

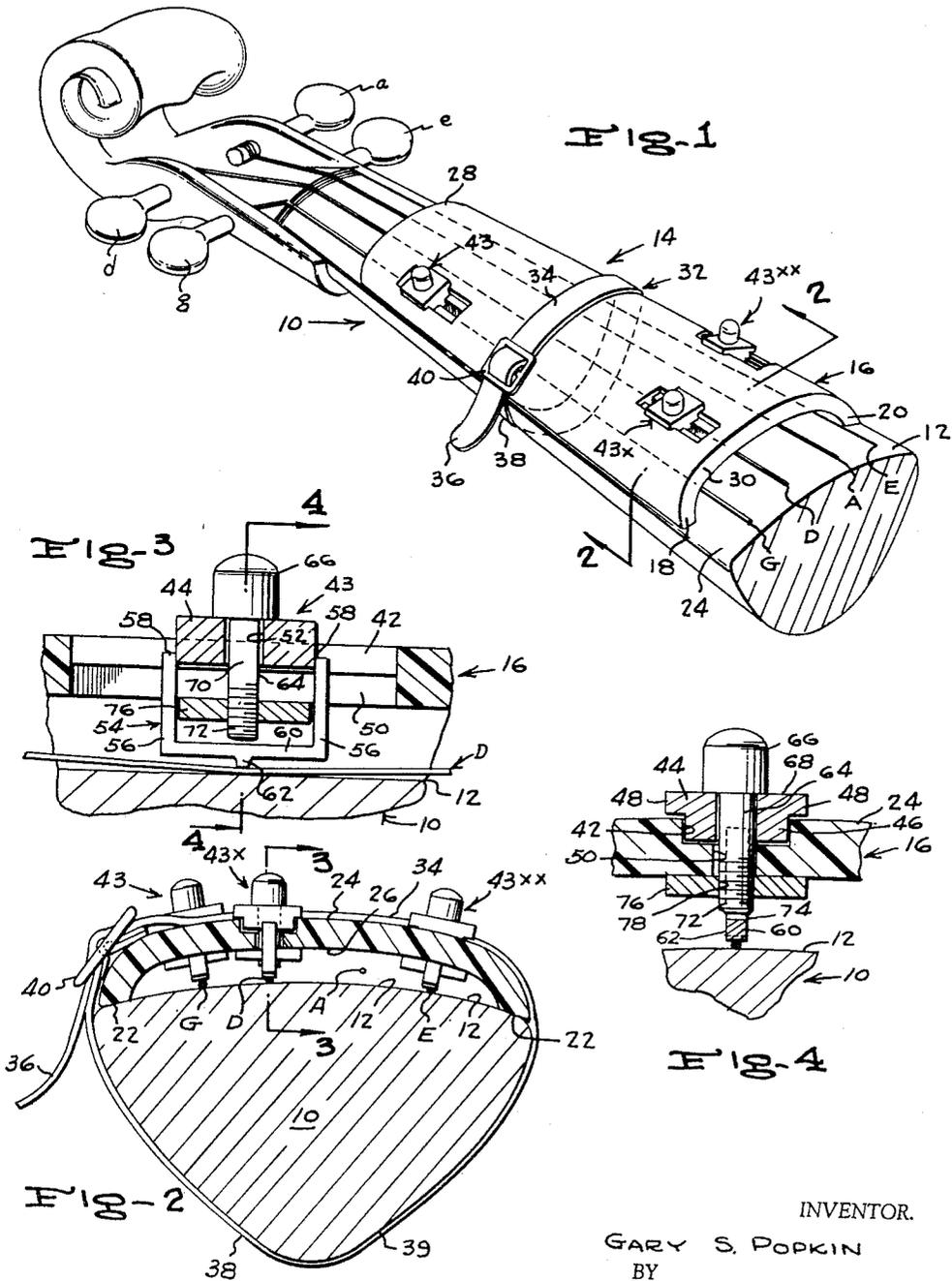
Nov. 29, 1960

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2,961,913

TUNING ATTACHMENT FOR STRINGED INSTRUMENTS

Filed July 3, 1958



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2,961,913

## TUNING ATTACHMENT FOR STRINGED INSTRUMENTS

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Filed July 3, 1958, Ser. No. 746,377

7 Claims. (Cl. 84-455)

This invention relates to an improved tuning attachment for stringed musical instruments, especially non-fretted stringed instruments.

The primary object of the invention is to provide more practical, more accurate, and more efficient tuning means of this kind which, while being adaptable for tuning unfretted instruments, such as violins, violas, violincellos, and basses, wherein tuning operations are done by ear, after initial tuning of the A-string to an oboe or pitch-pipe, and are ordinarily performed by tuning the G, D, and E-strings an octave, a fifth, or a fourth apart from the tuned A-string, which tuning operations are time-consuming and are often inaccurate, and present difficulties, especially to beginners. These drawbacks and difficulties are present in much smaller degree in the case of fretted instruments, which require only that strings be depressed between adjacent frets, for accurate finger-stopping of the strings, whereas, in the case of non-fretted instruments the finger-stopping must be substantially absolutely accurate, and often requires for its attainment that the fingers be shifted along the strings until apparently right stopping points are ascertained by ear. The results of such time and effort consuming trial-and-error stoppings of strings, even in the cases of experienced and accomplished musicians, are apt to be inaccurate.

Another object of the invention is to provide a device of the character indicated above, adapted to be mounted on the neck of a stringed musical instrument over the strings thereof, whose string-stopping elements are adjustable lengthwise of the device and can be locked in adjusted positions, which are determined by trial to be the correct finger-stop positions for the related strings, so that on subsequent tunings of the instrument, correct stopping of the strings is available and is attainable without experiment.

Other important objects and advantageous features of the invention will become apparent from the following description and the accompanying drawings, wherein, for purposes of illustration only, a specific form of the invention is set forth in detail.

In the drawings:

Figure 1 is a fragmentary perspective view of a violin neck on which is installed a device of the invention;

Figure 2 is an enlarged fragmentary vertical transverse section taken on the line 2-2 of Figure 1;

Figure 3 is a further enlarged fragmentary vertical longitudinal section taken on the line 3-3 of Figure 2; and

Figure 4 is a fragmentary vertical transverse section taken on the line 4-4 of Figure 3.

Referring in detail to the drawings, wherein like numerals designate like parts throughout the several views, the numeral 10 generally designates a violin neck having tuning pegs *g*, *d*, *a* and *e* for strings G, D, A and E leading therefrom along the transversely and convexly curved upper surface 12 of the neck 10.

Shown attached on the neck 10 is a tuning attachment

14 of the invention, which comprises a longitudinally elongated rigid, substantially convex-concave plate-like body 16, having along its opposite side edges depending flanges 18 and 20 having edges 22 which are preferably formed to conformably engage the convex upper surface 12 of the neck 10 at points along the opposite side edges of the surface 12. The body 16 has a concave underside 26 between the flanges 18 and 20, and the body 16 is longitudinally tapered in width, like the neck 10, from its outer end 28 to its inner end 30, these ends preferably being squared. The body 16 has a transversely curved convex upper surface 24. In the event that the instrument neck 10 is narrower than the body 16 the attachment 14 is supported in operative position on the upper surface 12 of the neck 10 by the depressor units herein-after described, wherein the lugs 62 rest upon the surface 12.

For removably mounting the body 16 in a selected position along the upper surface 12 of the neck 10 with the outer end 28 of the body adjacent to the outer end of the neck 10, suitable mounting means is provided, such as a flexible strap 32, having an upper flight 34 reaching across and engaging the upper surface 24 of the body 16 and having a free end 36, and a lower flight 38 conformably engaging and extending across the underside 26 of the neck 10 and having a buckle 40 through which the free end 36 is engaged.

The body 16 is provided in its upper surface 24 with a longitudinal groove 42 which overlies the D string and is located near the side flange 18 and near the outer end 28 of the body 16. The groove 42 is located approximately at the location on the D string which would be finger-stopped in a usual manual and ear-tuning of the D string.

A tuning element, generally designated 43 comprises a preferably square block 44, substantially shorter than and wider than the groove 42, has a depending rectangular longitudinal boss 46 which fits slidably in the groove 42, while side edge portions 48 of the block 44 slide upon the upper surface 24 of the body 16 at opposite sides of the groove 42, as shown in Figure 4.

The bottom of the groove 42 has therein a longitudinal slot 50 which is centered with respect to and is substantially narrower than the groove 42 and may extend the length of the groove 42. The block 44 has extending therethrough a central vertical smooth bore 52. A U-shaped string depressor frame 54 straddles the block 44 and has the upper ends of its legs 56 fixed, as indicated at 58, to the opposite ends of the block 44, as shown in Figure 3. The frame 54 depends freely through the groove 42 and the slot 50, and its bight portion 60 is spaced below the underside 26 of the body 16. At its midpoint the bight portion 60 has a depending string depressor lug 62 which is positioned to engage and depress or stop the G string against the upper surface 12 of the violin neck 10, as shown in Figures 3 and 4.

Depending freely and rotatably through the bore 52 of the block 44 is a round bolt shank 64 having an enlarged finger knob 66 on its upper end engaged to bear upon the upper surface 24 of the block 44. The shank 64 has a smooth upper portion 70, and a threaded lower portion 72 terminating in a lower end 74 which is arranged to bear upon the upper side of the bight portion 60 of the depressor frame 54 over the depressor lug 62.

A preferably square clamping plate 76, wider than the slot 50, is positioned at the underside of the body 16 between and in non-rotating engagement with the legs 56 of the depressor frame 54 and has a central threaded hole 78 through which the threaded portion 72 of the shank 64 is threaded. The length of the shank 64 is proportioned so that when threaded downwardly by turning the finger knob 66 the clamping plate 76 is forced

upwardly against the underside 26 of the body 16 at the same time that the lower end 74 of the bolt shank 64 bears downwardly upon and stops or "fingers" the G string against the upper surface 12 of the violin neck 10. As the clamping plate 76 comes into engagement with the underside 26 of the body 16, the finger knob 66 bears upon the upper side 68 of the block 44, so that the block 44, and hence the depressor frame 54 and the depressor lug 62, are clamped in a selected location along the body 16. As indicated hereinabove, the proper position along the body 16 for the block 44 along the groove 42 is determined initially by trial. Thereafter, as long as the device 14 is applied to the neck 10 in the same relative position, the location of the block 44 remains correct for accurately tuning the G string.

The device 14 is devoid of a tuning element 43 for the A string because the A string is to be tuned with the use of an oboe or pitchpipe and the other strings are tuned by reference to the tuned A string.

The device 14 has a tuning element 43x for the D string, which is appropriately longitudinally spaced from the tuning element 43, and is located over the D string and near to the inward end of the body. The tuning element 43x is the same in construction and arrangement as the tuning element 43.

A tuning element 43xx, similar to the elements 43 and 43x, is provided on the body 16 for tuning the E string, and is positioned over the E string.

Although I have shown and described herein a specific form of my invention, it is to be understood that any change or changes in the structure and in the relative arrangements of the components are contemplated as being within the spirit and scope of the invention as defined by the claims appended hereto.

What is claimed is:

1. A tuning attachment comprising a plate-like body for mounting on the neck of a stringed musical instrument over the strings thereof, means for engaging said neck and spacing the body above the strings, means for removably securing said body in place, said body having therethrough laterally spaced longitudinal slots registered with related ones of such strings, said body having an upper surface and an underside through which said slots open, blocks having first portions sliding on said upper surface and second portions sliding in and along said slots, depressor frames fixed on and depending from the blocks and through said slots, string depressor lugs on said frames for depressing related strings against the instrument neck, said blocks and said frames being shorter than said slots, and combined depressing and clamping means acting between the blocks and said body for depressing the frames and engaging the depressor lugs with strings and clamping the blocks in adjusted positions along the slots.

2. A tuning attachment according to claim 1, where-

in said depressor frames are U-shaped and have legs fixed to opposite ends of the blocks and bight portions carrying said depressor lugs.

3. A tuning attachment according to claim 1, wherein said combined means comprises bolt means.

4. A tuning attachment according to claim 1, wherein said combined means comprises bolt means, having shanks slidably and rotatably traversing the blocks, enlarged finger knobs on ends of the shanks bearing upon the blocks, and clamping plates wider than the slots, said clamping plates being engaged with the underside of said body and being threaded on the shanks.

5. A tuning attachment according to claim 1, wherein said combined means comprises bolt means, having shanks slidably and rotatably traversing the blocks, enlarged finger knobs on ends of the shanks bearing upon the blocks, and clamping plates wider than the slots, said clamping plates being engaged with the underside of said body and being threaded on the shanks, said depressor frames being U-shaped and having legs fixed to the opposite ends of the blocks and bight portions carrying said depressor lugs, the bolt shanks being located between said legs.

6. A tuning attachment for the neck of a stringed musical instrument, comprising a plate, means for fixedly and spacedly mounting the plate on a neck in a selected position lengthwise of the neck and over the strings, laterally spaced lengthwise elongated groove and slot means in said body to overlie individual strings, individual string-engaging depressor means severally engaged with and extending through and movable vertically and longitudinally relative to related groove and slot means, and clamping means engaged with the plate, with said groove and slot means, and with related depressor means for clamping the depressor means individually and independently in depressed positions and in adjusted positions along related groove and slot means.

7. A tuning attachment for mounting on the neck of a stringed musical instrument comprising a plate-like body, means fixedly mounting the body on the neck and spacing the body therefrom over associated strings, laterally spaced depressible string depressor elements, and means mounting the depressor elements on the body for individual adjustment lengthwise of said body and clamping means for clamping individual depressor elements in depressed string-engaging positions along the body.

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