Apr. 17, 1923.

H. O. HAMMER

1,452,075

TUNING DEVICE FOR STRINGED MUSICAL INSTRUMENTS

Filed March 17, 1922

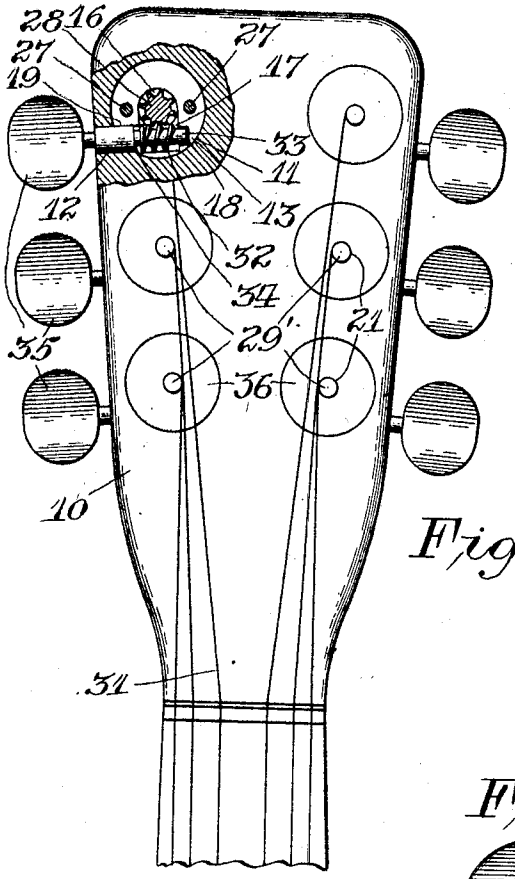


Fig. 1.

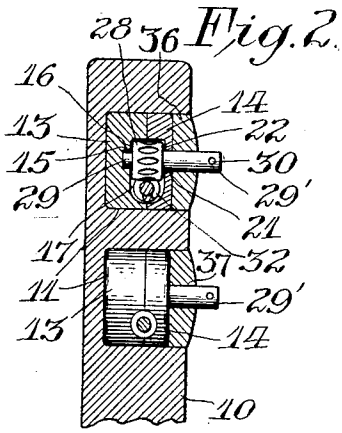


Fig. 2.

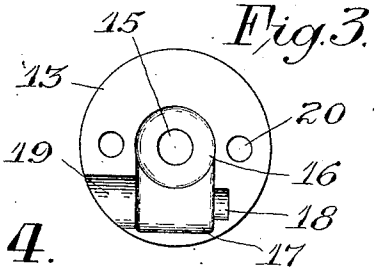


Fig. 3.

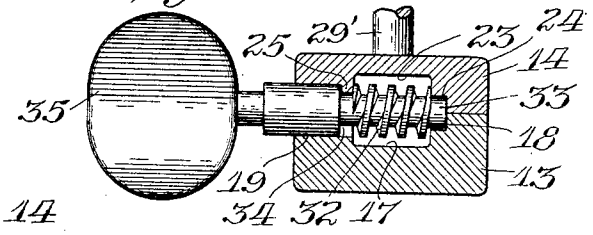


Fig. 4.

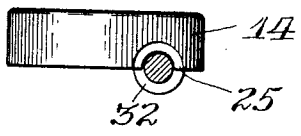


Fig. 6.

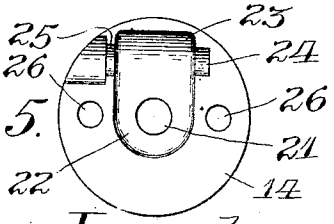


Fig. 5.

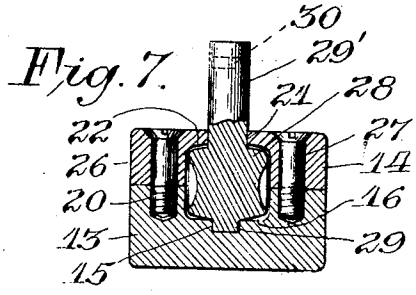


Fig. 7.

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Patented Apr. 17, 1923. 1,452,075

UNITED STATES PATENT OFFICE.

HANS O. HAMMER, OF CHICAGO, ILLINOIS.

TUNING DEVICE FOR STRINGED MUSICAL INSTRUMENTS.

Application filed March 17, 1922. Serial No. 544,464.

To all whom it may concern:

Be it known that I, HANS O. HAMMER, a citizen of United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Tuning Devices for Stringed Musical Instruments, of which the following is a full, clear, and exact specification.

My invention relates to improvements in tuning devices, and more particularly to the construction of the string tensioning pegs used in connection with various forms of string instruments.

Among the objects of this invention are to provide a simple and efficient tuning peg or tightening device which may be cheaply made and readily applied to the head piece or proper portion of the instrument and when so applied, will occupy a minimum amount of space.

A further object of the invention is to provide a simple bearing box in the form of two die castings and constructed in a manner that when the two parts are secured together they retain the worm and gear in their relative working positions.

The above stated primary objects together with other minor objects will be more apparent as the description of my improved device proceeds.

In the accompanying drawings illustrating my invention:

Fig. 1 is a top plan view of the head of an instrument with a portion cut away showing my improvement embodied therein;

Fig. 2 is a cross sectional view of the worm and gearing mechanism which actuates the tuning peg;

Figs. 3, 4 and 5 are enlarged detail views of the base and cap of the bearing box with the worm positioned therebetween;

Fig. 6 is an enlarged detail view of the cap of the bearing box looking in the direction of the axis of the worm, and

Fig. 7 is an enlarged cross sectional view of the bearing box and the gear.

My invention is here shown as embodied in the head 10 of an instrument which is provided with a plurality of circular sockets or chambers 11. Communicating with each socket 11 and extending through the side of the head 10 is an aperture 12 for the purpose hereinafter set forth.

My improved bearing box comprises a circular base 13 and a cap 14. Centrally disposed in the base 13 is a socket 15. Surrounding the socket 15 is a shoulder 16. Adjacent the shoulder 16 is a concavity 17 having at one end a relatively small bearing support 18 and its other end a relatively larger bearing support 19 for the purpose hereinafter set forth. Positioned on the opposite side of the base 13 are threaded apertures 20. The cap 14 is provided with a centrally disposed aperture 21 extending therethrough. Surrounding the apertures 21 is a shoulder 22 which terminates in a concavity 23, corresponding with the concavity 17 in the base 13. At one end of the concavity 23 is a relatively small bearing support 24 and at the other end is an outwardly projecting rib 25 for the purpose hereinafter pointed out. Positioned on the opposite sides of the cap 14 are two apertures 26 adapted to register with the apertures 20 of the base 14 in a manner to receive screws 27 for securing the cap to the base.

Pivotally mounted in the socket 15 and on shoulder 16 of the base 13 is a gear 28 with a stud 29, and similarly the gear 28 is supported in the aperture 21 on the shoulder 22 of the cap 14 by means of a peg 29′ formed integrally with the gear 28. The peg 29′ is provided with an aperture 30 to receive a string 31 for tensioning the same.

Positioned in meshing relation with the gear 28 is a worm 32 which is supported in its position by a stud 33 on the bearings 18 and 24 of the base and cap respectively. Adjacent the outer end of the worm 32 is a groove 34 adapted to receive the rib 25 of the cap 14 and prevent the displacement of the worm from the bearing box. Secured to and positioned on the worm shaft outside the head 10 is a thumb piece 35 which is adapted for manipulating the tuning peg 29′.

In assembling my improved tensioning device, the base 13 is inserted in the socket 11 of the head 10, after which the worm 32 is inserted through the aperture 12 of the head and seated in its bearing in the base 13. Then the gear is seated in its bearings in the base 13 in operative engagement with the worm 32. The cap 14 is then placed upon the worm and gear with the peg 29′ extending through the aperture 21 which forms its bearing, and with the two apertures 26 registering with corresponding apertures 20 of the base for securing the cap to the base by means of screws 27. It will

be noted that the outwardly extending rib 25 of the cap 14 is adapted to engage in the groove 34 of the worm 32 in a manner to prevent its displacement from the bearing box. After screws 27 have been secured the circular wood plug 36 with an aperture 37 to fit over the peg 29′ is secured in the socket 11 on top of the cap 14.

While I have described but one embodiment of my invention it is to be understood that the same is capable of modification, and that modification may be employed without departing from the spirit and scope as expressed in the following claims.

1. A tuning device for stringed musical instrument comprising a head, a socket formed in said head, a bearing base positioned in said socket, a gear and worm seated in said base, a bearing cap secured to said base and means formed integrally with said cap for preventing displacement of said worm.

2. A tuning device for a string instrument, comprising a bearing base, a bearing cap connected to said base, a worm and gear positioned between said base and cap and means including an outwardly projecting rib engageable with a groove in said worm for preventing the displacement of said worm.

3. A tuning device for string instruments comprising a bearing base, a socket formed in said base, a shoulder surrounding said socket, a concavity formed at one side of said shoulder, a cap secured to said base and having corresponding and registering shoulder and concavity with said base, a gear and worm seated on the shoulders and concavities of the base and cap respectively and an outwardly projecting rib formed in the concavity of said cap for retaining said worm in its bearing.

4. A tuning device for string instrument, comprising a bearing base, a bearing cap connected to said base, a worm and gear positioned between said base and cap, said worm having an annular grove and means projecting from the bearing portion of said cap and engaging the groove in said worm for preventing displacement of said worm.

In testimony whereof I affix my signature.

HANS O. HAMMER.