

A. K. VIRGIL.

EXERCISING KEY BOARD FOR MUSICIANS.

No. 344,464.

Patented June 29, 1886.

Fig 1.

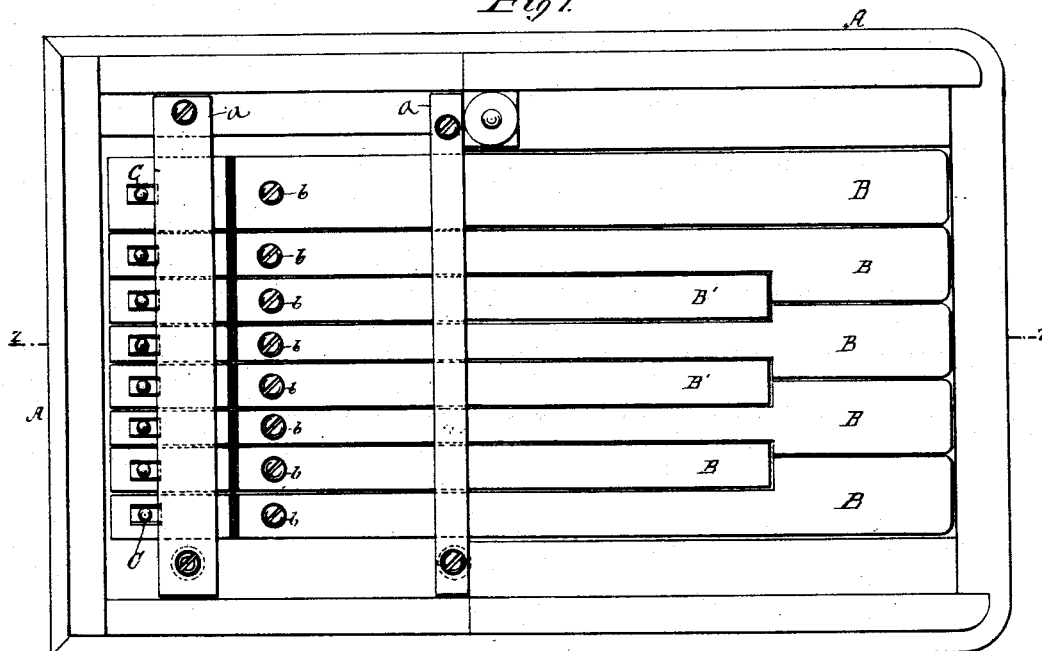
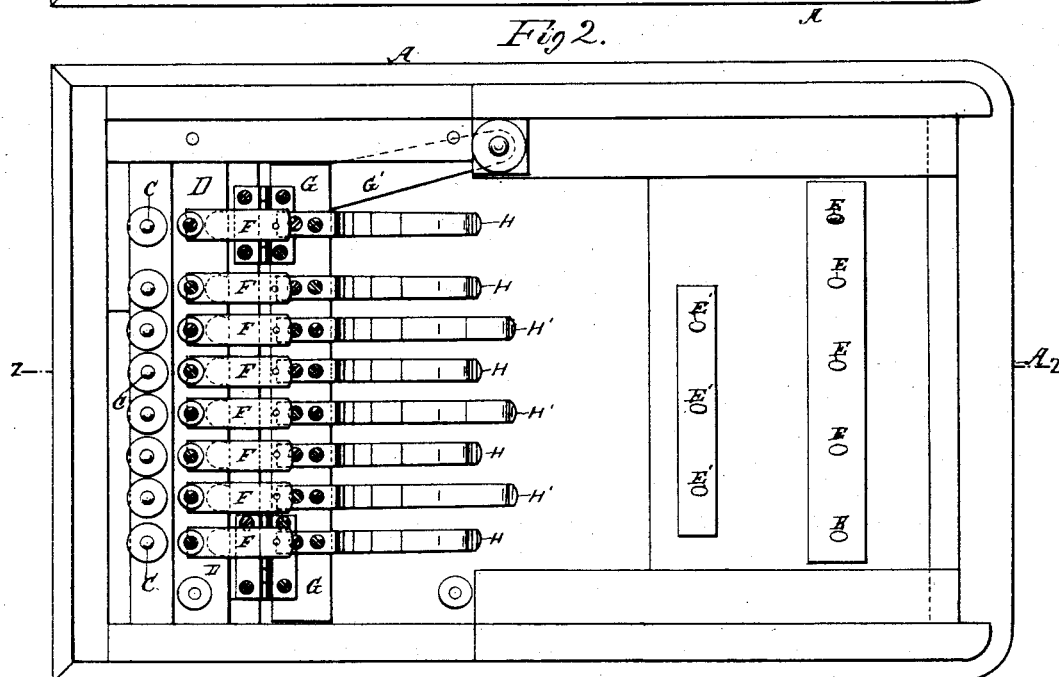


Fig 2.



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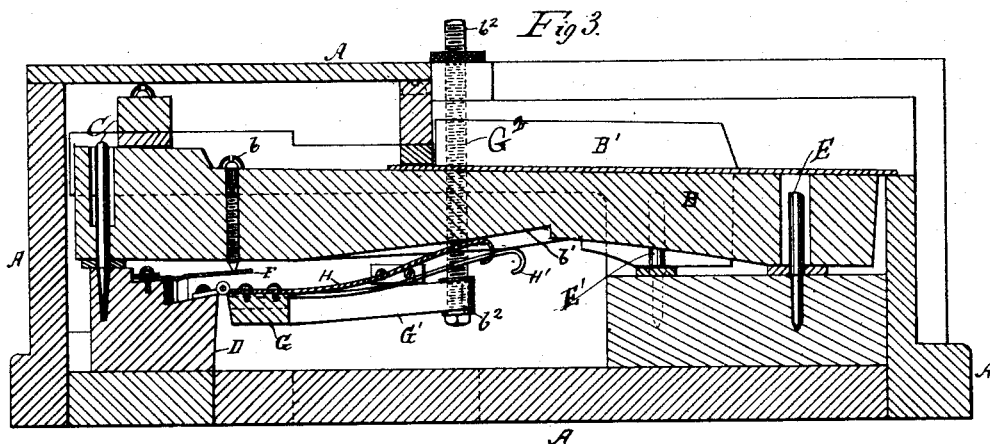


Fig. 4

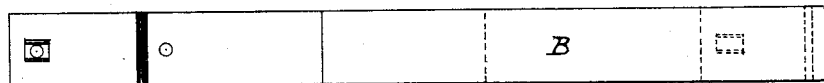


Fig. 5

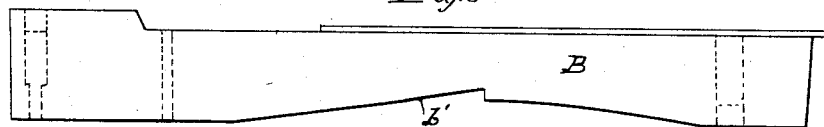


Fig. 6

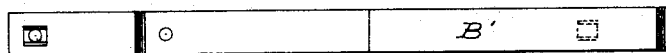


Fig. 7

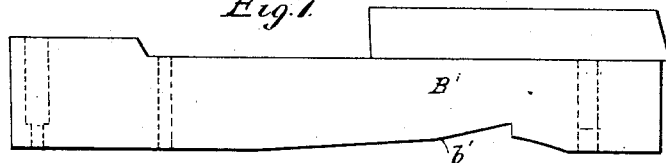


Fig. 8

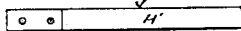


Fig. 9

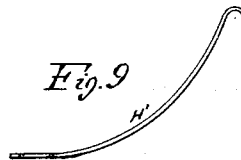


Fig. 10



Fig. 11, F

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UNITED STATES PATENT OFFICE.

ALMON K. VIRGIL, OF NEW YORK, N. Y., ASSIGNOR OF TWO-THIRDS TO E. S. WILLCOX, OF PEORIA, ILLINOIS, AND GEORGE M. WILLCOX, OF NEW YORK, N. Y.

EXERCISING KEY-BOARD FOR MUSICIANS.

SPECIFICATION forming part of Letters Patent No. 344,464, dated June 29, 1886.

Application filed February 8, 1883. Renewed October 22, 1884. Again renewed August 10, 1885. Serial No. 174,033. (No model.)

To all whom it may concern:

Be it known that I, ALMON K. VIRGIL, a citizen of the United States, residing at New York city, in the county and State of New York, have invented an Improved Device or Techniphone for Teaching Pupils the Manipulation or Fingering of the Piano, Organ, or Similar Instrument, of which the following is a specification.

My invention relates to an improved device or techniphone for teaching pupils or practicing the manipulation or fingering of the piano, organ, or other similar instruments; and the object of my invention is to arrange a series of keys controlled in position by springs in such manner that when any one of the keys is depressed it shall cause the deflection of a speaking-spring and a counter-deflection of the same on its return to a normal position. The key-controlling springs are fixed to a pivoted or hinged strip controlled in position by a lever or arm connected to an adjustable screw-rod, by the raising or lowering of which the amount of pressure exerted on the keys may be regulated, the object of this regulation being to enable young children or beginners to practice the manipulation or fingering of the keys without unnecessary fatigue at commencement, and then gradually increasing the pressure at will, or as found or thought advisable or convenient.

My invention is also particularly useful for amateur and professional players on the piano, organ, and similar keyed instruments in practicing any particular passages where it is necessary to repeat the same notes over and over again, thereby rendering the player obnoxious or tiresome to persons in the same or adjoining rooms or premises.

The accompanying drawings form part of this specification, and illustrate what I consider the best means of carrying out my invention.

Figure 1 is a plan view of my improved device. Fig. 2 is a similar plan with the keys and retaining means removed. Fig. 3 is a vertical section taken on the line $z z$, Figs. 1 and 2. Figs. 4, 5, 6, and 7 show detail views of the keys separately. Figs. 8 and 9 are detail views of one of the key-controlling springs.

Figs. 10 and 11 show detail views of one of the speaking-springs.

In each of the views similar letters of reference are employed to indicate corresponding parts wherever they occur.

A represents the main framing of my improved device, within which I arrange a series of keys, B B' B', of which there may be any desired number, arranged in the proper order by octaves, to correspond with the regulation arrangement of the key-boards of pianos, organs, and like instruments.

C C are a series of pins affixed to a bar or strip, D, and which are constructed and applied in a similar manner to the hinge-pieces or balance-pins of organs and piano-actions, and serve the same purpose.

E E E' E' are a series of guide-pins, which serve to keep the forward ends of the keys B B' in their proper positions.

F F are a series of speaking-springs, which are screwed or otherwise suitably attached to the bar or strip D, in such manner that their forward ends shall be in position to be deflected by screws b , carried by the keys B B'. Each key is provided with a screw, b , and beneath each key is arranged a speaking-spring, F.

G is a pivoted or hinged bar, arranged, by preference, in front of the bar or strip D, and to which is attached a series of bent springs, H H H' H', the outer ends of which are adapted to operate upon the graduated inclined surfaces b' , formed in or upon the under surfaces of the keys B B'.

To one end of the bar G is connected an arm or lever, G', to the outer end of which is pivoted or otherwise suitably connected the lower end of a rod or lever, G², which passes up through a guide or bearing formed in or attached to the frame A. The rod or lever G² at its upper end is screw-threaded, and provided with a set-screw, by turning which the lever G' will be raised or lowered and the bar G tilted. The effect of the tilting of the bar G, as will be evident, is to cause the springs H H' to exert a greater or less pressure upon the keys B B'. The surfaces b' of the keys B B' are so graduated or inclined that during

the entire motion of the keys up and down the springs H H' shall exert a constant and equal graduated pressure upon the keys.

5 The keys B B' are shown held in position by cross-bars *a a'*. They may, however, be otherwise retained on the pins, or the keys may be pivoted or held in any other suitable manner.

10 The amount of pressure exerted by the keys upon the speaking-springs F F may be regulated by simply turning the adjustable screws *b*.

The springs F F are so constructed and arranged that they shall speak once when deflected and once when released. They should
15 all speak in unison, and the point at which they speak when being deflected should be made to correspond with the point in the travel of the key where the sound of the musical instrument would commence, while the
20 point at which they speak when being released should be made to correspond with the point in the travel of the key where the sound of the musical instrument would cease. Thus the keys give forth a sound when struck, and
25 also when the finger leaves the key—the same sound for all the keys—similar to the click made by the modern castanet.

The preferable means of making the speaking-springs and arranging them in the instrument for accomplishing these effects are more
30 fully set forth in two other applications filed by me on the 6th day of June, 1885, numbered, respectively, Serial No. 167,842 and Serial No. 167,841.

35 The production of sound both at the down and up motions of a key is of great benefit to the learner, securing and positively proving a perfect and exposing an imperfect legato, determining and securing with exactness all
40 grades of staccato, and effectively correcting the habit of ragged chord playing.

Many modifications might be made in the form and arrangement of the parts of this instrument without avoiding its essential features. I therefore do not limit myself to the
45 precise form and arrangement shown.

The mode of operation by which the speaking-springs produce their sound is by the buckling of the compression in the spring between its free end and point of attachment
50 (shown in Figs. 10 and 11) as the spring is being deflected and as it is returning to its normal form.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—
55

1. In an instrument or device for teaching pupils or practicing the manipulation or fingering of the piano, organ, or other similar keyed instruments, the combination, with a
50 series of keys, of a series of sound-producing devices adapted to produce short, quick sounds, arranged in position to be operated on the depression of the keys, each sound-producing device being so constructed as to
65 give a sound for each depression and a sound for each return of its respective key, substantially as described.

2. The combination, with a series of keys, of a series of speaking-springs arranged in
70 position to be deflected on the depression of the keys, each of said speaking-springs being constructed with a compression between its free end and point of attachment, whereby it is caused to emit short, quick sounds, sub-
75 stantially as described.

In witness whereof I have hereunto set my hand this 12th day of January, 1883.

A. K. VIRGIL.

Witnesses:

W. COLBORNE BROOKES,
M. PARPAR.