Jan. 7, 1930. J. G. SPARKES 1,743,007

TUNING PEG FOR STRINGED MUSICAL INSTRUMENTS

Filed June 6, 1927

Fig. 1.

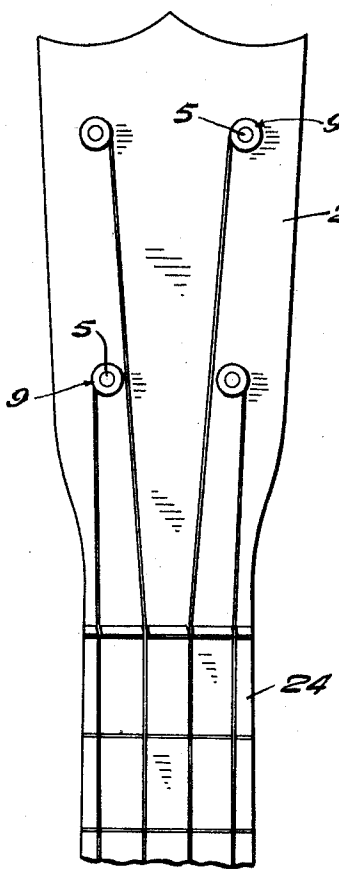


Fig. 2.

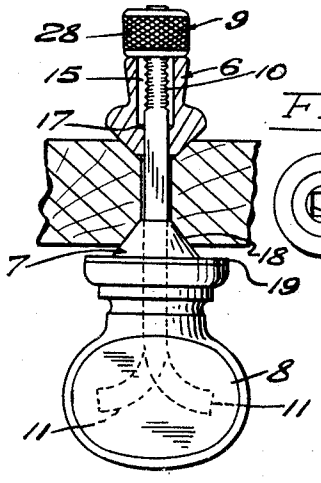


Fig. 3.

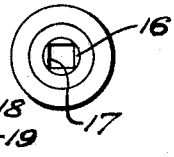


Fig. 4.

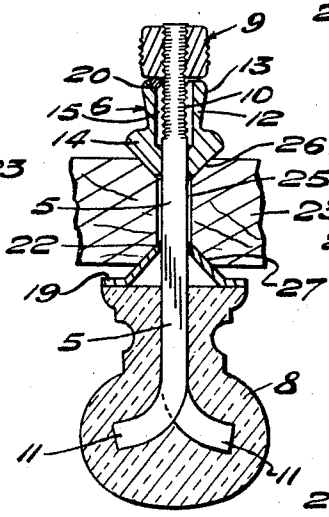


Fig. 5.

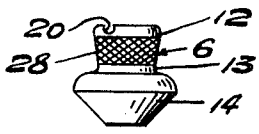


Fig. 6.

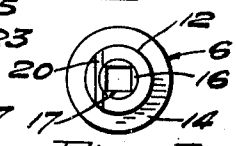


Fig. 7.

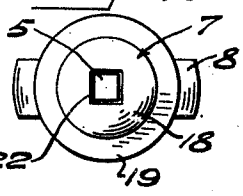


Fig. 8.

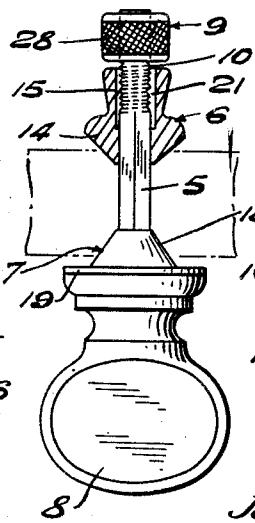
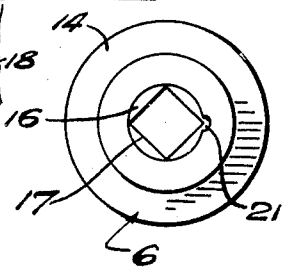


Fig. 10.



Fig. 9.



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UNITED STATES PATENT OFFICE

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TUNING PEG FOR STRINGED MUSICAL INSTRUMENTS

Application filed June 6, 1927. Serial No. 196,808.

This invention relates to a tuning peg for stringed instruments, and particularly applicable to ukuleles.

The primary object of the invention is to provide a tuning peg for stringed musical instruments that has a frictional association with the head of the neck, and is operable from the upper or string extremity rather than the lower thumb piece or button.

A further object of the invention is to provide an unique string clamping device of an advantageous construction and arrangement, and comprising opposing conical surfaces to bear against and frictionally engage with certainty of placement, after adjustment, against the upper and lower sides of the head of the neck of a stringed instrument or ukulele whereby the peg will be prevented from slipping or loosening, so that the tension on the adjusted string will remain constant.

Heretofore it has been general practice in manufacturing frictional pegs for stringed instruments to form a stem having as an integral part thereof a string winding drum, an upset shoulder below the drum, and an extended shank which passes through the head of the neck of the instrument. Such stem or shank in this is slabbed or otherwise formed so as to act as a spline key in the thumb piece or button, the stem or shank terminal being tapped to receive a machine screw which engages the head or button and extends axially into the stem or shank to clamp the head of the neck of the instrument between a shoulder and the key head or button. The screw is tightened or released to adjust the friction of the peg relatively to the instrument head. This type of construction has several disadvantages, among which is that it is almost impossible to produce large quantities of these pegs with assurance of practical interchangeability of parts, the key head or buttons being molded from various materials, such as celluloid, shellac, bakelite, and other compositions, and as a consequence the cores of the molds used in forming the key heads or buttons and the holes in the latter must have a limited draft. Where there is a limited draft, the molds will never close to exactly the same degree for the reason that the mixtures or compositions of which the key heads or buttons are formed are never exactly alike, and furthermore the parts shrink after they are molded. Therefore, notwithstanding care exercised in the manufacture of key heads or buttons under the well known practice as just specified, the ultimate user or consumer is annoyed by poor fittings between the stem and the heads or buttons. If the shank fits too snugly the parts are difficult to assemble, and if the parts fit loosely the peg is unsatisfactory because the lost motion in tuning is deceiving and inaccurate. The present construction of tuning peg avoids all irregular fits and adjustments between metal parts and the materials of which the key heads or buttons are formed. A further objection to the ordinary type of friction tuning peg is that the shank or stem of the peg is necessarily so small that the adjusting screw threads must be of small diameter and fine pitch. This minimized formation of the screw threads causes many serious manufacturing troubles, such as variation in accuracy of small screws, poor threading and constant stripping, and also difficult tapping in a deep hole.

The present invention consists essentially in the construction and arrangement of the several parts which will be more fully hereinafter described and claimed.

In the drawings:—

Figure 1 is an elevation of a portion of a neck head of a stringed musical instrument showing the improved tuning peg applied thereto.

Figure 2 is an enlarged transverse vertical section through a portion of the tuning head and showing parts of the improved peg in section.

Figure 3 is a top plan view of the winding drum member shown by Figure 2.

Figure 4 is an enlarged transverse vertical section through a portion of the neck head and a slightly modified form of the tuning peg.

Figure 5 is a detail side elevation of the winding drum member shown by Figure 4.

Figure 6 is a top plan view of the winding drum member shown by Figure 5.

Figure 7 is a detail plan view of the lower conical friction member and the key head or button common to all forms shown, the stem being shown in horizontal section.

Figure 8 is a view similar to Figure 2, with a portion of the neck head shown in dotted lines, and illustrating a further modification of the winding drum.

Figure 9 is a top plan view, on an enlarged scale, of the winding drum as shown by Figure 8.

Figure 10 is a bottom view of the lower terminal of the stem showing the manner of firmly securing the latter within the key head or button also common to all forms shown.

The present improved form of tuning peg comprises as the essential elements thereof, a stem 5, a forward combined clamping and winding drum member 6, a rear clamping member 7, a key head or button 8 and a milled cap or clamping nut 9. The foregoing elements are common to all of the forms of the peg shown, and the modified structure in both instances is confined to the combined clamping member and winding drum. The stem 5 is preferably square in cross section, and has screw-threads 10 formed at its forward extremity, the said screw-threads extending fully from the forward terminal of the stem longitudinally over the latter a predetermined distance. The rear end of the stem is longitudinally split a suitable distance and the split portions bent in reverse directions to provide diverged retension stem terminals 11 around which the key head or button 8 is cast, as clearly indicated in section in Figure 4 and by dotted lines in Figure 2. The combined clamping and winding drum member 6 which, as shown in Figure 2, is mounted on the forward end of the stem 5, comprises a drum constituent 12 having at its forward end a winding surface 13 which is of gradually decreasing diameter toward its rear end and carrying at its rear end a clamping constituent 14 of inverted frusto-conical contour and which is of larger diameter than said drum. A bore 15 extends longitudinally through the combined clamping and winding member 6 from the forward end thereof to a point where it converges, as at 16, into a reduced portion 17, the latter portion of the bore being approximately of the same dimensions and coutour as the stem 5. As shown by Figure 3, the forward portion of the bore 15 is circular in contour and the rear reduced portion 17 thereof is square, the forward portion of the bore 15 being of greater diameter than the stem and free of engagement or binding contact with relation to the said stem. The cap or clamping nut 9 is exteriorly milled for convenience in grasping and operating the same, and is removably applied to the threaded forward end of the stem 5 and has a flat surface at its rear end to tightly engage or bear against the corresponding forward flat surface of the combined clamping and winding drum member 6. The rear clamping member 7 is larger than the forward inverted frusto-conical constituent 14 of the combined clamping and winding drum member 6, and is also of frusto-conical form, as at 18, and has a peripheral flange 19 at its rear end which is closely engaged by the forward end of the key head or button 8.

In the slightly modified form shown by Figure 4, the combined clamping member and winding drum member 6 has a straight recess or cavity 20 extending transversely of its forward end to receive the end of a string, as clearly shown by Figure 6, otherwise the form of the peg as shown by Figure 4 is practically the same as that heretofore described.

In the modified form shown by Figure 8 a recess or cavity 21 to receive the end of a string extends longitudinally of a portion of the bore 15 and is in effect an arcuate enlargement or extension of a part of the wall of the said bore. The forward end of the cavity or recess 21 terminates at the forward end of the combined clamping and winding drum member 6. In other words, Figure 4 shows the cavity or recess for the string extremity disposed at a right angle to the bore 15, whereas Figure 8 shows the cavity or recess 21 as extending longitudinally of said bore.

As shown, the rear clamping member 7 is struck up from sheet metal of suitable thickness and strength as one preferred form of construction, and has an angular opening 22 in the apex thereof and corresponding in dimensions and contour to the angular portion 17 of the bore 15 through the rear extremity of the combined clamping and winding drum member 6. In preparing the head 23 of the neck 24 of the instrument for application of each improved peg, an opening 25 of larger diameter than the stem 5 is formed transversely through the head at the proper location, the forward end of the opening being reamed out, as at 26, and the rear end of said opening being also reamed out, as at 27, to provide forward and rear seats to respectively receive the rear end of the inverted frusto-conical constituent 14 of the combined clamping and winding drum 6 and the forward end of the frusto-conical clamping member 7, as shown particularly by Figures 2 and 4, and when the peg is applied the

stem 5 will be clear of the wall of the opening 25.

In applying each improved peg in the head 23 of a stringed musical instrument the peg head or button 8 with the stem 5 projecting therefrom and the clamping member 7 loosely mounted on the stem, is inserted forwardly or upwardly through the opening 25 in said head and the combined clamping and winding drum member 6 is then fitted over the forward or upwardly projecting extremity of the said stem and the nut 9 applied to the screw heads 15 and rotated until closely fitted against the forward or upper end of the said combined clamping and winding drum member 6. It will be understood that the string, when attached either to the form of the device shown by Figure 4 or that shown in Figure 8, is wound on the drum constituent 12, the surface 13 of the latter being milled or otherwise roughened, as at 28, to prevent slipping of the string, and after the string has been put under tension the nut 9 is screwed down on the stem 5 to clamp the frusto-conical constituent 14 of the combined clamping and winding drum member 6 and the lower clamping member 7 in the seats 26 and 27, the rotation of the stem and remaining parts including the member 6 being accomplished by turning the button 8. In the embodiment of the invention shown by Figure 4, the string extremity is inserted in the cavity 20 before the nut 9 is firmly screwed down, and the said nut is then brought to bear on the string extremity to hold the latter against displacement, and the winding of the string on the drum member is pursued in the same manner. In the embodiment shown by Figure 8, the string extremity is inserted downwardly into the longitudinal cavity 21 before the nut 9 is screwed downwardly to secure the string.

When the peg is applied and the string wound on the drum member 6, the peg is tightly held against displacement or loose movement in the head 23, and at any time desired the combined clamping and winding drum 6 may be turned to an extent to tune the string as required without difficulty or the disadvantages usually present in the operation of the ordinary forms of tuning pegs. Moreover, in the event of wear of the seats 26 and 27, such wear may be readily overcome or compensated for by screwing the nut 9 down on the stem 5 to cause the frusto-conical parts 14 and 7 to approach one another and thus more closely engage the seats 26 and 27 around the opening 23.

As heretofore indicated the advantages incident to the improved form of peg are manifold, both as to the manufacture of the several parts, and in the use of the peg when applied to the head 23 of the instrument. Though it is preferred that the improved peg be used in connection with the head 23 of the ukulele, the said peg may be used in connection with the head of any type of similar stringed musical instrument with equal efficiency and advantage in operation.

What is claimed as new is:—

1. A tuning peg of the class specified, comprising a stem of polygonal cross section having a screw-threaded extremity and a thumb-piece rigidly attached to its other extremity, a combined peg head clamping member and string winding drum axially movable on the stem, a second peg head clamping member mounted on the stem and having its base bearing against the thumb piece, and a nut operating on the screw-threaded extremity of said stem beyond the combined clamping member and string winding drum to force both clamping members into frictional engagement with the opposite sides of the peg head of a stringed musical instrument.

2. A tuning peg of the class specified, comprising a stem having a screw-threaded extremity, a thumb-piece secured to the other extremity of said stem, a pair of clamping members slidably mounted on said stem and having opposed clamping portions, the clamping member immediately adjacent the screw-threaded extremity of said stem being provided with a string-winding drum and having its bore free of contact with said screw-threaded extremity, and a nut mounted on the screw-threaded extremity of the stem adjacent said drum-carrying clamping member to bear against the outer end of the latter and force both clamping members into tight engagement with opposite sides of the head of the neck of a stringed musical instrument.

3. The combination with the head of a stringed musical instrument having a bore therethrough with upper and lower seats of reverse conical contour of a tuning peg comprising a stem extending through the bore of said head and free of contact with the wall of said bore and having a screw-threaded extremity, a pair of reversely-positioned frusto-conical members to engage said seats and through which said stem also passes, one of said frusto-conical members forming a string-winding drum, and a nut mounted on the screw-threaded extremity of said stem to cooperate with the last-named clamping member to draw both clamping members into frictionally tight engagement with the opposite sides of the instrument head and clamp the terminal of a string to said drum.

4. A tuning peg having a stem with means cooperating therewith for compensatingly clamping the same in frictional engagement with the opposite sides of the head of the neck of a stringed musical instrument, said stem having divergent members at one of its ends and a screw-threaded portion adjacent its other end, a key head in which the former end of the stem and the divergent members carried thereby are embedded, and a nut

mounted on said screw-threaded portion of the stem.

5. A tuning peg of the class specified, comprising a stem of angular cross-section and having a screw-threaded extremity, a thumb-piece secured to the other extremity of said stem, a combined clamping member and string-winding drum having a bore extending therethrough of which the greater portion is of larger diameter than the threaded extremity of the stem, a second clamping member having a bore to fit loosely on the stem, both clamping members being slidable longitudinally of the stem and said second clamping member being engaged by the thumb-piece, and a holding nut mounted on the threaded extremity of the stem and bearing against the first-named clamping member to move said clamping members toward one another.

6. A tuning peg of the class specified, comprising a stem having a screw-threaded extremity, a thumb-piece secured to the other extremity of said stem, a combined clamping member and string-winding drum having a bore therethrough which for the greater portion of its length is out of contact with the stem and also has a cavity to receive the end of a string, a second clamping member surrounding the stem and movable toward and away from said combined clamping member and drum, and a nut mounted on the screw-threaded extremity of said stem and engaging the combined clamping member and drum to move said clamping members into clamping position and hold the terminal of a string in the cavity of the first-named clamping member.

7. A tuning peg of the class specified, comprising a stem of angular cross-section and having screw-threads adjacent one of its extremities, a thumb-piece secured to the other extremity of said stem, a clamping member slidably but non-rotatably mounted on said stem, a combined clamping member and string-winding drum also mounted on said stem, the winding surface of said drum increasing in diameter toward the adjacent end of the stem, and a nut mounted on the screw threaded portion of said stem and acting to hold said clamping members in clamping relation with the head of the neck of a stringed musical instrument and to secure a string to said drum.

8. A tuning peg for a stringed musical instrument, comprising a stem having a screw-threaded portion adjacent one of its ends, a thumb-piece secured to the other end of said stem, clamping elements slidably mounted on said stem in opposed relation to clamp the head of the instrument therebetween, one of said clamping elements having a string-winding drum formed as a part thereof, and a clamping nut mounted on the screw-threaded portion of the stem adjacent the last-named clamping element.

9. A tuning peg according to claim 8 in which the drum has in its end which is directed toward the clamping nut a recess to receive the terminal of a string and the clamping nut also acts to hold the terminal of the string in said recess.

In testimony whereof I have hereunto set my hand.

JOHN G. SPARKES.