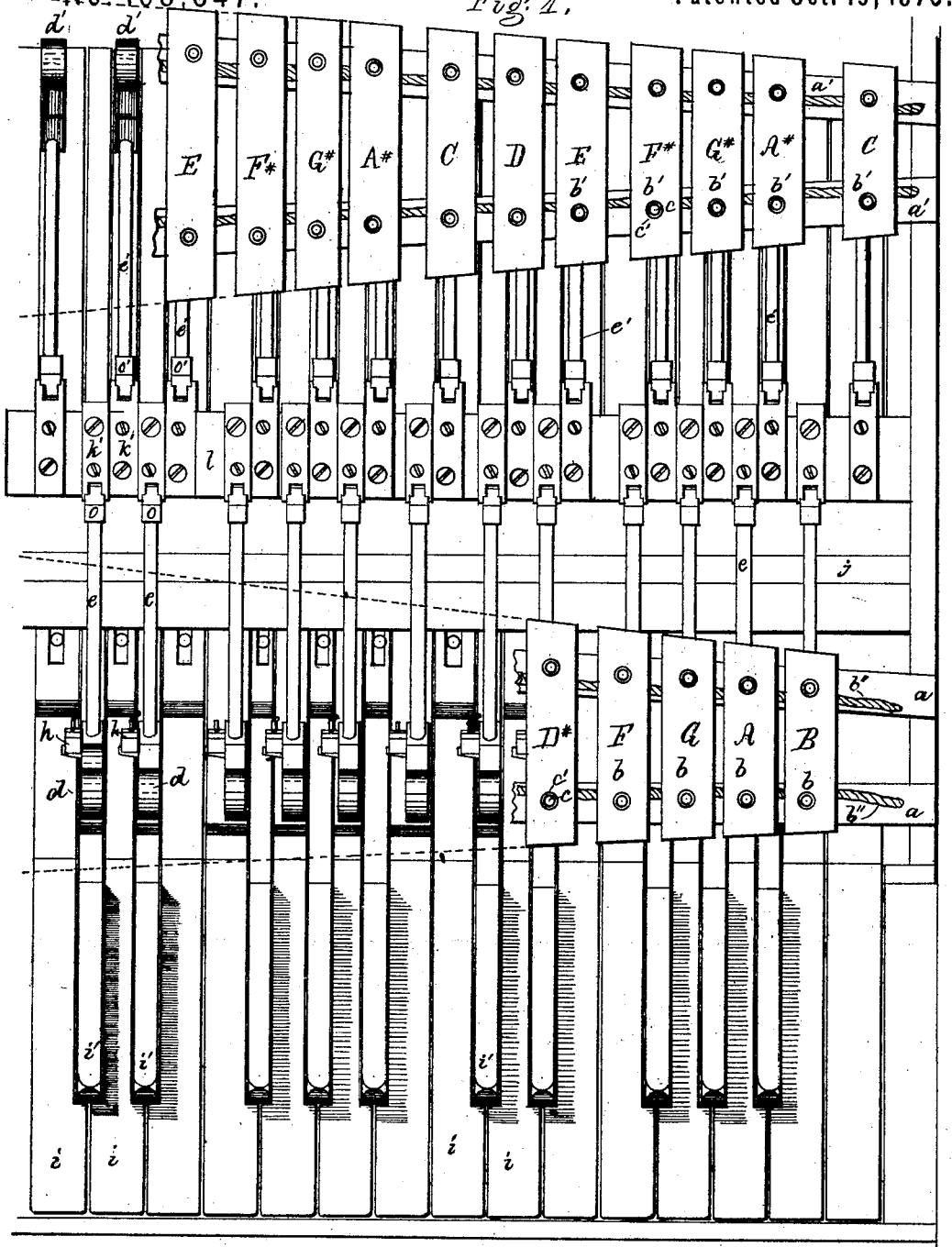


G. RIMBACH.
Keyboard Harmonicon.

No. 168,847.

Fig. 1.

Patented Oct. 19, 1875.



Witnesses.

Wm. Pratt.
S. H. Cramer.

INVENTOR.

George Rimbach
per Gustav Gregory.

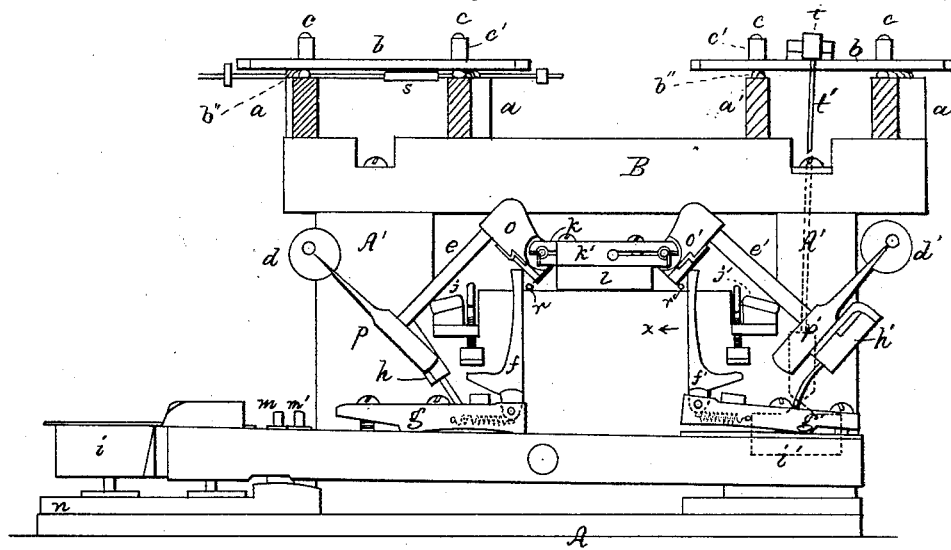
Attys.

G. RIMBACH.
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No. 168,847.

Patented Oct. 19, 1875.

Fig. 2.



WITNESSES.
Wm Pratt.
L. H. Latimer.

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UNITED STATES PATENT OFFICE.

GEORGE RIMBACH, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN KEY-BOARD HARMONICONS.

Specification forming part of Letters Patent No. **168,847**, dated October 19, 1875; application filed December 28, 1874.

To all whom it may concern:

Be it known that I, GEORGE RIMBACH, of Boston, in the county of Suffolk and State of Massachusetts, have invented Improved Keyed Harmonica, of which the following is a specification:

My invention relates to a musical instrument, which I denominate a "keyed harmonica," for use in orchestra or for other purposes, and in which are employed two series of metallic or other sonorous plates, such as steel, bell-metal, glass, or wood. These plates rest and are supported on an elastic or non-sonorous surface, and pins covered with an elastic or non-sonorous substance, such as india-rubber, pass through the plates at their nodal points.

My invention consists in a series of such plates, when combined with a piano-action to strike and vibrate such plates, substantially as hereinafter described.

The plates are cut from bars of steel of any desired width or thickness, according to the tone desired to produce, and plates of certain lengths and thickness are found to be of substantially the same tone; but should they vary or not be of the right tone, they may be made shorter at the ends to sharpen the tone, or be reduced at their centers between their nodal points. The thicker the plate the higher the tone.

In the drawing, Figure 1 is a top view of a case containing metallic or sonorous plates and a piano-action arranged to strike said plates, a portion of the plates being removed to show the action underneath. Fig. 2 is a detail side view, showing the construction of the piano-action adapted to operate against the plates.

A is the frame of the instrument, and may be made of any desired shape and size. Inside the frame are posts or plates A', having cross-bars B, on which are mounted two series of diverging bars, *a a'*, provided at top with an elastic or non-sonorous substance, *b b''*—in this instance fibrous strands—on which rest the metallic or other sonorous plates *b b'*, they being held in position on the fibrous strand by means of pins *c* covered with india-rubber *c'*, the pins rising from the bars *a a'*. The key-levers *i i'* are supported on the key-board *n*,

moving on pins or posts *m m'*. The key *i'* has attached to it a bar, *g'*, which carries a jack, *f'*, acted on by a spiral spring, (shown in dotted lines,) so as to throw the jack in the direction of the arrow *x*, Fig. 2, and against the notched head *o'* of the lever *e'*, provided with the hammer *d'*, made preferably of hard wood. The head *o* is provided with felt or other soft substance where the end of the jack strikes it, and is pivoted to a block, *k'*, on a bar, *l*. The hammer *d* for striking the front row of plates is carried on an arm or lever, *e*, connected with a block, *k*, at the side of *k'*, and it is moved by a jack, *f*, on a bar, *g*, connected with key-lever *i*, the jack *f* having a spiral spring to throw it toward the notched head *o*. To prevent the jacks from passing back too far I place behind them cords *r*, preferably of catgut. The hammer-levers *e e'* are checked and kept from striking the plates a second time, unless actuated positively, by means of felt-covered clutches or pads or hammer catches *h h'*, supported on springs that engage the hammer-stalks *p* or *p'*, or projections thereon. The hammer-levers *e* incline toward the front of the keys *i i'*, so as to work the hammers *d* for the front row of plates *b*, and the hammer-stalks *p* are provided with lateral projections, against which the hammer-catches *h* work.

I do not limit myself to the form of piano-action shown and described, as the action for moving the hammers may be varied, and actions of ordinary construction be used without departing from my invention.

I am not aware, prior to my invention, that a piano-action has ever been reversed, or the hammers been made to work in opposite arcs, as shown and described.

In order to soften the tones of the plates I may interpose between the hammer-heads *d d'* and the plate a piece of buckskin or other soft material, *s*, which I call a "softener," supported on rods *s'*, or so as to be thrown out of or into the path of the hammers, and at that portion of the plates where the hammers strike. This material may be governed as to its movement by a stop or pedal. A damper, *t*, may be applied at or near the centers of the plates, at top, if desired, and may be worked in any well-known way. It is shown as connected with key-lever *i'* by means of a rod, *t'*, (shown

in part in dotted lines, so as not to obscure other parts.)

The plates may in number be more or less; but, preferably, about three octaves, and this instrument and plates may be incorporated with organs or pianos of any known pattern or make, and be provided with suitable stops to throw it into or out of action.

The capital letters on the plates *b b'* in the drawing designate the notes. The hammer-levers *e e'* in their lowermost positions rest on felt-covered bars *j j'*.

Having described my invention, I claim—

1. The combination of the perforated plates held in position by covered pins *c*, and resting

on a non-sonorous support, *b''*, with hammers and the softener adapted to be interposed between the hammers and plates, as and for the purpose set forth.

2. The two series of plates, arranged as described, in combination with key-levers *i i'*, jacks *f f'*, hammer-levers *e e'*, and hammers *d d'*, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE RIMBACH.

Witnesses:

G. W. GREGORY,
S. B. KIDDER.