

(No Model.)

W. H. IVERS.

DEVICE FOR STRINGING PIANO FORTES.

No. 467,554.

Patented Jan. 26, 1892.

Fig. 1.

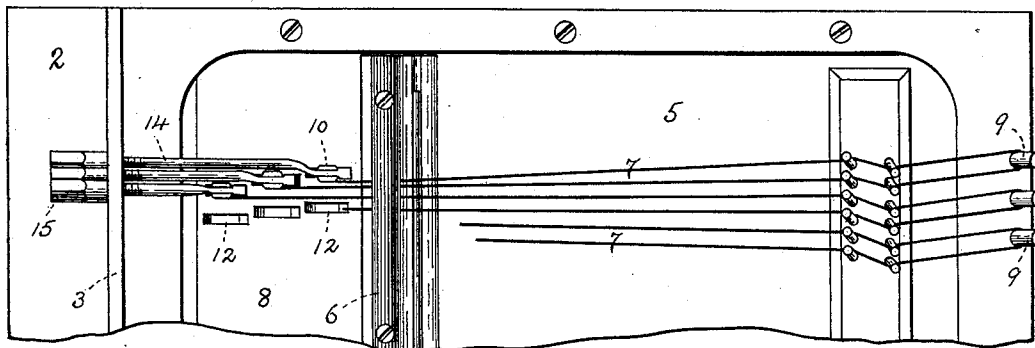


Fig. 2.

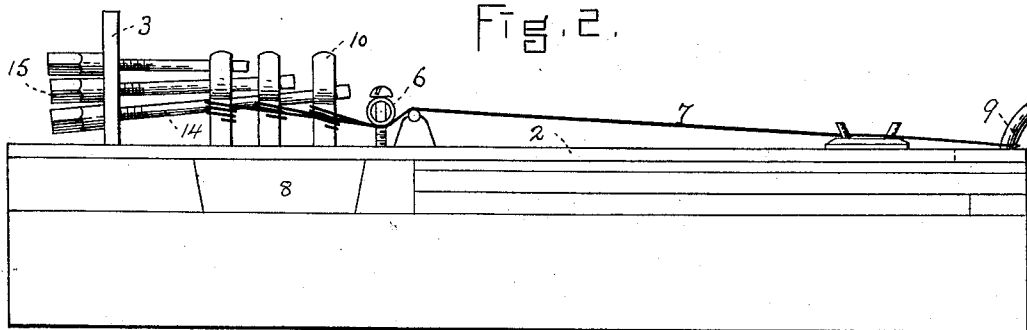


Fig. 4.

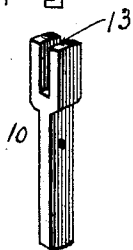
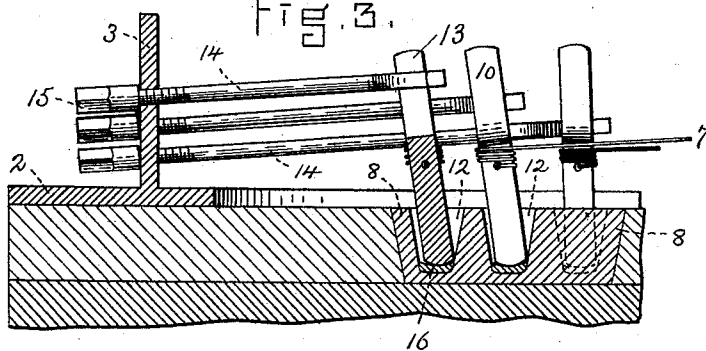


Fig. 3.



WITNESSES.

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DEVICE FOR STRINGING PIANO-FORTES.

SPECIFICATION forming part of Letters Patent No. 467,554, dated January 26, 1892.

Application filed November 17, 1890. Serial No. 371,621. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. IVERS, a citizen of the United States, residing at Dedham, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Devices for Stringing Piano-Fortes; 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, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

This invention relates to piano-fortes; and it consists in an improved device for stringing this class of musical instruments. In general terms, stringing is applied to such parts as are employed to hold the wires under tension as well as those devices which are adjustable and serve to regulate said tension upon the strings in order to obtain the desired tone.

My invention relates more particularly to tuning-pins of the kind which rock in line with the strings instead of turning axially to tighten them.

My invention consists in the combination of such tuning-pins with the especial devices for mounting and adjusting them, hereinafter set forth and claimed.

The drawings represent in Figure 1 a plan, in part, of a piano-forte embodying a tuning-pin under my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical section of the same, taken longitudinally on a plane passing through the rearmost tuning-pin.

In the accompanying drawings, 2 represents a part of the metallic frame of a piano-forte, upon which is cast or affixed a flange, lip, or other suitable projection 3, preferably at right angles thereto. The sounding-board is shown at 5, with the agraffe at 6, and a series of strings 7 7, which are of the same pitch to create a single note of much volume. These strings may be strung single, double, triple, or even more to produce an instrument of a certain volume in tone. The pin-block is indicated at 8. As will be seen, the strings are stretched in the usual manner,

with fixed posts 9 9 at one end and with the tuning-pins 10 10 at the other. Moreover, these pins, preferably rectangular in shape, are bored, as usual, to receive the ends of a wire, and the latter may then be given one or more turns thereabout to hold it fast to the pin in order to obtain the proper tension. The said pin-block is provided with a series of recesses or elongated holes 12, which receive the tuning-pins. (See Fig. 3.) These holes are preferably rectangular in cross-section, (see Fig. 1,) with their longest dimension in alignment with the longitudinal axis of the strings. The said holes or recesses are made larger at the top than at the bottom, inclining regularly downward. These holes are not aligned one behind the other, but are so positioned as to give the tuning-pins the usual position with reference to each other. Said pins, as before premised, are inserted in the holes previously formed, and are free to move in a plane coincident with the longitudinal axis of the strings. Thus they are able to rock, and since the end of each wire is securely affixed to a pin the tension of the individual wires can be readily increased or diminished. The holes 12 are oblong rectangles in cross-section, and of a length at the top equal to one-half the perimeter of the pin or thereabout. Hence when the latter by the stretching of the wire has reached the rear end of the hole the pin may be removed, a half-turn of wire taken about said pin, and when the latter is again put in place it will then stand at the front end of the hole ready to have further tension exerted. In order to provide ready means for adjustment of said pins to enable them to be held in a fixed position and at the same time to be capable of movement to regulate the tension of the wire, I have slotted the projecting ends of the tuning-pins at 13 and provided an actuating-rod 14, one extremity of which is upset or enlarged, while the rod itself is of a size to enter the slot, or the rod may be reduced in size to fit the slot. The other extremity is screw-threaded and passes through the flange 3, the projecting portion being furnished with an adjusting-nut 15, which is capable of movement by means of a socket-wrench.

• Since the flange is a fixture and forms a

part of the frame in the piano-forte, movement of the nut 15 will shorten or lengthen the connecting-rod 14, and in this way rock the tuning-pin. The latter moving in a plane 5 coincident with the longitudinal axis of the wire will produce a strain upon said wire, and the tension can thus be regulated to a nicety.

There are several important advantages obtained by my invention, prominent among 10 which are the following: When a tuning-pin breaks, a new one can be substituted without the least difficulty. A lighter pin can be used, since its longest dimension in cross-section is in line with the strain exerted by the wire. 15 Hence they can be placed more closely together, while riding of the wires is obviated. Again, there is no objection to the use of oil upon the tuning-pins and strings to prevent rusting, as the pin-block cannot be injured, 20 since in my arrangement the friction between the pin-block and the tuning-pin is not relied upon to oppose the tension of the wire. Moreover, the tuning-pin can be made lighter with less liability to spring, since I have the 25 advantages of a fulcrum-point in wood for the pin at one end and of the actuating-rod as a support at the other end.

The operation of stringing is effected in the usual manner, when the end of the wire is 30 passed through the hole in the tuning-pin and made fast. The tuning-pin is now inserted in the slot or hole 12. The connecting-rod is then thrust through the flange 3, the headed end placed in engagement with the forked 35 end of the tuning-pin, and the adjusting-nut screwed on until it bears against the outer face of the flange. The socket-wrench is now applied and the nut turned until the requisite pitch or tension on the wire is produced. The 40 action of the parts is readily understood, the lower end of the tuning-pin where it rests in the pin-block being the point of fulcrum, while the rod 14 exercises the pull, being attached to the upper end of the tuning-pin, which 45 is free to move in the perforation 12, longitudinally of the latter, or in a plane coincident with the wire lengthwise. Should a wire break, the nut is unscrewed, and the headed end of the connecting-rod is lifted from the 50 end of the tuning-pin, when the latter is free to be drawn from the pin-block. A new wire is substituted, the tuning-pin and the other operating parts are restored to their former places, and tension is then brought upon the 55 new string.

In the usual style of tuning with steel pins in wooden blocks a very hard block is of vital importance to keep the pin from wearing the hole loose; but in this I have choice of material on which to rest the fulcrum end of pin 60 according to quality of tone desired. Therefore I insert a small block or plate 16, of felt, soft wood, hard wood, or of metal or agate, in fact any substance by which to produce varying qualities of tone to suit any taste, at the 65 bottom of the hole 12. Thus, so far as ma-

terial at the end of the pin is concerned, any quality of tone may be obtained, whereas the usual methods limit the tones to those produced either by hard wood or by metal. 70

What I claim is—

1. A pin-block having a series of downwardly-tapering recesses arranged as shown, in combination with a series of tuning-pins set into said recesses and capable of rocking 75 forward and backward therein, but not revolvable upon their axes, and means for moving the upper ends of said pins backward in planes aligned with the wires in order to tighten the latter, substantially as set forth. 80

2. A tuning-pin rounded at its lower end, in combination with a pin-block having a recess formed in it to receive the lower end of said pin, the said recess being long enough at the top to allow forward and backward motion of said pin, but not permit the latter to 85 turn upon its axis, and tapering to the bottom to afford a single pivotal point only, the said pin being also removable to permit the axial motion of it for winding up slack, substantially as set forth. 90

3. A pin-block having a series of holes therein and a series of blocks or plates of the same or different material from the pin-block at the bottom of said holes, combined with a 95 series of tuning-pins in said holes and means for actuating said pins in a plane coincident or parallel with the longitudinal axis of the wire, substantially as and for the purposes specified. 100

4. The combination, with a piano-forte frame, a flange thereupon, a pin-block, and a series of rocking tuning-pins, of a series of wires, one end of each of which is secured to a tuning-pin, and a series of connecting-rods 105 which unite the latter adjustably with respect to the flange, substantially as specified.

5. A flanged piano-forte frame, a pin-block having a series of holes, and a series of tuning-pins adapted to rock therein, combined 110 with a series of wires, one end of each of which is secured to a tuning-pin, and a series of connecting-rods removably attached to the tuning-pin heads at one end, but screw-threaded at the other to engage a series of adjusting- 115 nuts, substantially as set forth.

6. A removable tuning-pin to which the wire is attached and adapted to turn axially to wind up the slack, combined with actuating mechanism by which said pin is caused 120 to rock instead of turning and thus regulate the tension of the string, and a pin-block having a recess receiving the lower end of said pin, there being no connection between said pin and the instrument except the wires and tightening devices, substantially as stated. 125

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

WILLIAM H. IVERS.

Witnesses:

H. E. LODGE,

JOHN A. DOUGHERTY.