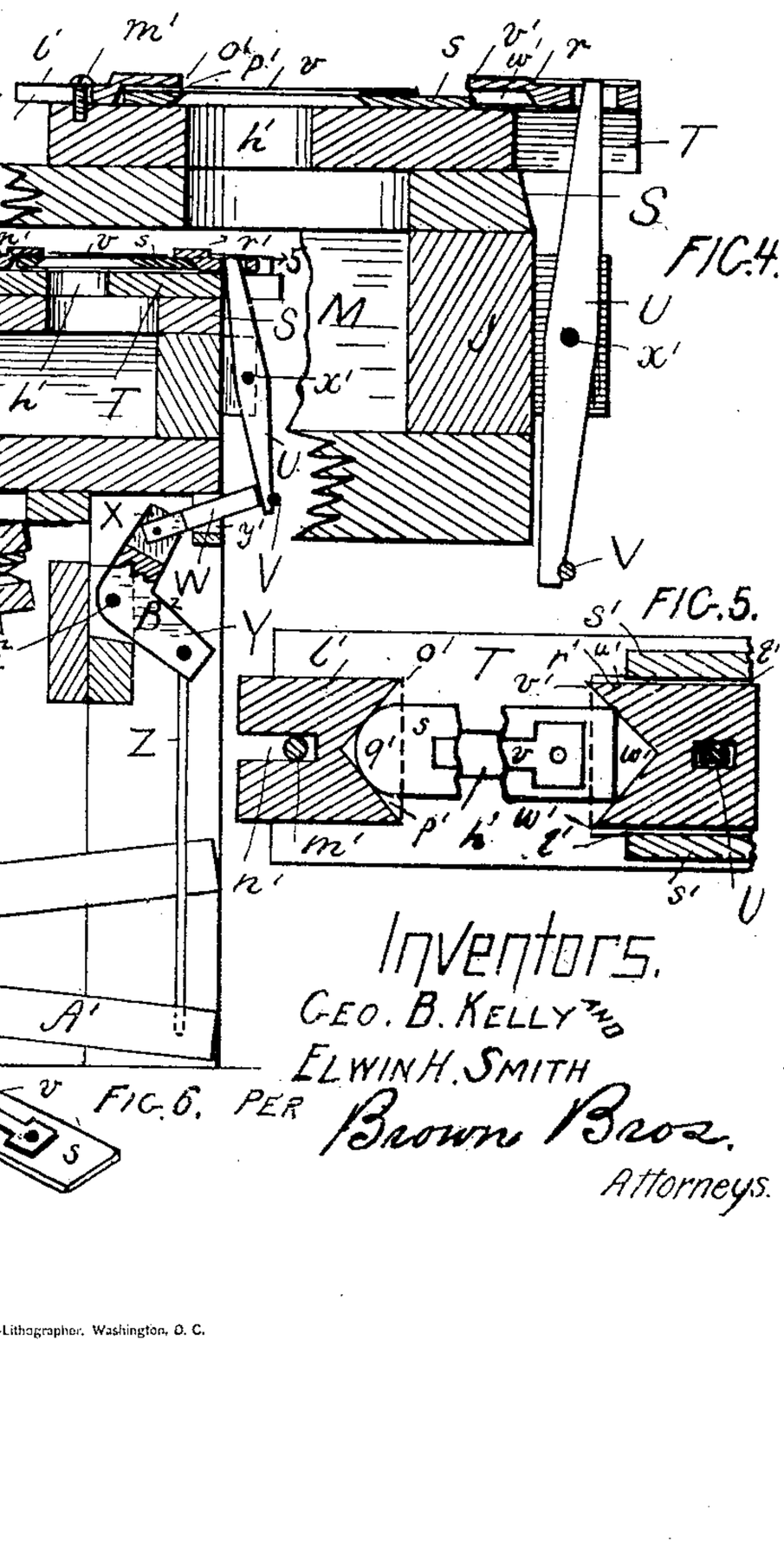

FIG. 4.

FIG. 5.

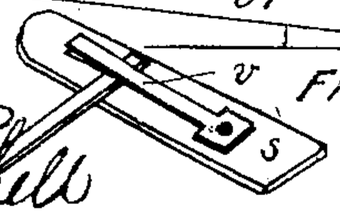

FIG. 6.

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR TUNING ORGAN-REEDS.

SPECIFICATION forming part of Letters Patent No. 256,703, dated April 18, 1882.

Application filed January 12, 1882. (No model.)

To all whom it may concern:

Be it known that we, GEORGE B. KELLY and ELWIN H. SMITH, respectively of Boston and Cambridge, in the counties of Suffolk and Middlesex, and State of Massachusetts, have invented certain new and useful Improvements in Apparatus for Tuning Organ-Reeds, of which the following is a full, clear, and exact description.

This apparatus is devised as a means to practically and efficiently carry on the new method of tuning organ-reeds invented by us, and for which we have made separate application for Letters Patent of the United States of even date herewith. This method of tuning consists in sounding the reed to be tuned the same as it is sounded when in its proper place in the instrument, except that the reed is free and open and unconfined in any chamber or compartment of a reed or other board, as it is when in the instrument or in practical use, and in simultaneously sounding a reed to and by which it is to be tuned, which is located in a chamber or compartment of a reed or other board, as usual, in the practical use of reeds, and differing only in that respect from the sounding of the reed to be tuned, and which has a pitch sufficiently higher than the pitch that the reed being tuned is to have when in its chamber or compartment for practical use to secure to the reed being tuned (by the usual filing, scraping, and other manipulations of the tongues of reeds to tune them, as heretofore practiced) its proper pitch and temperament when it is in its place in the reed-board of an instrument, and thus put to practical use.

This improved tuning apparatus for organ-reeds is composed, first, of a set of organ-reeds of any desired scale and compass, and each arranged in a separate reed-chamber and otherwise to be sounded singly under the action of a suitable wind mechanism—such as exhaust-bellows and a wind-chest—and each tuned to a pitch higher than the pitch which the reeds are to have that are to be tuned by it when such reeds are in practical use; second, of a clamp for holding a reed in an open and exposed condition and unconfined in any chamber or compartment, and in communication with the same or similar wind mechanism, all substantially and for the operation and use as hereinafter described.

Again, the improvised tuning apparatus combines in its construction and arrangement of parts, in addition to those before enumerated, a set of organ-reeds of a corresponding scale and compass to those before mentioned, each of which reeds is arranged in a separate reed-chamber and otherwise to be sounded singly under the action of the aforesaid wind mechanism or any other similar thereto, and is tuned to the same pitch desired for a corresponding reed tuned to the higher pitch of the other bank of reeds, all as will hereinafter more fully appear.

Other features of novelty are embraced in this improved apparatus, as will fully appear in the description in detail hereinafter given.

In the accompanying plate of drawings the present improved tuning apparatus for reeds is illustrated, and Figure 1 is a plan view. Fig. 2 is a front elevation. Fig. 3 is a vertical section from front to rear. Fig. 4 is an enlarged view, in detail, of mechanism for confining the reed which is to be tuned in place to be sounded and under the conditions for tuning hereinbefore specified. Fig. 5 is a horizontal section, in detail, on line 5 5, Fig. 3.

In the drawings, J represents a cabinet or stand of suitable shape and construction to receive and support the several stationary and working parts, and to allow of their operations, all as will hereinafter fully appear.

K and L are two banks of organ-keys of any desired but each of the same compass and scale. The banks of keys are located one bank above the other, and each key of each bank is arranged to open a valve, a', and to allow the same to close with a spring, b', and thus to open and close a passage, c', between a wind-chest, M, which is connected with a two-part operating exhaust-bellows, N O, worked by a treadle, P, and which is common to all of the valve-passages c', and an organ-reed, d', corresponding to such key in the scale of keys, which several reeds for each bank of keys are in a separate but one and the same reed-

board, Q and R, respectively, having a separate chamber, f', for each reed, open at one end, and all as is common in reed-organs, and therefore needing no more particular description herein. Each reed of the upper bank of keys is of the proper tone and at the proper pitch for the scale and compass intended to be represented by such bank of keys, and the several reeds of the lower bank of keys are of the same tones, respectively, as those of the upper bank; but each has a pitch higher than the pitch of the corresponding reed of the upper bank, when both are sounded as they are placed in their reed-chambers, but equal and corresponding to the pitch of the reed of the upper bank, if such reed of the upper bank be sounded under the same conditions as before, but with it open and free and unconfined within the walls of a chamber or compartment—such, for instance, as a reed-chamber.

S is a table located in front of the lower bank of keys, and provided with a block, T, which is fastened to the table and raised above it, having a flat and horizontal upper surface.

h' is a vertical passage through the block T and table S, and opening, at its lower end, into the wind-chest M. This passage h' is of a rectangular shape in horizontal section, and particularly at the upper surface of the block, and its longer diameter is at right angles to the bank of keys, and otherwise its shape and size are such as to secure the correct sounding of any reed which may be properly placed over it, and the same as such reed would be sounded if in its place in the reed-board of an organ.

l' is a clamp-jaw placed on and at the rear or inner end of the upper side of the table-block T, and there secured by a headed screw, m', the shank of which passes loosely through a longitudinal slot, n', of the clamp, and screws into the block on a line coincident with the longer axis of the passage h' through said block. The front edge, o', of the clamp l' has a recess, p', the shape of which is such as to receive the rounded end q' of the slotted reed-block s—that is, the end toward the free or vibrating end of the reed-tongue v—and when the reed-block is upon the table-block, with the face along which the reed-tongue is located uppermost, to hold the reed-block as to such end in and closely to its position upon and in contact with the table-block T, or, in other words, against rising therefrom.

r' is another clamp-jaw at the front end of the table-block, and there arranged to be moved freely forward and backward between parallel guide-rails s', that along their edges t', contiguous to the edges w' of the clamp, together with said edges of the clamp, are made of a dovetail shape to secure the clamp against lifting from the block as it is so moved, and are arranged in parallel lines and in a direction parallel to the longer axis of the passage h' through the table-block T, and the central line of such movement of the clamp is coincident with the central axial line of said passage. The rear edge, v'—that is, the edge of the sliding jaw or clamp r' toward the rear jaw or clamp, l', before described—has a recess, w', of a shape to receive the end of the reed-block opposite to that received in the recess of the clamp l', and when so placed in it to confine the reed-block as to such end closely to the surface of the table block and against lifting therefrom, and thus between the two clamps, with the sliding clamp r' adjusted to bind the reed-block end to end between it and the stationary clamp l', secure the rigid confinement of the reed-block to the table-block, and all in a manner to place the reed-tongue in the line of the vertical passage h' of the table-block T, and consequently, under the operation of the exhaust-bellows N O and wind-chest M, secure the sounding thereof the same as if such reed were in a reed-chamber of a reed-board of an organ. The sliding clamp r' is connected to the upper end of a vertical lever, U, of the first order, and arranged to work against a spring, V, in the swing of the lever on its fulcrum x', to move the sliding clamp toward the stationary clamp.

W is a push-rod moving through a guide-loop, y', and located to work at one end against the lower end of the lever U, and in a direction against the spring of such lever, and at the other connected to one arm, X, of a vertical bell-crank, B^2, which turns upon a stationary fulcrum-pin, z^2, and has its other arm, Y, connected through a vertical pitman-rod, Z, to the front end of a treadle, A', hung at its rear end to the cabinet J. A depression of the treadle A' works through the mechanism described to move the sliding clamp r' toward the rear and stationary clamp l', and this movement of the clamp is against the spring V, which, on releasing the treadle, reacts and brings the sliding clamp back, and at the same time the treadle and connecting parts to their respective normal positions. By this means a reed is confined between the jaws or clamps l' r', and this confinement may be maintained as long as may be desired by simply keeping the treadle depressed and made at the time rigid and firm, and again, on removal of the pressure upon the treadle, as the reaction of the spring V withdraws the sliding clamp r', the reed obviously is released, and is then free to be removed, if so desired, for another reed to be inserted. The stationary clamp l' can be adjusted through its slot p' and the headed screw m' to place its front edge, o', at a greater or lesser distance from the sliding clamp r', and again the sliding clamp is to be given sufficient movement for a reed to be put in and taken out of the clamp-jaws, and two jaws arranged as described obviously will allow of the clamping of reeds of the varying lengths common to reed-organs.

In using the apparatus herein described the reed to be tuned, having first been voiced or toned and brought approximately to the required pitch by bending and twisting and fil-

ing or scraping its tongue in the common and well-known manner hitherto practiced, or having been bent and twisted between dies in accordance with the invention embraced in an application for Letters Patent of the United States of even date herewith, is then placed, with its tongue uppermost on the table-block T and lengthwise between the clamps $l' r'$, over the wind-passage h' through such block, and there clamped by depressing the treadle A^2, connected to the moving jaw r'. The wind mechanism is then put into operation through the treadle A′, and thus the reed, clamped as aforesaid, is sounded. Now, while this clamped reed is sounding, the valve to a reed in the lower bank of keys, having the pitch and temperament to and by which said clamped reed is to be tuned, is then opened for the sounding of its reed, and so maintained in its open position, preferably by placing a weight upon the key to such valve. Thus the two reeds—to wit, the reed clamped and the reed in the lower bank of reeds to and by which the clamped reed is to be tuned—are simultaneously sounding, and, as the tongue of the clamped reed or reed to be tuned is free and open to the tuner and unconfined in any chamber or compartment, it is then worked upon by the tuner as may be necessary—as, for instance, by filing or scraping it across its width or along its length, or both, and otherwise, as is common and well known in tuning reeds in the method hitherto practiced, until brought to sound in unison as to pitch and tone with the sound of the reed in the lower bank of reeds, and when so brought to sound the tuning of the reed is completed, and, releasing the clamp-jaws, it is removed and another reed inserted and tuned as before, and so on. Before filing or scraping the tongue of the clamped reed, as above stated, the tongue is raised and held out of the slot r in the reed-block s by running a thin plate of metal under and across it, as illustrated in Fig. 6 of the drawings.

It is plain that in the apparatus described the tongue of the reed to be tuned is in tuning it open and exposed at all times, to be worked upon by the tuner as he may deem best, and practically even while sounding, the advantages of which are obvious.

As the reeds to the upper bank of keys are of the tone and pitch desired for the reeds when in practical use, but which, as described, are tuned to a pitch lower than the reeds to the lower bank of keys, a convenient means is thus at hand in the tuning apparatus described to test the reeds so tuned, if it may be so desired, by simply placing the reeds which are tuned in reed-chambers and then sounding them with the corresponding reeds of the upper bank of reeds. These upper reeds are, therefore, of importance in their combination with the tuning apparatus described, and in such respect they form a part thereof, although, as is plain, the tuning of the reeds is accomplished without them.

To operate the sliding clamp r', obviously mechanism may be provided other than and different from the mechanism herein particularly described, and the same is true as to the mechanism for operating the exhaust-bellows, and for these bellows force-bellows are to be substituted if the reeds to be tuned are to be used in instruments having force-bellows to sound them. Again, the reed-clamp may be arranged either for the rear jaw, in lieu of the front jaw, or for both jaws to slide, and obviously the clamp for the reed may be arranged to clamp it at its opposite sides, instead of at its opposite ends, as has been described, or to clamp it both at its opposite sides and ends.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. An apparatus for tuning organ-reeds, composed of a series of organ-reeds of any desired compass or scale, each reed of which is arranged in a separate reed-chamber and to be sounded of itself under the action of suitable wind mechanism, and is of a pitch higher than that of a corresponding reed in practical use, in combination with a holder of a construction to hold a reed while being tuned to and by the corresponding reed of higher pitch in said series of reeds, in communication with wind mechanism, in a manner to have the tongue of the reed unconfined in any chamber or compartment and open and free to be worked upon by the tuner, all substantially as and for the purpose described.

2. An apparatus for tuning organ-reeds, composed of two series of organ-reeds of any desired but of the same compass and scale, and having each reed of each series arranged in a separate reed-chamber and to be sounded of itself under the action of suitable wind mechanism, and the reeds of the one series of a higher pitch than those of the other series, in combination with a holder of a construction to hold a reed while being tuned to and by the corresponding reed of higher pitch in the one series of reeds, in communication with wind mechanism, in a manner to have the tongue of the reed unconfined in any chamber or compartment and open and free to be worked upon by the tuner, all substantially as and for the purpose described.

3. A holder or clamp for an organ-reed, composed of jaws constructed and arranged to open from and close upon a reed-block and when closed leave the reed-tongue open and free to be handled, in combination with a wind mechanism which is in communication with the tongue of the reed, all substantially as described, for the purpose specified.

4. A holder or clamp for organ-reeds, composed of jaws $l' r'$, the one, l', stationary, but adjustable in position, and the other, r', arranged to be moved toward and away from the stationary jaw, and both otherwise constructed to hold a reed-block between them and have the reed-tongue open and free to be handled,

in combination with a wind mechanism which is in communication with the reed-tongue, all substantially as described, for the purpose specified.

5. A reed-clamp composed of a stationary and a sliding jaw, in combination with a vertical lever, U, having spring V, a pusher-rod, W, a bell-crank lever, B^2, a pitman-rod, Z, and a treadle, A′, arranged together to work upon the sliding jaw r', substantially as and for the purpose described.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

GEO. B. KELLY.
ELWIN H. SMITH.

Witnesses:
EDWIN W. BROWN,
WM. S. BELLOWS.