

A. BRAMBACH.
PIANO TUNER.

APPLICATION FILED APR. 4, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

Fig: 1.

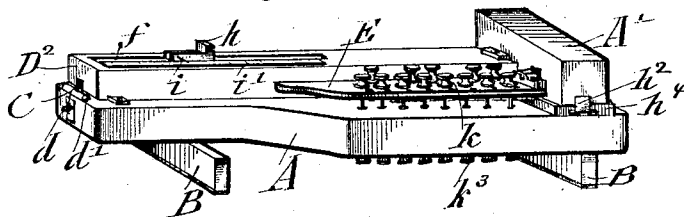


Fig: 2.

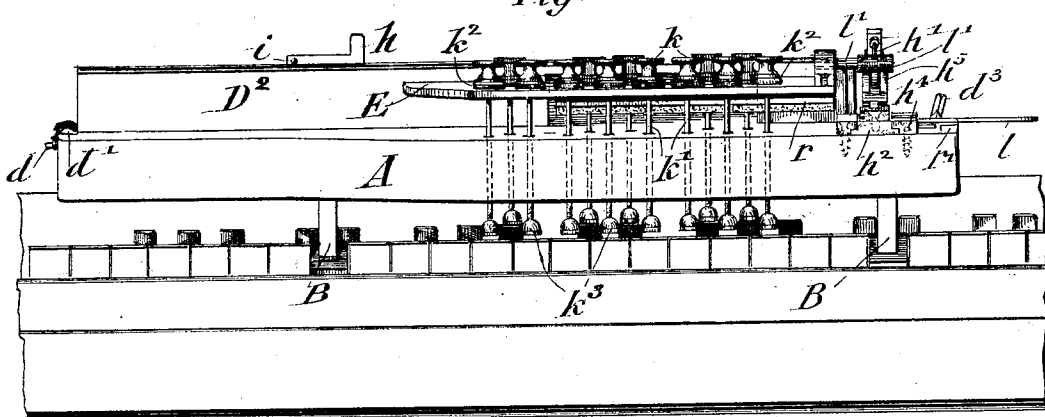
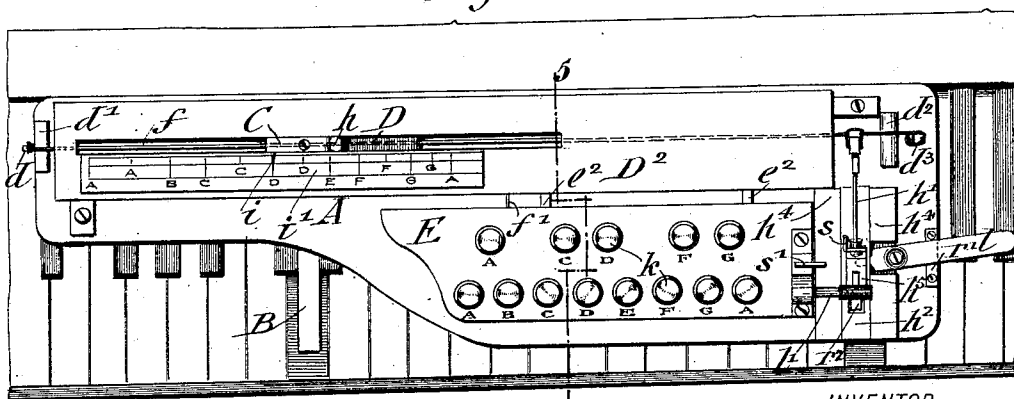


Fig: 3.



WITNESSES:

Walter Wallentin.
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INVENTOR

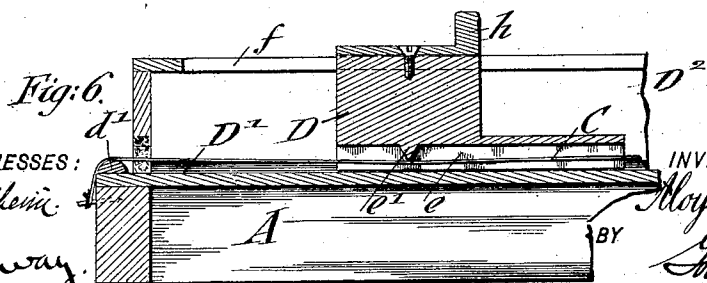
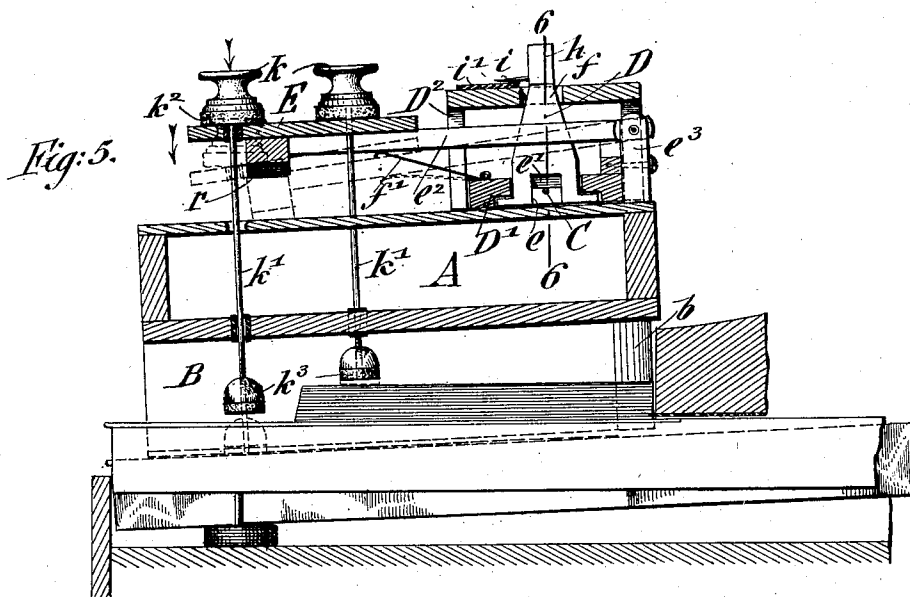
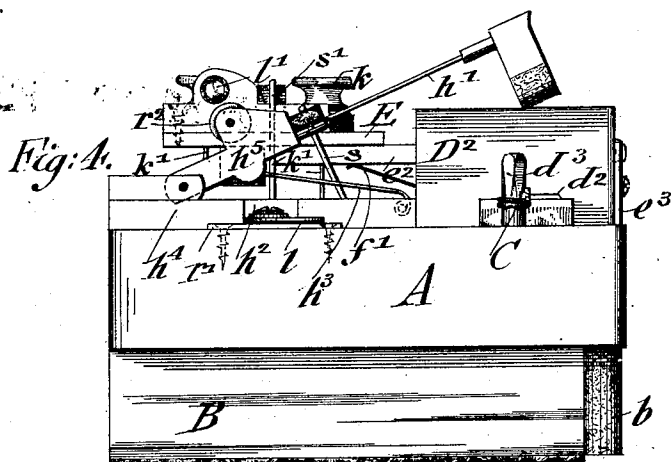
Aloys Brambach
BY James Hiles
ATTORNEYS.

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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

ALOYS BRAMBACH, OF NEW YORK, N. Y., ASSIGNOR TO ROBERT H. LANYON, OF CHICAGO, ILLINOIS.

PIANO-TUNER.

SPECIFICATION forming part of Letters Patent No. 718,691, dated January 20, 1903.

Application filed April 4, 1902. Serial No. 101,337. (No model.)

To all whom it may concern:

Be it known that I, ALOYS BRAMBACH, a subject of the King of Great Britain, residing in New York, borough of Bronx, and State of New York, have invented certain new and useful Improvements in Piano-Tuners, of which the following is a specification.

This invention relates to an improved device for tuning pianos and other keyed musical instruments on the principle of the so-called "equal temperament;" and the object of the invention is to furnish an instrument by which the art of tuning pianos—that is to say, the laying on of an even temperament in a piano—is greatly facilitated and not dependent on years of experience and a practiced ear; and for this purpose the invention consists of a device for tuning pianos which comprises a sounding-board, transverse bridge-pieces on which the sounding-board is supported, the pieces being placed on two keys of the piano, a spring-actuated keyboard, keys guided in holes of the same and in the sounding-board, said keys being provided with buttons at their lower ends for striking the keys of the piano, a hammer mechanism, means connected with the spring-actuated keyboard for operating said hammer mechanism, a string mounted on the sounding-board, a sliding stop, ways for guiding the same, and an indicator on said sliding stop moving over a graduated scale, so as to indicate the exact division of the equal temperament within an octave. The invention consists, further, of means for sliding the hammer mechanism, so as to remove the hammer in or out of alinement with the string of the tuning device, and the invention consists, lastly, of certain additional details of construction which will be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of my improved tuner. Fig. 2 is a front view of the tuner, showing it in position on the keyboard of a piano. Fig. 3 is a top view of Fig. 2. Fig. 4 is an end elevation of the same. Fig. 5 is a vertical transverse section on line 5 5, Fig. 3, Figs. 4 and 5 being drawn on a larger scale; and Fig. 6 is a vertical transverse section on line 6 6, Fig. 5, also drawn on a larger scale.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents a sounding-board, which is made long enough to arrange one of the treble strings of a piano on the same. The sounding-board is made of the usual approved construction, being approximately rectangular in shape, with one end somewhat narrower than the body, as shown in Figs. 1 and 3. The sounding-board A is supported on transverse bridge-pieces B, which are provided with cushioning-felts at their bottom surfaces that rest upon the piano-keys and with rounded-off felt or leather covered rear ends *b*, that abut against the front of the piano above the keys. At the rear part of the sounding-board is mounted a string C, which corresponds in length to one of the treble strings of a piano or other musical instrument. The string C is attached to a straining-pin *d* at the left-hand end of the sounding-board, passed over agraffes *d'* *d''* on the sounding-board, and attached to a tuning-pin *d'''* at the opposite end of the sounding-board, as shown clearly in Fig. 3. A sliding metallic stop D is guided in ways D' on the sounding-board, the stop being tapered in upward direction at the upper part and provided with an indicating-pin *i* and a finger-piece *h*. The indicating-pin moves over a graduated scale *i'*, that is attached to the top of the casing D², which incloses the movable bridge. The finger-piece *h* projects through a slot *f* of the casing D, by means of which the stop can be readily moved. The scale *i'* corresponds to an octave of the treble on the piano from A to A and the sharps of the same. The stop D is provided at its lower part with a longitudinal recess *e*, so as to permit the free vibration of the same, and in the longitudinal recess or groove *e* with a transverse knife-edged tooth *e'*, which in connection with the weight of the bridge bears on the string and produces thereby a sound corresponding to the length of the string. The casing D² is attached in any suitable manner to the sounding-board A. On the wider right-hand end of the sounding-board A is mounted a yielding keyboard E, which is pivoted by two rearwardly-extending arms *e''* to two uprights *e'''*, said keyboard being

acted on at the under side by a spring f' , so as to be held in raised position, said spring being attached at one end to one of the guide-ways of the sliding stop D, the front end of the spring being attached to the under side of the keyboard. By pressing the keyboard in downward direction it will return to its normally horizontal position under action of the spring f' . The keyboard is provided with a number of keys k , the stems k' of which pass through holes in the keyboard E and sounding-board A. The keys are cushioned on the under side by small felt disks k^2 and the lower ends of the stems of the keys are provided with felt-covered leather buttons k^3 , which are screwed higher or lower on the lower threaded ends of the stems k' of the keys, so as to be adjusted properly thereon relatively to the keys of the piano to be struck thereby. To the under side of the yielding keyboard is attached a longitudinal felt-cushioned rail r , so as to render the contact between the keyboard and top of the sounding-board noiseless.

At the right-hand end of the sounding-board A and adjacent the end of the yielding keyboard is arranged a piano-action, which consists of a spring-actuated hammer h' , which is pivoted to a slide-piece h^2 , said hammer being acted upon by a suitable spring h^3 , so as to be held in inclined position against a stationary stirrup s . The slide-piece h^2 is guided in suitable ways h^4 toward the sounding-board and moved backward or forward by a fulcrumed lever l , which engages the slide-piece, said lever being guided over a stationary rail r' , attached to the sounding-board. When it is desired to sound a string, the slide-piece h^2 is moved in forward direction by the lever l , in which position the hammer is located above the string C. At the right-hand end of the yielding keyboard E is attached an arm l' , provided with a felt covering, which engages a pivoted roller r^2 in the hammer-butt h^5 , said roller being preferably made of leather, so as to take up the contact of the felt-covered arm l' when the keyboard is lowered and impart thereby an oscillating motion to the hammer, so that the same strikes the string. A stationary catch s' , attached to the right-hand end of the sounding-board, serves to limit the upward movement of the keyboard E. The keys k are arranged in the keyboard in two rows corresponding to the white and black keys of an octave of a piano or other instrument in relative position, so that by depressing the A key of the tuner the key A of the piano will be depressed. The stems of the rear row of keys are somewhat shorter than those of the front row, so as to provide for the height of the black keys above the white ones, as shown clearly in Fig. 5. The scale v is provided at its graduations with designations that correspond to the keys k of the keyboard E.

My improved tuning instrument is used as

follows: The string C is first tuned to the desired pitch. The device is then placed in position on the keyboard of the piano, at the treble end thereof, as the string C corresponds to a treble string of a piano. The keys of the tuning device are disposed over corresponding keys of the piano. A string of the piano is then selected that is of the octave which is within the control of the tuning device and is tuned to sound in unison with the string of the device, that is suitably fitted to correspond with the selected string of the piano, and the other strings of the octave are tuned to sound in unison with their respective keys of the tuning device, so that the corresponding strings of the piano constitute an exact temperament to that of the tuning device. The tuning is accomplished by setting the sliding stop to the desired graduations of the scale and striking the corresponding key with one hand and operating the tuning-key of the corresponding string in the piano until the piano-string is tuned in unison with the string of the tuning device. The sliding stop is adjusted along the scale, so that the string C serves for the tuning of an entire octave. The remaining strings of the piano are then tuned in the usual manner in harmony with the strings of the octave tuned by means of the tuning device.

In tuning up the companion strings it is not necessary to sound the string of the tuning device, and the sliding portion of the hammer is taken away from the string, which in this case would only actuate the key already tuned, so that its companion key can be tuned in unison therewith.

The tuning device is intended to be used not only by professional piano-tuners, but also in factories, as it furnishes a mathematically-correct mechanism for laying an equal temperament on keyed or stringed instruments. It facilitates tuning of pianos and furnishes an easy method of learning the tuning of the same. It saves considerable time in tuning pianos in factories and produces uniformity in tuning. It has the advantage that it can be tuned to any desired pitch which the pianos are to be tuned, and, lastly, it can be easily carried in a suitable box for doing outside work.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A tuning device for pianos and other musical instruments, consisting of a sounding-board, transverse bridge-pieces for the same, a spring-actuated keyboard provided with a plurality of keys for actuating the keys of the piano below the same, a string corresponding in length and pitch to one of the strings of the piano, a sliding stop having a transverse tooth for fretting the string, means for striking said string, and means attached to the yielding keyboard adapted to actuate said means for striking the string substantially as set forth.

2. A tuning device for pianos and other musical instruments, consisting of a sounding-board, transverse bridge-pieces by which the same is supported on the keyboard of the piano, a spring-actuated keyboard arranged above the sounding-board, keys corresponding to the keys of an octave arranged on the keyboard, the stems of said keys extending through the keyboard and sounding-board and being provided with push-buttons at their lower ends, a string corresponding to one of the strings of a piano strung on the sounding-board, a sliding stop provided with a tooth for fretting the string within the range of an octave, an indicator on said sliding stop, an octave-scale along which the indicator is moved for fretting the string, a piano-action, and means connected with the oscillating keyboard for actuating the action for striking the string, substantially as set forth.

3. In a device for tuning pianos and other musical instruments, the combination, with a sounding-board, of a spring-actuated keyboard provided with a number of keys corresponding to the keys of an octave of a piano, a longitudinally-cushioned rail applied to the under side of the oscillating keyboard, and a stop for limiting the motion of the keyboard in opposite direction, substantially as set forth.

4. In a device for tuning pianos and other musical instruments, the combination, with a sounding-board, of a spring-actuated keyboard mounted on the same, keys having stems which are provided with buttons at their lower ends, means for limiting the motion of the keyboard, a string mounted on said sounding-board, a piano-action mounted on a transverse slide-piece, means for adjusting said piano-action so that the hammer

strikes the string or clears the same, and means applied to the spring-actuated keyboard for actuating the hammer-action, substantially as set forth.

5. In a device for tuning pianos and other musical instruments, the combination, with a sounding-board, of a string mounted on the same, means for fretting the string within the range of an octave, a spring-actuated keyboard, keys arranged in two rows on the same, said keys corresponding to the keys of an octave of a piano and having their stems passing through the keyboard and sounding-board and provided with buttons at the lower ends of the same, an action arranged adjacent one end of the keyboard, and an arm attached to said keyboard and adapted to actuate said action so as to strike the string, substantially as set forth.

6. In a device for tuning pianos and other musical instruments, the combination, with a sounding-board, of a string mounted on the same, a spring-actuated keyboard, keys supported on the same, a hammer mechanism arranged adjacent the sounding-board at one end of the keyboard, means for shifting said hammer mechanism so that its hammer strikes or clears the string, and means attached to the keyboard for actuating the hammer mechanism when the same is placed within the range of said actuating device, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

ALOYS BRAMBACH.

Witnesses:

PAUL GOEPFEL,
C. BRADWAY.