(No Model.)

F. G. FAXON.

TUNING MECHANISM FOR STRINGED INSTRUMENTS.

No. 450,808. Patented Apr. 21, 1891.

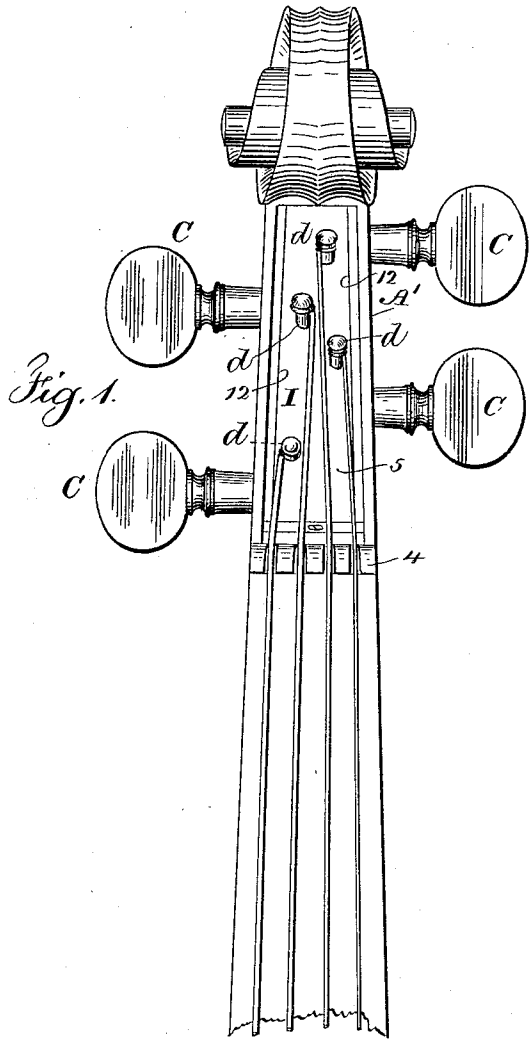


Fig. 1.

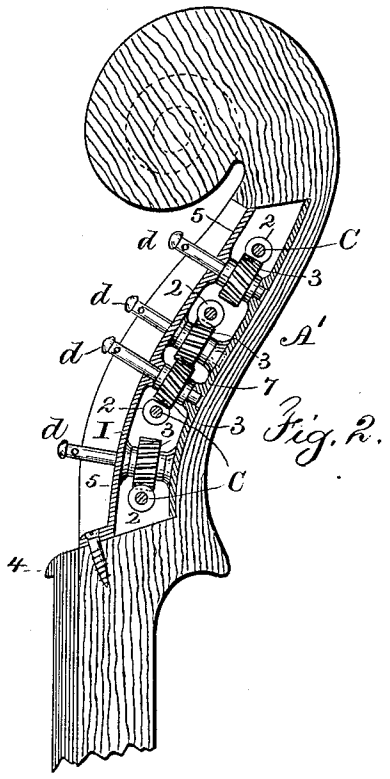
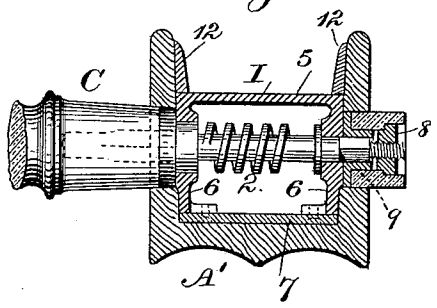


Fig. 2.

Fig. 3.



Witnesses

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TUNING MECHANISM FOR STRINGED INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 450,808, dated April 21, 1891.

Application filed September 30, 1890. Serial No. 366,635. (No model.)

To all whom it may concern:

Be it known that I, FRANK G. FAXON, a citizen of the United States, residing at Mount Morris, in the county of Livingston and State of New York, have invented an Improvement in Tuning Mechanism for Stringed Instruments, of which the following is a specification.

In stringed instruments—such as the most approved violins, seconds, violoncellos, and double-bass—the tuning-pins are parallel to each other and are introduced from opposite sides into and through the head, which head is mortised for the strings to pass from the nut to and around such tuning-pins, and in some stringed instruments the tuning-pins are rotated by keys at right angles to the pins and provided with screws or worms that act upon wheels upon the tuning-pins.

The object of the present invention is to provide a reliable device for holding the tuning-pins in the position to which they may be turned in tightening the strings, and at the same time to keep the pegs in the same positions that they have heretofore occupied in instruments of this kind, and this I accomplish without changing the shape of the head of the violin and without materially increasing its weight; and the invention consists in the combination of devices hereinafter set forth and claimed.

In the drawings, Figure 1 is a face view of the head of the instrument with my improvements. Fig. 2 is a longitudinal section, and Fig. 3 is a cross-section longitudinally of the peg or key.

I provide for each of the strings a tuning-pin *d*, around which the string is wound by the rotation of the pin, and these pins, instead of lying parallel to the face of the violin, stand vertically, or nearly so, and the tuning-pegs C, which occupy the same positions as the ordinary tuning-pegs in a violin, become keys for turning the tuning-pins, there being a screw or worm 2 upon each tuning-peg acting upon a small gear or wheel 3 upon the lower part of the tuning-pin.

In order to sustain the respective tuning pins and pegs, I make use of a light metallic box I, which may be of aluminum or other light strong metal, and the head A′ of the violin is mortised to receive this metallic box I, and the mortise is undercut below the scroll head A′ of the violin for the reception of one end of the metallic box I, and the other end of such metallic box rests against the end of the mortise adjacent to the nut 4, over which the strings pass, and a screw may be made use of at this end for holding the metallic box firmly into position. This metallic box is to be adapted to receiving the tuning-pegs transversely across it and to receiving the tuning-pins at right angles to the pegs, the gears of the tuning-pins being within the box, and this metallic box may be made up of sheet metal, the parts being soldered, riveted, or otherwise properly secured together; but the top 5 of the box and the side 6 are preferably made together and stamped up into shape, and the bottom 7 is removable and secured by screws or other connections in any convenient manner for firmly uniting the bottom to the sides of the box, and it is preferable to provide bushes or bearings for the respective pegs and pins that are wider than the thickness of the metal of the box, in order to prevent the respective bearings wearing away with rapidity.

By arranging the parts in the manner represented in Fig. 1 two of the tuning-pegs come at one side of the head and two at the other side of the head, and the E and G strings are wound upon the pegs in the opposite directions from the D and A strings, and by this arrangement the tension of the respective strings, acting to rotate the tuning-pins, tends to draw the tuning-pegs inwardly into the head, and the strings pass directly and in straight lines from the grooves in the nut 4 to the respective tuning-pins and without coming into contact with any other tuning-pin; and in order to tune the instrument the respective tuning-pegs C are rotated in the ordinary manner and in the direction usual in tuning violins, and their positions upon the head of the instrument remain unchanged, and the slight additional weight resulting from the use of the metallic box and tuning-pins is compensated to a considerable extent by the removal of the wood-work in forming the mortise for the reception of the metallic box.

Each of the tuning-pegs can be made ap-

proximately similar to the ordinary violin-peg so far as the exterior portion thereof; but within the box the metallic portion of the tuning-peg and the screw or worm pinion thereof are supported by the bearings in the sides of the metallic box, and it is preferable to extend the metallic portion of the peg into the ebony, hard rubber, or other material forming the head of the key, and to securely connect the respective parts by a square upon the portion of the metal entering the head of the peg and by a metallic ferrule or band around the shank of the peg adjacent to the bearing in the side of the box. The hole for the peg in one side 6 of the box is to be sufficiently large for the screw or worm pinion to pass through the same, and at the other side of the box the end of the peg passes through a smaller hole, and it is provided with a collar or shoulder at one side and a suitable washer 9 and nut 8 at the end, such washer passing through the wood of the head of the violin and coming against the outer surface of the metallic box, and it is preferable to fit the washer 9 upon a square at the small end of the tuning-peg between the nut 8 and the side of the box, so as to prevent the nut becoming loose as the tuning-peg is turned; and the nut may be incased in hard rubber or other material in imitation of the end of an ordinary violin-peg. The friction may be regulated by tightening or loosening the nuts, so that the force required to turn the pegs may be nearly uniform.

It is preferable to make the metallic box slightly wider at the top 5 than it is at the bottom 7, so that it may wedge into the mortise in the head of the violin; and there may be veneers 12 glued upon the inner face of the head above the top surface 5 of the metal box, so as to form a finish to the wooden surface of the head, and at the same time aid in holding the metallic box firmly in its place.

It is preferable to have the top 5 of the metal box closed throughout to exclude dust, but the bottom of the box and the sides can be perforated to a greater or less extent, so as to lessen the weight of such box.

I claim as my invention—

1. The combination, with the violin-head and the usual nut or bearer on the same for the strings, of a metal box introduced into a mortise in the head and having a straight or nearly straight bearing end within the mortise, and an inclined upper end passing into the undercut end of the mortise and tuning-pegs, pins, and worm-gears, substantially as set forth.

2. The combination, with the violin-head and the usual nut or bearer on the same for the strings, of a metal box introduced into a mortise in the head and having a straight or nearly straight bearing end within the mortise, and an inclined upper end passing into the undercut end of the mortise and the tuning-pegs, pins, and worm-gears, and the veneer facings to the mortise within the head and at the top of the metal box, substantially as specified.

3. The combination, with the metal box, tuning-pins, and their gears, of tuning-pegs, each having a circular bearing, a screw or worm of the same or smaller size than the circular bearing, a reduced bearing and shoulder near the smaller end of the pin, a washer with a polygonal opening setting over the corresponding part of the pin, and a nut for applying the required friction to the tuning-peg, substantially as specified.

Signed by me this 26th day of September, 1890.

F. G. FAXON.

Witnesses:
GEO. T. PINCKNEY,
WILLIAM G. MOTT.