Mar. 20, 1923. 1,449,298.

C. SAMPIETRO.

DEVICE FOR ADJUSTING VIOLIN BOWS.

FILED OCT. 29, 1921.

Fig. 1.

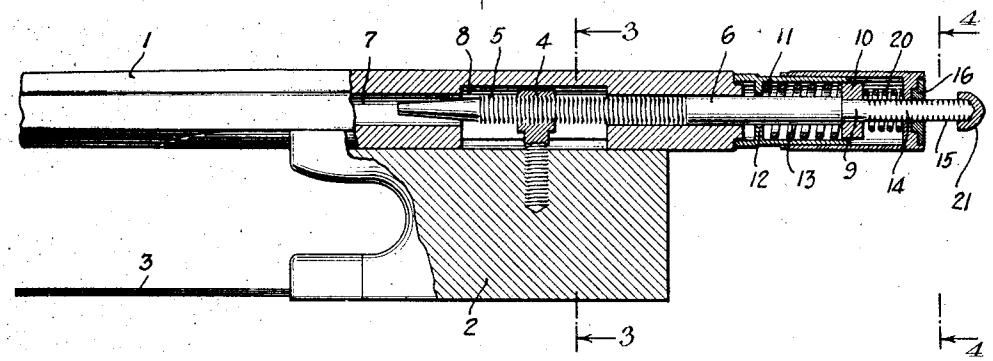


Fig. 2.

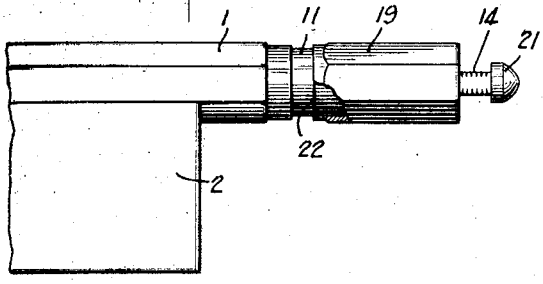


Fig. 3.

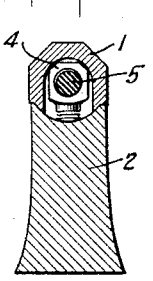


Fig. 4.

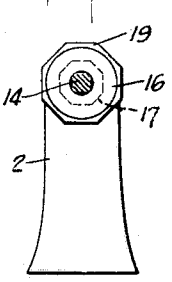


Fig. 5.

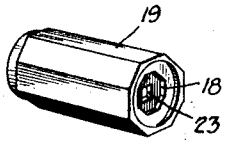


Fig. 6.

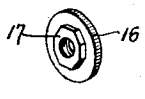


Fig. 7.

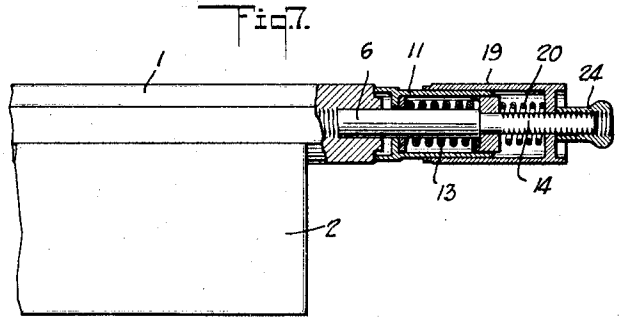
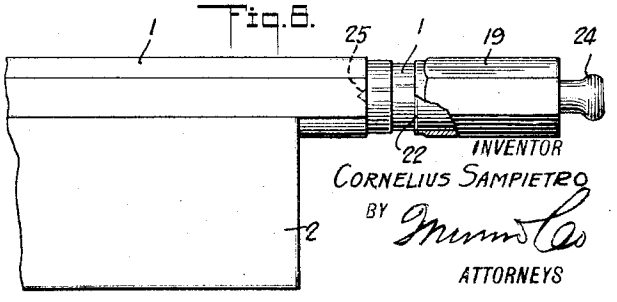


Fig. 8.



WITNESSES

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UNITED STATES PATENT OFFICE.

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DEVICE FOR ADJUSTING VIOLIN BOWS.

Application filed October 29, 1921. Serial No. 511,257.

To all whom it may concern:

Be it known that I, CORNELIUS SAMPIETRO, a subject of the King of Italy, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Device for Adjusting Violin Bows, of which the following is a full, clear, and exact description.

The invention relates to violin bows, and has particular reference to means for adjusting the tension of the hairs of the bow.

An object of the invention resides in the provision of means whereby a pupil or a user of a bow can simply and easily adjust the hairs to a definite tension regardless of the atmospheric conditions or other conditions which may tend to vary the tension of the hairs.

Another object resides in the provision of means whereby the tension of the hairs having once been fixed by the teacher, the pupil can always restore this tension by a simple manipulation of the device at a later date, regardless of the change in the tension that has taken place in the meantime.

A further object resides in the provision of means to accomplish the above-mentioned principles which can be applied to any type of bow with a minimum amount of alteration of the standard bow structures now in use.

A further object resides in the provision of a cushioning means disposed between a fixed portion and a movable portion of a violin bow whereby the variation in tension in the bow hairs can be properly balanced.

A still further object resides in the particular construction and arrangement of parts which are hereinafter described and claimed and shown in the accompanying drawings.

The invention is illustrated in the drawings, of which—

Figure 1 is a partial vertical longitudinal section taken through the end of the bow.

Fig. 2 is a side elevation with a portion broken away.

Fig. 3 is a transverse vertical section taken on the line 3—3 of Fig. 1.

Fig. 4 is a similar section taken on the line 4—4 of Fig. 1.

Fig. 5 is a perspective view of a portion of the indicating element.

Fig. 6 is a perspective view of a detail of the device.

Fig. 7 is a partial vertical longitudinal section through the end of the bow constructed in accordance with a modification of the invention shown in the previous figures.

Fig. 8 is a side elevation, with a portion broken away, of the modification shown in Fig. 7.

In the drawings I have illustrated an application of my inventive idea to a bow of a particular type, but it is, of course, understood that it may be applied with minor modifications to any type of bow or to any similar combination of elements in which an adjustment of an equivalent part is desired, and that such modification in the construction and arrangement of the parts may be adopted without departing from the spirit of the invention.

The invention is applicable to any suitable type of bow comprising a bow stick 1 and a frog 2 to which the ends of the bow hairs 3 are fastened in the usual manner. This frog 2 is adapted, in a well known manner, to slide with respect to one end of the bow stick to adjust the tension of the hairs 3. The frog 2 is provided on one side with a projecting lug 4, preferably screw-threaded into the frog 2, and this lug 4 is provided with a threaded aperture from which a screw-threaded portion 5 of a shaft 6 extends. The shaft and the lug 4 are located within the bore 7 extending along at least the rear portion of the stick 1 and which in the neighborhood of the lug 4 is enlarged in the form of a recess 8 to receive the lug 4. The shaft 6 extends rearwardly from the end of the stick 1 and when rotated will cause the lug 4 and, consequently, the frog 2 to move longitudinally with respect to the stick 1 to vary the tension of the hairs 3. The shaft 6 is provided along that portion thereof extending from the bow stick 1 with a portion of reduced diameter, such as 9, to which a collar 10 is rigidly fixed. This collar 10 is adapted to move with the shaft and slide within the open end of a cylindrical cap or shell 11 which bears against the end of the bow stick. This shell is provided with an apertured partition 12 through which the shaft 6 extends. Between the partition 12 and the collar 10 a chamber is formed in which is disposed a spring 13 the normal tendency of which is to exert a pressure against the collar 10 to keep the bow hairs 3 taut to any desired extent, depending upon the strength of the

spring 13. This spring 13, therefore, acts as a cushion, so that as the tension in the bow hairs tends to vary, due to the changes in temperature or atmospheric conditions, the spring will give in one direction or another to counterbalance or distribute these variations.

The outer end portion of the shaft 6 is formed irregular in cross section, preferably square, but is threaded on the corners thereof, as represented by 15, and these threads are adapted to engage with similar threads on a nut 16. The threaded aperture in this nut is round, its outer diameter is round, but on its inner face it is provided with a hexagonally-shaped flange 17. This flange is adapted to be seated in a similarly shaped depression 18 in the end of an indicator shell or cylinder 19. This shell or cylinder is open at its inner end and adapted to embrace and slide along the outer surface of the shell 11. The spring 20 is disposed around the threaded portion 14 of the shaft 6 and extends between the collar 10 and the inner face of the head of the shell or cylinder 19 to force the cylinder against the nut 16 whereby the flange 17 and the recess 18 are kept in alignment. The extreme outer end of the shaft 6 may be provided with any suitable thumb nut 21, as desired, to permit the ready rotation of the shaft 6.

In Fig. 2 it will be noted that the outer surface of the shell 11 is provided with a line of markings such as 22 which is placed on the shell 11 in any desired position for a purpose hereinafter to be explained.

Assuming that it is desired to produce in the hairs 3 a definite tension and to maintain that tension thereafter regardless of changes in the atmospheric conditions, the teacher or the person using the bow will manipulate the nut 21 to rotate the shaft 6 and thereby cause movement of the frog 2, which will create the desired tension in the hairs 3. This person, in the case of pupils who are learning to use the violin bow, generally is a teacher who is thoroughly familiar with the required tension to be maintained in the hairs. Consequently when the proper position of the frog 2 has been reached, the teacher will with his hands move the shell 19 until the edges of its inner end are in registry with the marking 22.

It will be noticed from an examination of Fig. 5 that the aperture 23 in the head of the shell 19 is irregular permitting a sliding movement of the shell along the shaft, but not a rotary movement independent of the movement of the shaft. It is, of course, understood that the shell 19 will be slid inwardly against the action of the spring 20 while the nut 16 is being adjusted. When the inner edge of the shell and the line 22 are in registry, the teacher will thread the nut 16 along the threaded portion 14 of the shaft 6 in one direction or the other until the flange 17 of this nut is in proper engagement with the recess 18. The fact that the nut is threaded on this portion of the shaft and that it is in proper engagement with the shell 19 will insure the fixing of the shell 19 in any desired position until the nut 16 is adjusted in another position, the spring 20 tending to keep the shell 19 against the nut 16. Having performed these operations the hairs are then under the desired tension.

If at some later time the atmospheric conditions change, the tension of the bow will vary and will cause the movement of the frog 2 and with it the shaft 6, the collar 10, the nut 16 and the shell 19, which will cause the inner edge of the shell 19 to get out of registry with the line 22. Whenever this discrepancy is observed, the shaft 6 is rotated until the required tension is produced. This will, of course, move the shell 19 back into alignment with the desired marking. It is, of course, understood that any number of markings such as 22 may be placed on the outer surface of the cap or shell 11 to represent the proper positions of the parts for the various tensions required in the hairs 3.

It is, therefore, to be seen that this device provides very simple means whereby any one conversant or unconversant with the manipulation of the adjusting device to produce the desired tension in the hairs may cause that tension to be produced after the parts have once been set by a person who does understand the manner of originally setting the parts. It is equally obvious, also, that the means for producing this simple invention can be applied to any standard type of bow without any very great modification of the parts and without departing from the idea of the invention as set forth.

In Fig. 7 we have similar parts which are similarly numbered but instead of using the nut 16, a thumb nut 24 is provided to take its place, this nut having a threaded aperture extending completely therethrough so that it can be moved along on the portion 14 to any desired position. In this modified form, also, the inner edge of the shell 11 bearing against the end of the bow stick 1 is provided with a projecting tip 25 and is adapted to rest in a similarly shaped groove in the end of the stick whereby the rotation of the shell 11 is prevented.

What I claim is:

1. An adjusting device for violin bows having a stick, bow hairs and a frog connected to said hairs for adjusting the tension therein, which comprises an adjusting screw operatively connected to the frog, a spring disposed between the stick and a por-

tion of the screw to which it is attached, an indicating mark or designation associated with the stick and fixed, and an indicating element adjustable along the screw having an edge adapted to be registered with said designation or mark to indicate that the screw is properly set to produce a desired tension.

2. An adjusting device for violin bows having a bow stick, a bow hair, a frog connected to the bow hair, and an adjusting screw for moving the frog to vary the tension in the hair, which comprises a resilient means connected to the stick at one end and to the screw at the other end for determining the tension applied to the frog in accordance with the movement of the screw, and means adjustable on the screw for indicating any movement of the screw after it has been adjusted due to changes in tension of the hair.

3. An adjusting device for violin bows having a bow stick, bow hairs, a frog connected to said hairs and an adjusting screw for moving said frog, which comprises a cylindrical cap disposed against the end of the stick through which the screw is adapted to extend, a collar on said screw near the end of said cylinder, a spring disposed between the collar and the base of the cylinder to maintain a tension on the screw, a designation or indicating mark on the outer surface of the cylinder, and an indicating device movable along the screw and having an edge adapted to be registered with said mark whereby its position with respect to said mark will indicate the variation of the tension of the hairs from a fixed value represented by said mark.

4. A device of the character described, which comprises a bow stick, an adjusting screw extending therefrom, a fixed cylindrical casing through which said screw is adapted to extend, said casing disposed on the end of the stick, a collar on said screw, and a spring disposed between said collar and the base of said casing.

5. A device of the character described, which comprises a bow stick, an adjusting screw extending therefrom, a fixed cylindrical casing through which said screw is adapted to extend, said casing disposed on the end of the stick, a collar on said screw, a spring disposed between said collar and the base of said casing, the outer end of said screw being of square cross section and threaded, a hollow indicating sleeve having a square aperture disposed on the outer end of said screw, the forward end of the indicating shell sliding along the surface of said casing, said indicating shell having a straight-sided rest in itself and a threaded nut disposed on the outer end of said screw and having a similarly shaped projection thereon adapted to engage in said rest, the position of the end of the screw determining the position of the indicating shell, the position of the indicating shell relative to the fixed casing giving an indication of the tension of the bow hair.

6. A device of the character described, which comprises a bow stick, an adjusting screw extending therefrom, a fixed cylindrical casing through which said screw is adapted to extend, said casing disposed on the end of the stick, a collar on said screw, a spring disposed between said collar and the base of said casing, the outer end of said screw being of square cross section and threaded, a hollow indicating sleeve having a square aperture disposed on the outer end of said screw, the forward end of the indicating shell sliding along the surface of said casing, said indicating shell having a straight-sided rest in itself, and a threaded nut disposed on the outer end of said screw and having a similarly shaped projection thereon adapted to engage in said rest, the position of the end of the screw determining the position of the indicating shell, the position of the indicating shell relative to the fixed casing giving an indication of the tension of the bow hair, and resilient means extending between the collar on the screw and the inner face of said indicating shell to hold the shell against said nut.

7. An adjusting device for violin bows having a stick and an adjusting screw extending therefrom, which comprises a fixed, hollow casing disposed on the end of the stick, a collar on the screw movable within said casing, a spring between the base of said casing and said collar, an indicating shell slidable around the outside of the casing, a spring disposed within said shell and extending between said collar and the inner face of said shell, the outer end of said screw being square and threaded and said shell having a square aperture therein whereby it can slide along the screw but not rotate relative thereto, and a threaded nut adjustably disposed on the end of said screw and adapted to bear against the outer face of said shell to determine its position on the screw.

CORNELIUS SAMPIETRO.