L. V. Hall,

Tuning Instrument,

No. 50,818, Patented Nov. 7, 1865.

Fig: 1.

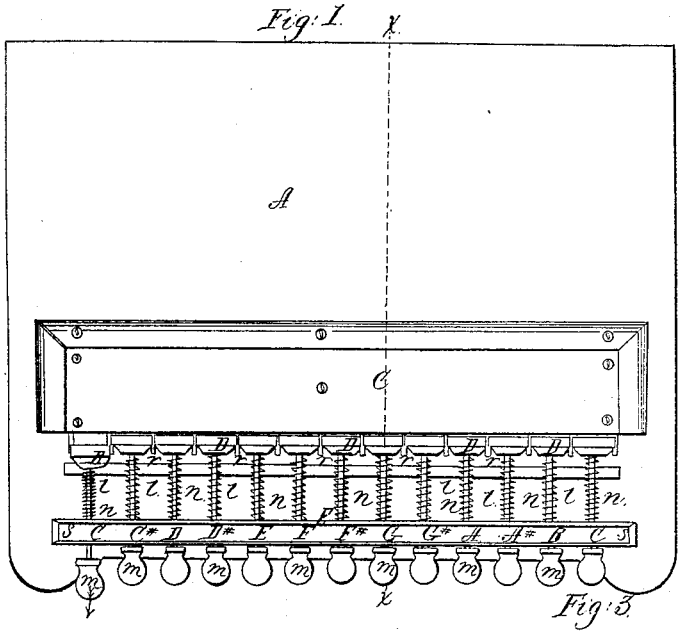


Fig: 3.

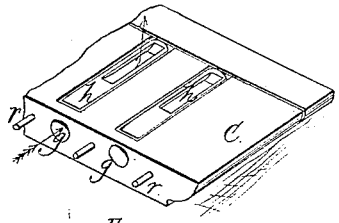


Fig: 4.

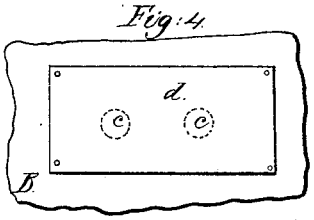


Fig: 2.

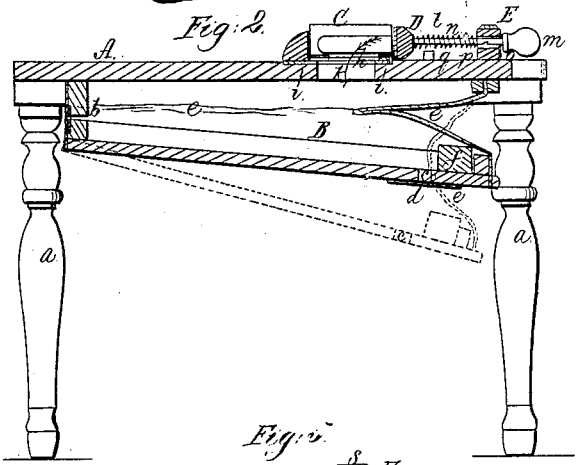
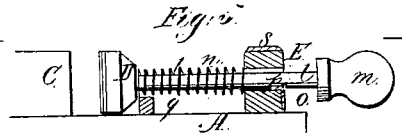


Fig: 5.



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UNITED STATES PATENT OFFICE.

L. V. HALL, OF MOUNT MORRIS, NEW YORK.

INSTRUMENT FOR TUNING PIANOS, ORGANS, &c.

Specification forming part of Letters Patent No. **50,818**, dated November 7, 1865.

To all whom it may concern:

Be it known that I, L. V. HALL, of Mount Morris, in the county of Livingston and State of New York, have invented certain new and useful Improvements in Automatic Instruments to be used in Tuning Pianos and Organs; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

Figure 1 is a plan of my improved instrument; Fig. 2, a vertical section of the same in the plane of line *x x*, Fig. 1; Fig. 3, a perspective view of a portion of the tube-board inverted; Fig. 4, a view of the bellows-valve; Fig. 5, a view representing the means of holding the valves or guards open to produce the sound.

Like letters of reference indicate corresponding parts in all the figures.

It is the object of my invention to produce an automatic instrument for indicating the proper tones in tuning a piano or organ, so that but a single operator will be required, and both of his hands will at at liberty to act upon the instrument to be tuned without attending to the accompanying indicator. This instrument is constructed on the plan of the ordinary melodeon, except that it is not operated by positive or manual action, but by a weight connected with a bellows, which, in running down or falling, will produce a tone of sufficient length to strain an ordinary piano-string.

As represented in the drawings, A is a leaf or table supported by legs *a a*, and B is a melodeon-bellows, jointed or hinged at *b* in the back, so that the front will fall or be depressed, as indicated by the red outline, Fig. 2. The bellows is formed of rubber-cloth *e*, or other suitable material, secured in a proper manner, and its bottom is provided with air-escape holes *c c*, Figs. 2 and 4, covered by a piece of soft leather, *d*, which will allow the air to pass out when the bellows is raised, as in black lines, but will prevent its passage while the bellows is falling to the position indicated by red lines. Instead of being operated by a foot-lever, like ordinary melodeons, the bellows is provided in front with a simple weight, *f*, Fig. 2, of proper size to depress the bellows with sufficient force to produce the necessary sound.

On top the leaf or table is secured the tube or reed board C, which is a simple board having thirteen holes or tubes *g g*, Figs. 2 and 3, corresponding with the tones and semi-tones in a single octave made therein, and having beneath these tubes the reeds *h h*, same as those employed in melodeons. These reeds are most conveniently inserted in place by making the back bead of the tube-board removable and sliding them in from the rear. The tube-board rests upon a piece of soft leather, *i*, to pack it tight. The top of the table is provided with slots *k k*, to allow the air to pass through the reeds into the bellows below.

Over the front ends of the tubes *g g* fit valves or guards D D, attached to stop rods or stems *l l*, which pass out through a stop-board, E, and have knobs or keys *m m*, of different colors, to indicate the whole and semi-tones attached outside. Around the stop-rods are situated spiral springs *n n*, or equivalent, resting between the valves and the stop-board, and pressing the valves up to close the ends of the tubes.

The front of the stop-board is provided with a sharp-edged catch, *o*, and over this catch notches *p p* of the stop-rods, when the latter are drawn back to open the valves, as indicated at the left hand in Fig. 1, and in Fig. 5.

At a little distance in the front of the valves is situated a shoulder, *q*, to prevent the valves being drawn back too far.

Small pins *r r*, or equivalent, are employed between the valves, projecting from the tube-board, for the purpose of guiding said valves properly in moving back and forth. Any equivalent device may be employed.

I prefer to secure on top of the stop-board a plate, *s*, on which may be marked, if desired, over the corresponding keys, the letters of the chromatic scale, viz.: "C C♯ D D♯ E F F♯ G G♯ A A♯ B C."

To operate this instrument, the bellows is raised, as indicated in black lines, Fig. 2. This action expels the air through the escape-openings *c*. The bellows is then released, and the weight *f*, carrying it down, will have the effect of drawing the air through the slots and tubes *k g*, and consequently produce sound when the valves are open, as indicated in Fig. 5. The tone of any single key or a chord thus produced will continue of sufficient length be-

fore the bellows runs down to strain an ordinary piano-string or adjust the pipe of an organ.

The advantages of this instrument are obvious. It is automatic or self-acting, thereby dispensing with the services of a second person in tuning, as the operator only has to raise the bellows, open the right valve, and then he can employ both hands in tuning the piano, as the accompanying instrument needs no further attention till it runs down. Where a melodeon is employed to tune by a second person is necessary to operate it.

One prominent feature of my invention is the automatic action, whereby not only is the second person dispensed with, but also both hands of the single operator are at liberty. I can conceive of no other relation in which the bellows of a musical instrument can be operated by a weight in the manner described, for in ordinary instruments a constant and unintermittent sound is necessary, which must be produced by positive action, through levers or other means. The action of the bellows in running down is equable and nearly uniform, the variation in tone being so slight as to be scarcely perceived. This is essential in properly tuning a piano.

By the employment of this instrument any person with a tolerably correct ear for harmony can tune a piano, thereby dispensing with the services of a professional piano-tuner. This would save considerable expense every year. The arrangement of the stop-rods of the valves is such as to be very effective, holding the valves out securely when required, and easily released to close them by means of the catches and notches *o p*.

I am aware that an instrument consisting of a piano-string with a movable bridge beneath has before been used as an assistant in tuning a piano; but it is obvious that the string is as liable to get out of tune as the piano itself, and, therefore, is not reliable, besides, it is difficult, if not impossible, to adjust the bridge exactly to produce the required tone. Such a device is not the equivalent of my invention.

What I claim as my invention, and desire to secure by Letters Patent, is—

The special construction and arrangement of the automatic instrument herein described for tuning pianos and organs, the same consisting of the weighted bellows B, tube-board C, valves D D, whose stems are provided with the notches *p p*, for engaging with the catch *o*, springs *n n*, and the stop-board E, the whole so operating that the device is self-acting, and so that a simple tone or a chord may be produced at once and without the constant attendance of the operator, substantially as herein set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

L. V. HALL.

Witnesses:
A. C. HALL,
E. YOUNGS.