No. 613,900. Patented Nov. 8, 1898.

F. L. GEORGE.

MEANS FOR TUNING MUSICAL INSTRUMENTS.

(Application filed Dec. 7, 1897.)

(No Model.)

Fig. 1.

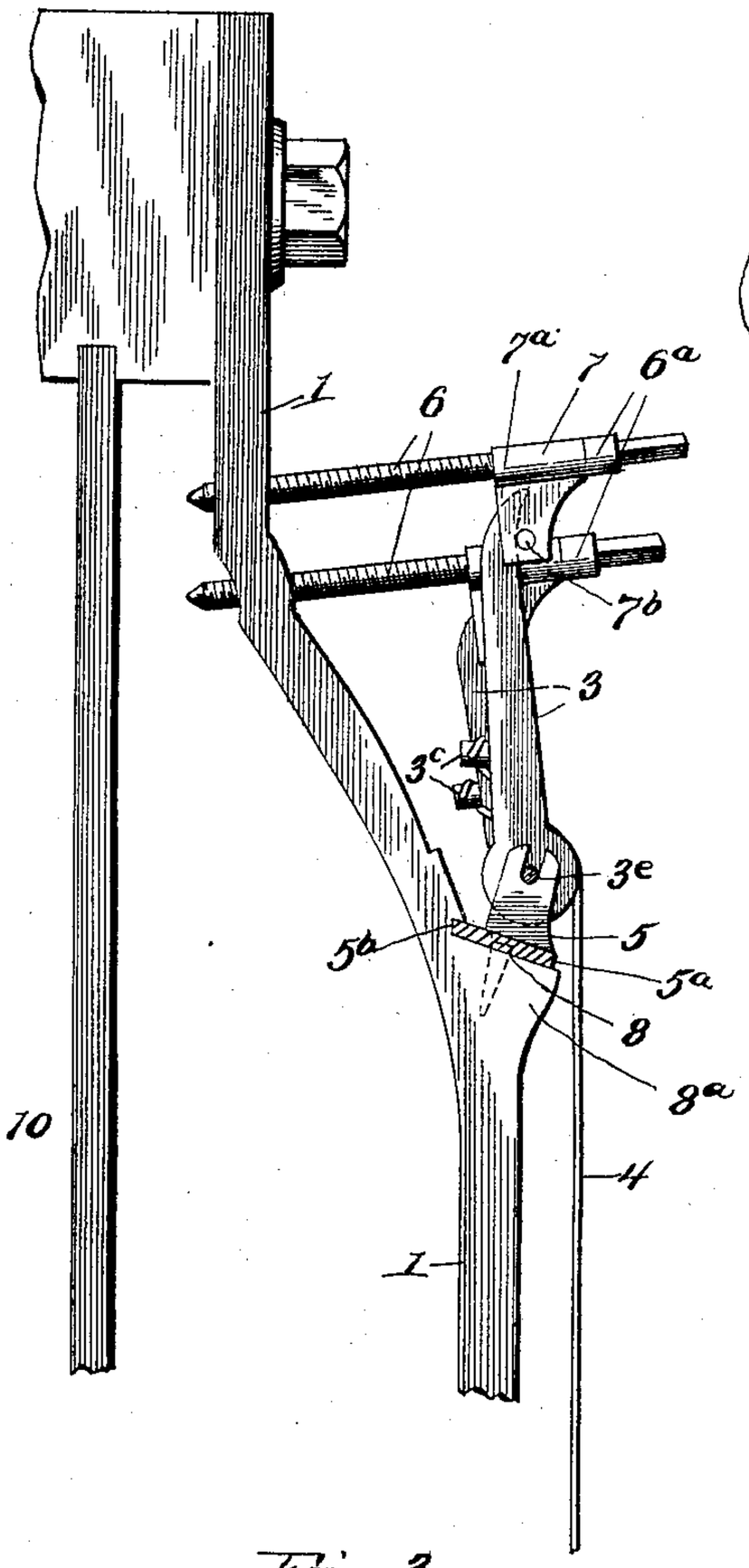


Fig. 2.

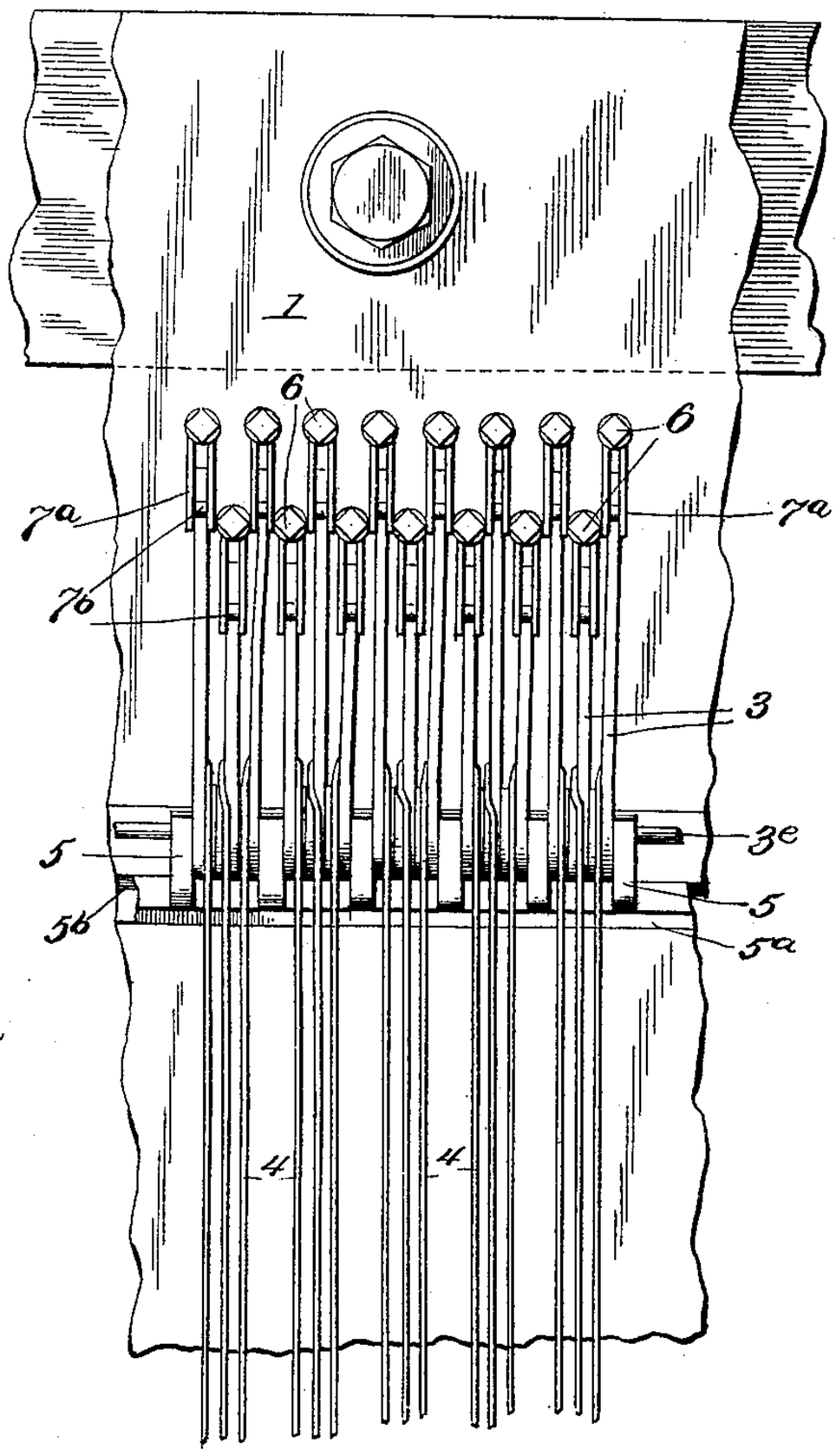


Fig. 3.

Fig. 4.

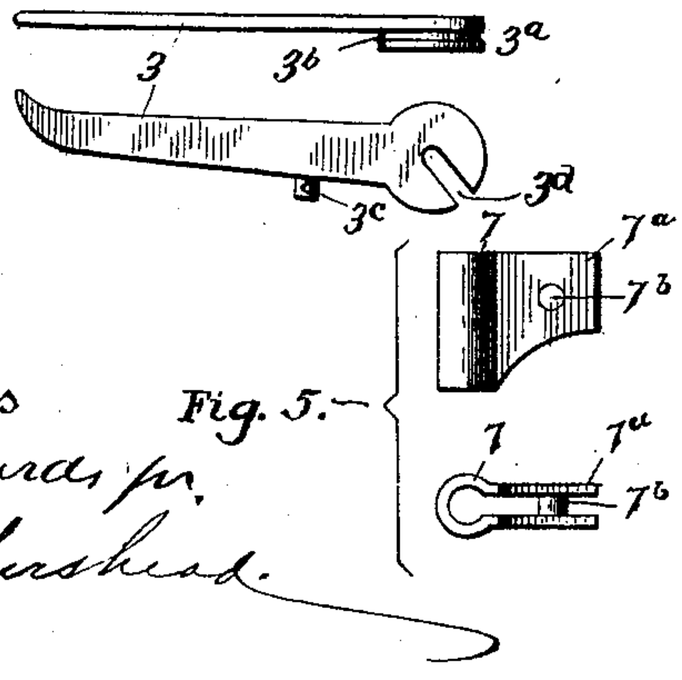
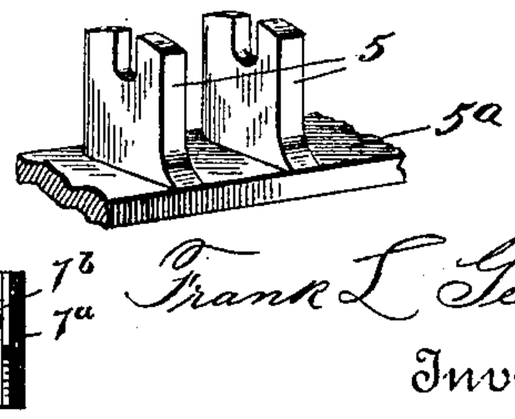


Fig. 5.—



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UNITED STATES PATENT OFFICE.

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MEANS FOR TUNING MUSICAL INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 613,900, dated November 8, 1898.

Application filed December 7, 1897. Serial No. 661,074. (No model.)

To all whom it may concern:

Be it known that I, FRANK L. GEORGE, a citizen of the United States, residing at Salt Lake City, in the county of Salt Lake and State of Utah, have invented certain new and useful Improvements in Means for Tuning Musical Instruments; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in means for tuning musical instruments, more particularly pianos, also for promoting the sound thereof.

It has for its objects, among other things, principally to promote simplicity, to reduce friction to the minimum, to render the device almost absolutely non-frictional, to secure ease or facility of tuning, to effect the tuning operation to micrometrical exactness, to obtain uniformity of tension of wires or strings throughout, to provide for tuning either sharp or flat, to effect the maximum retention of the tune, to reduce liability of breaking of wire or string to the minimum, to effect the spacing apart of the wires or strings with absolute correctness, to obviate false vibrations on dead end of wire or string, to effect great saving of wire or string, to maintain the same length of wire or string for unison-notes, to effectually discard all frictional bearings, to prevent the possibility of the tuning pins or screws "jumping" during the tuning operation, to obviate the expense of replacing broken pins, and to facilitate the stringing of new wires in replacing broken wires.

The invention consists in the combination and arrangement of certain parts, substantially as hereinafter more fully disclosed, and specifically pointed out in the claims.

It is here remarked that I reserve the right to vary the details of the construction and arrangement of the parts as circumstances may require and the invention yet remain intact.

In the accompanying drawings, illustrating the preferred form of carrying out my invention, Figure 1 is a side view of certain parts of a piano, showing the application of my invention thereto. Fig. 2 is a plan view thereof. Figs. 3, 4, and 5 are detail views of the same, showing certain individual parts of the invention, the nature of which will fully appear hereinafter.

1 is a cast iron or metal string-frame, preferably constructed as shown, with its forward straight or horizontal end portion bolted or secured to the frame of the piano and inclined upward therefrom a certain distance and thence again extended straight or horizontal and also bolted or secured to the frame of the piano.

3 3 are the levers for putting the strings or wires 4 of the piano under tension or stress, as practiced in effecting the tuning operation, having, preferably, their fulcrumed ends circular or disk-like in form. Said circular portions are extended laterally into hub-like portions, as at 3^a, provided with peripheral grooves 3^b to receive and retain thereon the strings or wires passing thereover to and through transverse passages in studs 3^c, projecting from the under side of said levers, and there secured, as shown.

The disk or circular portions of the levers 3 have each a radial slot 3^d, with its flared open end opening through the periphery of said disk to permit the pivoting or fulcruming of said levers upon a common or single rod or fulcrum 3^e, resting and supported in gudgeons or bearings 5 of a bracket 5^a, screwed, as at 8, or otherwise suitably secured to an offset or abutment 8^a of the string-frame.

The bearings or gudgeons 5 are arranged at suitable intervals apart to provide for the reception of the requisite number of levers between each two bearings or gudgeons, according to the arrangement of the strings or wires in groups of three and two in unison, and the use of a single string or wire, as for the lowest or heaviest tones. The bracket 5^a is anchored or let into a transverse recess or channel 5^b produced in the string-frame 1 to more effectually secure it in place against possible dislodgment under strain or stress.

6 6 are the screws or screw-threaded pins bearing or working in the string-frame 1 and adapted to permit of the application of a wrench thereto for their manipulation. These screws or pins have thereon fixed collars 6^a near their upper ends. Also arranged upon said screws or pins, below said fixed collars, are sleeves 7, each provided with lateral par-

allel flanges or plates 7^a, having a stout transverse pin or bar 7^b extending across the intervening space between them and securely held at its ends in said flanges or plates to rest upon the free ends of said levers received between said plates or flanges, as will be seen, whereby as the screws or pins are screwed downward, of course by a suitable wrench, or it may be by any improvised implement, said plates or flanges will be carried thereby downward, causing said cross pins or bars to press upon said ends of said levers. This action of parts, it will be seen, will draw upon the strings or wires 4, taking up any slack or looseness therein and putting them under stress or tension, thus providing for the proper tuning of the same, as will be understood.

10 is the sounding-board, and, unlike the arrangement of the sounding-board heretofore used, it is adapted to extend clear forward of the strings or wires, and below the same, its forward end being secured to the frame of the piano, somewhat in advance of the lever-actuating screws, is adapted to provide a wholly-unobstructed space below the entire length of the strings or wires, thus greatly increasing the sound vibrating or transmitting surface of the sounding-board. Thus, also, the full sound of the vibrations of the strings or wires throughout will be secured, obviating any defective or false sounds and preventing the interference of the vibrations of one string with those of another.

It will be seen that, there being no contact between the string or wire tension-levers, all friction whatsoever is obviated. Also it will be seen from the foregoing that great simplicity is secured, facility in tuning the instrument obtained and the same tuned to micrometrical exactness, that the tension of the wires or strings can be kept the same or uniform throughout; also, that the instrument is adapted to be tuned either sharp or flat, while it can be held in tune at the maximum length of time; also, that the breaking of the wires or strings is reduced to the minimum and that the spacing of the strings or wires is effected with absolute correctness that a great saving of wire is secured, and that the possibility of the tuning pins or screws jumping is entirely overcome; also, that the removal of broken tuning-pins is obviated, while the stringing of new wires, or replacing broken wires, is effected with facility and ease.

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

1. In a piano, or stringed-instrument, tuning device, the combination of the string-levers, the tension screw or pin, and the sleeve, through which passes said tension screw or pin, having connected lateral extensions or flanges, adapted to receive between them the free end of said tension-lever, to hold it against possible, lateral displacement, as also to hold it down, substantially as set forth.

2. In a piano, or stringed-instrument, tuning device, the combination of the string-lever, the tension screw or pin having a fixed collar thereon, and the sleeve, through which passes said pin or screw, having connected lateral flanges or extensions between which is received the free end of said lever, said sleeve arranged below said collar, substantially as specified.

3. In a piano, or stringed-instrument, tuning device, the tension-lever adapted to draw upon the wire, and the sleeve having connected lateral flanges or extensions adapted to engage said lever, and means to cause said flanges to bear upon and force said lever downward, substantially as set forth.

4. In a piano, or stringed-instrument, tuning device, the tension-lever adapted to draw upon the string or wire, the screw or pin having a fixed collar or enlargement, and the sleeve arranged upon said pin or screw, below said collar, and having lateral flanges or plates with an intermediary cross bar or pin, adapted to engage said lever at its free end, substantially as specified.

5. In a piano, or stringed-instrument, tuning device, the combination of the lever having a lateral grooved circular portion provided with a radial slot opening through its periphery, the bracket having a rod or pivot held in bearings thereon and passing through the slot of said circular portion of said lever, the pin or screw, a sleeve arranged on said pin or screw and adapted to act upon said lever and said screw or pin adapted to act upon said sleeve, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK L. GEORGE.

Witnesses:
J. B. THOMPSON,
C. H. SCHEW.