

(No Model.)

2 Sheets—Sheet 1.

G. A. KNOWLES.
TUNING PEG FOR STRINGED INSTRUMENTS.

No. 544,812.

Patented Aug. 20, 1895.

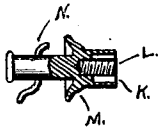


FIG. 2.

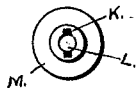


FIG. 3.



FIG. 4.

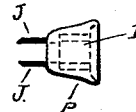


FIG. 5.

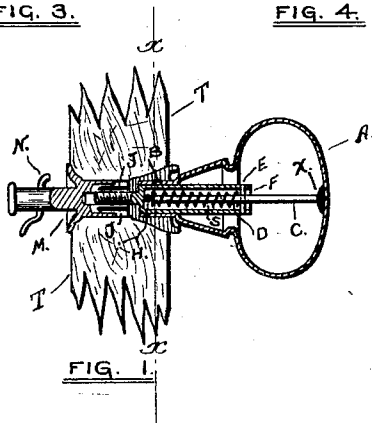


FIG. 1.

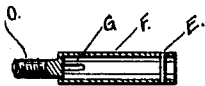


FIG. 6.



FIG. 7.



FIG. 8.

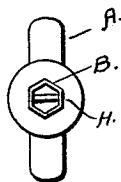


FIG. 10.

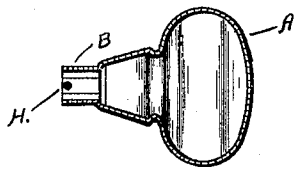


FIG. 9.

WITNESSES.

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(No Model.)

2 Sheets—Sheet 2.

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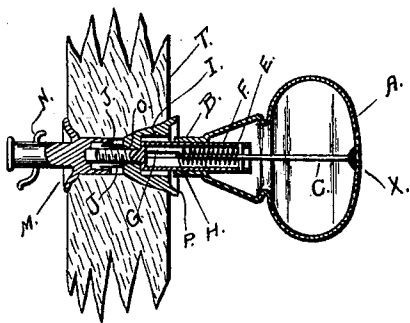


FIG. 11.

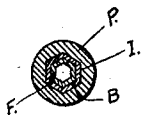


FIG. 12.

WITNESSES.

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UNITED STATES PATENT OFFICE.

GEORGE A. KNOWLES, OF SOUTH ATTLEBOROUGH, MASSACHUSETTS.

TUNING-PEG FOR STRINGED INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 544,812, dated August 20, 1895.

Application filed March 25, 1895. Serial No. 543,005. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. KNOWLES, a citizen of the United States, residing at South Attleborough, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Tuning-Pegs for Stringed Instruments; and I do 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 the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in stringed musical instruments—such as the violin, the banjo, and similar instruments—in which the tension of the strings is regulated by a key fitting tightly in the neck of the instrument and held in place by friction. It is well known that in the keys in common use the containing-hole becomes enlarged by the repeated turning of the key therein, thus causing the key to slip and the strings to loosen. The purpose of my invention is to provide a key that may be adjusted to the wear of the containing-hole, and that may always be made to fit tightly therein, no matter how much (within reasonable limits) the hole becomes enlarged. I accomplish this purpose by the device shown in the accompanying drawings, in which—

Figure 1 is a sectional view of the key complete and the neck of the containing-instrument; and Figs. 2, 3, 4, 5, 6, 7, 8, 9, and 10, details of the same, to be described hereinafter.

The same parts are referred to by the same letters throughout.

In Fig. 1, T is the neck of the instrument; A, the thumb-piece of the key; N M, the string-holder, flanged, as shown, and the key is shown ready to be turned in the same manner as a solid wooden or ivory key.

Fig. 2 is the string-holder, partly broken away, showing the flange M and the cylindrical hole L, threaded interiorly, so as to form a nut, as shown. On each side of the hole L is the longitudinal slot K, opening into the hole L and extending nearly the entire depth of L, as shown in Fig. 2.

Figs. 4 and 5 are respectively an end and side view of the bell or cone-shaped device

for taking up the wear in the neck of the instrument. J J are pieces of metal rigidly fixed to the bell, and so made as to easily fit the slots K in Figs. 2 and 3. The interior of the bell P is hexagonal in section, as seen by the dotted lines I in Fig. 4. The prongs J J serve to communicate motion to the string-holder M, Fig. 2, when the key is turned.

Figs. 9 and 10 are respectively a side and end view of the thumb-piece A B, which is made hollow, and the end B is hexagonal and made to fit easily into the hexagonal interior of the bell P.

Fig. 6 is a hollow hexagonal tube sliding in B of Fig. 9, and terminating in a screw O, which fits the threaded hole in the string-holder, Fig. 2.

Fig. 7 is a cross-section of Fig. 6, and E in both figures is a pin fixed at the inner end of F to limit its motion, as will be shown hereinafter.

Fig. 8 is a wire, slotted as seen at D, the slot limiting the throw of F in the thumb-piece A B. C D is fixed to the thumb-piece, as seen at X, Fig. 1, by solder or some equivalent method at one end and at the other by the pin H. (Seen in Figs. 9 and 10.)

In the interior of the inner hexagonal tube F, Fig. 6, is a spiral spring surrounding the pin C D, Fig. 8, and seen in position in Fig. 1. This spring is retained by the pins E and H, Figs. 9 and 6.

G in Fig. 6 is a slot in the side of the tube F, in which the pin H slides freely with the movement of the thumb-piece on the tube F.

Fig. 11 shows a sectional view of the entire device with the thumb-piece withdrawn or disengaged from the cone-shaped member, so that the tube F, and consequently the cone-shaped member P, may be brought nearer to or separated farther from the string-holder M by the turning of the screw through the medium of the thumb-piece.

Fig. 12 is a cross-section of Fig. 1 on the line *xx*, showing the bell or cone-shaped member P with its hexagonal interior I, the end B of the thumb-piece fitting closely therein and itself in turn closely enveloping the hexagonal tube F.

My device operates in the following manner: The tube F is retained in the thumb-piece A B by means of the spiral spring S,

compressed between the pins E and H. The bell-piece P slips over B, leaving the screw O projecting out between the prongs J J. The string-holder M is now inserted into the neck of the instrument upon one side and the bell P is inserted into the opposite side of the neck, and the thumb-piece A B follows until O engages with the string-holder and the prongs J enter the slots K. When this takes place, the whole key becomes one rigid piece, the same as if made from solid material, and the string is brought to the required tension. Let us now suppose that the hole in the neck of the instrument becomes so worn that the key slips under the tension of the string. Evidently, now, if we can bring the bell P nearer the flanged string-holder M we can overcome the wear and the key will again be gripped by the neck of the instrument. If now, we take hold of the thumb-piece, as shown in Fig. 1, and draw it outwardly away from the neck of the instrument, we disengage it from the bell or cone-shaped piece P, while the inner tube E F is still engaged by the surrounding neck B of the thumb-piece. It is exceedingly important to note that the inner tube E F is of such a size that it will rotate easily within the cone-shaped piece P without touching the sides of the latter. Accordingly when the neck of the thumb-piece is disengaged from P the said neck still engages the inner tube E F, and the rotation of the thumb-piece will cause the screw to advance, thus bringing the cone-shaped piece P and the flanged string-holder nearer together, and thus securing the desired tightness of the key in the neck of the instrument. When the thumb-piece is released, the spring S brings it back until it engages with P and the key again becomes one rigid piece. By reversing the direction of rotation the key may be loosened or removed or adjusted to an instrument of any size. As above stated, the tube E F, the neck B, and the interior I of the cone-shaped piece P are of hexagonal cross-section; but any other form of cross-section will answer equally well, provided the introduction of B between P and E F will cause B to engage both the other members at once, so that

the rotation of the thumb-piece will cause the rotation of the entire key and the removal of the intermediate neck B will permit the independent rotation of E F within P.

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

1. In a key for musical instruments, an interiorly threaded, flanged, string holder, having the slots K; a perforated cone-shaped member, hollow within, and having an interior polygonal cross section, and projecting prongs fitting the slots K; a screw passing through said cone shaped member and engaging with the threaded string holder, said screw terminating in a tube having a cross section of the same shape as the interior of said cone shaped member but enough smaller to rotate freely therein; and a hollow thumb-piece having a neck B of the same shape in cross section as said tube, and of such size that it will slide upon and engage said tube and at the same time slide into and be engaged by said cone shaped member, all substantially as described.

2. In a key for musical instruments, a flanged, interiorly threaded and slotted string holder; a cone shaped member having prongs fitting said slots; a connecting screw terminating in a tube of polygonal cross section; a hollow thumb piece adapted to slide into said cone shaped member, and upon said tube so as to engage both at the same time; and capable also of becoming disengaged from said cone shaped member without becoming disengaged from said tube; a spiral spring within said tube securing the normal engagement of said tube with said thumb-piece and said cone shaped member; and a slotted guide spindle surrounded by said spring, and limiting the movement of the thumb piece upon the tube aforesaid, all for the purpose specified.

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

GEORGE A. KNOWLES.

Witnesses:

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E. D. ANTHONY.