

Final Diploma

FD3 Amendment of Specifications

Wednesday 14 October 2020

10:00 to 13:30 UK British Summer Time (GMT + 1 hour)

Total time allowed: 3 hours 30 minutes

Starting from 10:00 hours, you have 3 hours 30 minutes in which to:

- Print this question paper (if wished)
- Answer the questions
- Take two screen rest breaks of 5 minutes each
- Save your Answer document to your hard drive as a pdf
- Scan any hand-annotated claims and save them to your hard drive as a pdf
- Upload your answer document(s) to the PEBX system.

INSTRUCTIONS TO CANDIDATES

1. The whole assessment task is to be attempted.
2. The marks to be awarded are given at the end of the assessment task.
3. The total number of marks available for this paper is 100.
4. Start each part of your answer on a new sheet of paper.
5. You must use the Answer document for your answers.
6. Do not attempt to change the font style, font size, font colour, line spacing or any other pre-set formatting.
7. Start each part of your answer on a new page. Press the control key and the enter key simultaneously to begin a new page.
8. Do not state your name anywhere in the answers.
9. **Candidates who have been granted approval to handwrite their answers:** Instructions on what to do at the end of the examination are on the Candidate Cover Sheet.
10. This question paper consists of **21 sheets**, including this sheet, and comprises:
 - Assessment task (1 sheet)
 - Client letter (1 sheet)
 - Document A Examination Report (1 sheet)
 - Document B Client application 1712345.6 (7 sheets including 1 sheet of drawings)
 - Document C Prior art reference D1 – US 3456543 (4 sheets including 2 sheets of drawings)
 - Document D Prior art reference D2 – US 4,321,321 (3 sheets including 1 sheet of drawings)
 - Document E Musicians Supplies 2015 Catalogue (1 sheet)
 - Document F A spare set of Claims of the patent application 1712345.6 for you to annotate and include in your answer if you wish (2 sheets).

AT THE END OF THE EXAMINATION

11. Save your Answer document and any hand-annotated claims to your hard drive. Then follow the instructions for uploading your document onto the PEBX system.

Assessment task

You have received the letter and documents listed on the Instructions to Candidate sheet regarding United Kingdom patent application number GB 1712345.6, which has been filed at the UK Intellectual Property Office with no claim to priority, and was published in 2019.

Your task is to prepare:

- 1. a letter to the UK Intellectual property Office in response to the Examination Report;**
- 2. a set of amended claims, if considered necessary;**
- 3. notes on which you would base advice to your client in which you:**
 - i. explain the actions you have taken;**
 - ii. provide full reasoning for your actions;**
 - iii. outline future actions, if any, that your client could take to secure full protection of its commercial interests.**

Your advice should take into account that further information may be required.

Your notes should only relate to the invention(s) outlined in the client's correspondence to you.

Your notes should be directed to patent matters only.

Note the following:

- a) You are NOT required to make any amendments to the description of the client's patent application.
- b) You should accept the facts given to you and base your answer on those facts.
- c) You should not make use of any other special knowledge that you may have of the subject matter concerned.
- d) You should assume that the prior art referred to is complete.
- e) You should identify clearly any amended claim set and/or divisional claim(s).

Allocation of Marks

Letter: 34 marks
Claims: 37 marks
Notes: 29 marks
Total: 100 marks

Client letter

Mute Point Ltd

Copper Bottom Patent Attorneys

Dear Mr Bottomley,

Thanks for sending me the report from the Patent Office. I am pleased to say that the new violin mute, even though it is a minor item, is proving to be a valuable addition to my line of musical instrument accessories, so I would like to get the patent through if we can.

I see the point the Examiner is making, though I still think my mute is much better. I didn't know about the spring-loaded one that the Examiner calls D1. I have never seen one, and I think the elastic action would be troublesome in practice and make too much noise, my magnet is easier to handle. Also, the elastic band of D1 pulls the mute quite hard when it is on the bridge, so it could spring off unexpectedly, whereas my magnet exerts no force on the mute when on the bridge. The round one (D2) is well known and is an economical shape, and I used one myself until I thought up my improvement. I am hoping that many violinists will follow suit and replace their mutes with mine, as I often hear the complaint that the well-known mute is convenient but can rattle sometimes.

I have found that it is difficult to make a steel counterpiece that stays on the instrument and I have lost a couple. Still working on the construction. It is easy enough to bodge a temporary solution using a paperclip, though. I also tried a couple of prototypes with a tacky pad instead of a magnet, but these rapidly accumulated dust and lost their adhesion.

Incidentally, I see that both the mutes in the report fit over two strings, but one of them (D2) says it might pass over only one string. I might look into a single-string version of my mute if it turns out to be cheaper. Can I include it in this patent?

Please do whatever is needed to overcome all the objections and send me a draft to check before sending it to the Examiner.

Yours sincerely,

Fred Kreisler

Document A – Examination Report

Intellectual

Property

Office

| | | | |
|------------------------|------------------|-----------------|--------------|
| Your ref: | | Examiner: | Y Menuhin |
| Application no. | 1712345.6 | Tel: | 01633 819999 |
| Applicant | Mute Point Ltd | Date of report: | 15 July 2020 |
| Latest date for reply: | 15 November 2020 | Page | 1/1 |

Patents Act 1977

Examination report under Section 18(3)

Basis of the examination

1. The examination has been carried out on the basis of the application as filed.

Novelty

2. The invention as claimed in claim 1 is not new in view of D1 (US 3456543). This shows a mute mounted on a bridge with anti-rotation legs (prongs 2, 4, 5, 7), a flared foot (prong 3), channels (13, 14) and an urging means (spring loop 12) retaining the mute on the tailpiece when not in use.
3. Claims 2 and 4 are also not novel (see D1 Figures 1, 2 and 4; D1 page 12, line 16).

Inventive Step

4. Claims 3 and 5 are not inventive – magnetic retaining means are commonplace, as evidenced by the 2015 catalogue (D3); this shows a magnetic temporary fixing means, useful in a variety of contexts including music, which makes it obvious to use such a means for the purpose at issue. Circular/cylindrical mutes (claim 5) are known from D2.

Conciseness, Clarity and Support

5. Claim 1 is unclear, in that it is not clear whether the violin, or its strings, are part of what is claimed.
6. Since violins are generally made of wood, it is not clear how the magnet in claim 3 can constitute a ‘retaining means’ in the absence of any other measures.

Document B – Application

Client application

GB 1712345.6

VIOLIN MUTE

FIELD OF THE INVENTION

The invention relates to mutes for the violin family of musical instruments (violins, violas, cellos, double basses) and in particular to a novel mute system that is always to hand and does not rattle.

BACKGROUND OF THE INVENTION

Violin mutes are used to change the timbre (sound quality) and loudness of these instruments. These mutes consist of a wooden, rubber, leather, plastic, metal, or multi-material device that when required is clamped on the top of the instrument's bridge, thereby muting the sound. The bridge is the wooden support that transmits the force of the strings into the violin body. A mute is a required accessory for the performance of many solo and orchestral pieces of music.

Mutes for stringed instruments are usually made so that they clamp onto the relatively sharp edge of the bridge that transmits vibrations from the strings to the body of the instrument. The mute adds mass to the bridge and perhaps damps out some of the high harmonics of the string vibrations, causing a muted sound.

The effect of a mute is quite noticeable and many musical compositions call for muted passages for various stringed instruments. Such passages may be rather short and may occur after only a short rest, during which the musician must put the mute into place in such a way that it is not in danger of falling off in the middle of the muted passage.

The mute must therefore be readily to hand when not in use, so that it can be quickly transferred from its rest position to

Document B – Application

its working position on the bridge, or vice versa. Various solutions to these problems are currently in use, two being mentioned here:

- 5 1. In its rest position (i.e. when not in use), the mute is put somewhere close at hand, e.g. on the music stand, in a pocket, on a chair.
- 10 2. In its rest position, the mute sits loose between the bridge and the tailpiece on one or two of the two middle strings that pass through and are completely enclosed in holes passing through the mute's body. In this position it has no effect. For use it is slid along the strings and onto the bridge.

Each of these solutions has its drawbacks:

- 15 1. Sitting loose away from the instrument, the mute can fall onto the floor or require more time than allowed for in the music in looking and reaching for it and in returning it to its rest position.
- 20 2. The instrument's vibrations cause this type of mute frequently to rattle noisily when in its rest position during performances, and even to migrate up to and against the bridge, which is even more disturbing.

SUMMARY OF THE INVENTION

- The mute system for violin family musical instruments according to the invention is defined in claim 1. It solves the problems
- 25 of how to hold a mute on an instrument of the violin family in the rest position, ready for use, without clamping it onto or between a string or strings or permanently fixing it to an elastic extension from the tailpiece or allowing the mute to sit loose on the strings, and is easy and quiet in operation.
- 30 A feature of the mute is its broad flared foot on the middle leg, which allows the two middle strings to function as a blind guide for the mute's movement between the bridge and the

Document B – Application

tailpiece during a performance, without the musician having to remove his or her eyes from the music.

DESCRIPTION OF THE DRAWINGS

One way of carrying out the invention is described in detail
5 below with reference to the drawings, in which:

FIG. 1 shows a typical violin for illustrating the invention;

FIG. 2 shows a mute in accordance with the invention from one side, namely facing the tailpiece;

10 FIG. 3 shows the mute from the other side, facing the bridge;

FIG. 4 shows a cross section of the mute;

FIG. 5 shows the mute in its working position; and

FIG. 6 shows the mute in the rest position.

15 **Figure 1** shows a typical violin 100 for orientation - virtually all violins are made this way. It has a body acting as a sound box 102, a fingerboard 104 fixed over the top surface of the sound box and extending beyond it by about the same distance, four strings 5 extending over the upper surface and the full
20 length of the fingerboard and down to the bottom of the instrument, a tailpiece 3 with suitable holes for receiving the ends of the strings securely, and a wooden arch-shaped support known as a bridge 12 over which the strings are tightened so as to transmit the tension into the body.

25 A mute 1 in accordance with the invention is shown in **Figures 2-4**. It is designed to hold itself loosely on the parts of the violin strings between the bridge and the tailpiece. It has a body 19 of generally circular outline, with four downwardly extending legs 4, 8a, 8b, 10. Three of the legs 8a, 8b, 10 are
30 on one (the tailpiece) side and one 4 is on the other (bridge) side of a transverse wedge-shaped channel 7 through the body of the mute 1. These legs 4 and 8a, 8b, 10 on opposing sides of the channel 7 form a clamp when pressed over the top of the

Document B – Application

bridge 12, thus muting the instrument's sound production.

The two outer legs 8 in addition to their clamping function also form, together with the middle leg 10, two approximately radial channels 9 through which the two middle strings 5 pass; this prevents the mute 1 from accidentally rotating off the strings 5 when the mute 1 is moved between the bridge 12 and the tailpiece 3 as in FIG. 4. The channels are typically 2-3mm wide, considerably wider than the thickness of the string (about 1mm), to allow free movement of the mute. The bridge-side leg 4 is only wide enough to ensure adequate clamping, being somewhat narrower than the central part of the mute body between the bases of the two channels 9. This makes it simple to apply to the bridge when required, between the two central strings.

In accordance with the invention, the middle leg 10 is longer than the other three legs 4, 8a, 8b and has the form of a flared foot extending below the magnet 6. The flared foot 10 functions as a guide for the mute 1 and prevents it from being pulled through or loose from the two strings 5 when being transferred onto and off the bridge 12.

The body 19 of the mute has a retaining means in the form of a magnet 6 built into it, centrally with regard to its circular outline. In accordance with the invention this cooperates with a magnet counterpart in the form of a steel clip 2 to be fitted to the tailpiece, as described below.

FIG. 4 shows a cross section of the mute in FIG. 1 including the longer middle leg 10 and the clamping channel 7 that is pressed down over the bridge 12 in order to apply the mute. The insert hole 11 for the magnet 6 is also shown in the middle of the body 19.

Figures 5 and 6 show the mute system in position on a violin, riding on the middle two strings, and with a steel, or steel-cored, clip 2 clamped to the tailpiece 3. The steel clip 2 has a flexible PVC coating to protect the tailpiece 3, which is

Document B – Application

made of hardwood, from the steel core. The clip has flexible toothed jaws 15, the upper one being visible in the drawing, which prevent the clip 2 from accidentally coming loose from the tailpiece 3. The steel clip 2 is attached by pushing it
5 over the end of the tailpiece 3 between the two middle strings. Its function is to retain the mute 1 against the steel clip 2 at the tailpiece 3 when the mute 1 is in the rest position (shown in FIG. 6).

FIG. 5 shows the mute 1 and the clip 2 in perspective in the
10 working, or active, position, the clip 2 attached to the tailpiece 3 and the mute 1 on the bridge 12. Also shown is the travel 13 of the mute 1 as it is moved by the player between the bridge 12 and the clip 2, as well as how the flared foot 10 extends under the strings 5 as a guide for the mute's movement.
15 The anti-rotation legs 8a, 8b are also shown in relation to the strings 5 to either side of which they extend, preventing accidental disengagement of the mute when being moved 13.

FIG. 6 shows the mute 1 in the rest, or inactive, position, held against the clip 2 on the tailpiece 3 by its in-built
20 magnet 6. Here, the magnet 6 stops the mute 1 from vibrating against the strings 5, or against the tailpiece, preventing unwanted noise.

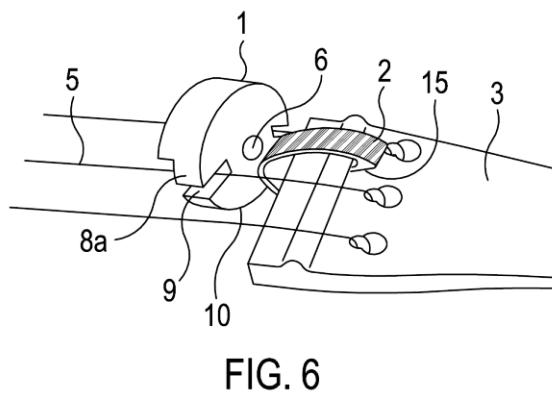
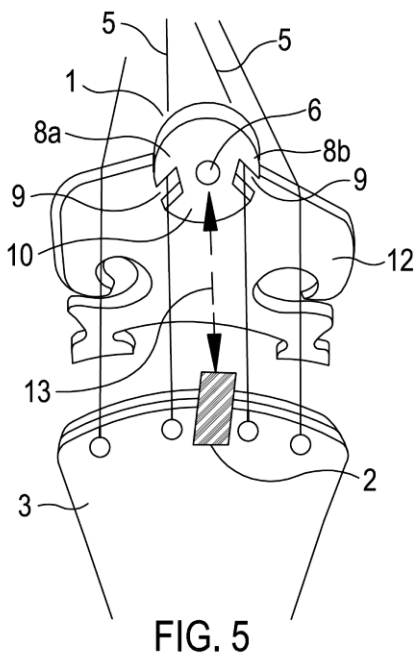
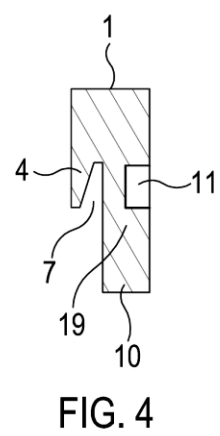
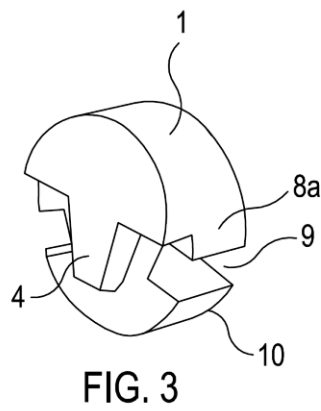
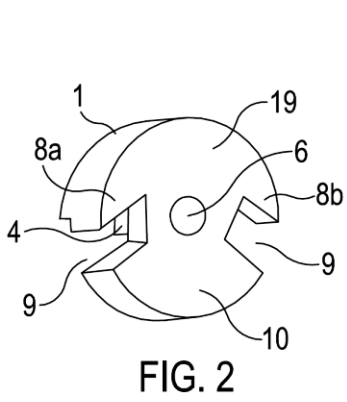
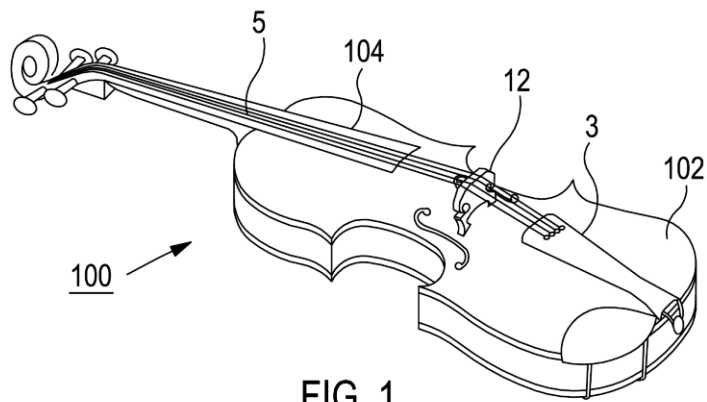
Although the retaining means in this embodiment uses a magnet, with a steel-based counterpart on the tailpiece, the invention
25 also envisages other ways of stopping the mute moving about when not in use, such as an elastic retainer or a tacky pad.

The magnet counterpart, instead of being a clip as shown, could in theory be integrated into the tailpiece. However, this would necessitate a non-standard tailpiece and would be more
30 expensive.

Document B – Application

CLAIMS

1. A violin mute comprising: a clamping portion (7); anti-rotation legs (8a, 8b) extending down on either side of the two middle strings of the violin; a central leg (10) extending under the strings, preventing the mute from coming loose and acting as a guide as the mute is moved between a rest position and a working position; two downwardly and outwardly extending channels (9) for the strings between the anti-rotation legs (8) and the central leg (10), providing unrestricted movement of the mute between the rest position and the working position; and a retaining means (6) holding the mute against the end of the tailpiece when not in use.
2. A mute according to claim 1, having a further leg (4) on the side of the mute remote from the tailpiece, forming a channel (7) for application of the mute to the violin bridge.
3. A mute according to claim 1 or 2, wherein the retaining means is constituted by an inbuilt magnet (6) in the mute.
4. A mute according to claim 1 and being made of moulded rubber or plastics material.
5. A mute according to claim 1 and having a circular outline, the channels (9) being approximately radial.



Document C

Prior art reference D1

US 3456543

Granted November 18, 1965

I Pearlman

This invention relates to a new and improved mute for damping the tone of violins and other bowed instruments.

The main purpose is to provide a mute that is readily accessible to the player. Previously mutes have had to be kept in the pocket or on the music stand, causing delay when
5 reaching for it and fixing it to the instrument.

In this invention the mute stays on the violin and is attached by an elastic cord. Advantageously the mute slides on the middle two strings between the tailpiece and the bridge. It has two front prongs which hook over the bridge when in position.

The invention will now be described.

10 In the drawings:

FIG. 1 is a rear elevation of the mute, seen from the tailpiece when in position;

FIG. 2 is a front elevation, with the mute applied to the bridge;

FIG. 3 is a partial plan view of a violin with the mute in position on the bridge; and

FIGS. 4A and 4B are partial side views with the mute on and off, respectively.

15 **Figure 1** illustrates the general outline of the mute, which is made of any suitable, preferably slightly elastic, material such as rubber, plastic, or even wood or metal. It has a crossbar 1 extending across the top, with six integral prongs 2–7, of which 2, 3 and 4 make up the rear face and 5, 6 and 7 the front face. Front and rear sets of prongs are separated by respective channels 13 and 14 (at the rear) and 15 and 16 at the front, preferably
20 somewhat wider than the rear channels, but all affording plenty of clearance with respect to the strings.

When the mute is in use, applied to the bridge 17 as shown in **Figures 2–4**, the rear prongs 2, 3 and 4 bear against the rear face of the bridge, and the front prongs 5, 6 and 7 against the front face, ensuring frictional contact in the usual way. The mute sits astride the
25 two middle strings 19 and 20 (A and D strings) and inside the outer two strings 18 and 21 (E and G strings). (Note that for clarity the G-string 21 is not shown in Figures 4A and 4B.)

The rear middle prong 3 has a raised boss 8, on its rear face. This boss has two apertures

Document C

facing rearwards 9, 10 and a groove or channel 11 between them. An elastic loop 12 passes through this groove, and is looped at the other end round the end pin 23 of the violin (i.e. the pin by which the tailpiece 22 is held on the violin), passing under the tailpiece. The tension in the loop is such as to pull the mute toward the tailpiece, so that
5 when it is not in use (lifted from the bridge) it is drawn to the position shown in Figure 4B. It straddles the middle strings 19 and 20, on which it partly rests, so it cannot be drawn under the tailpiece by the elastic band.

With the mute resting against the tailpiece it is always in a convenient position when needed and the elastic cord prevents it from rattling or vibrating when the violin is being
10 played. A felt pad 29 may be applied to the tailpiece to muffle any noise if the mute is allowed to strike the tailpiece.

When the mute is to be applied, it is lifted and slid along the strings 19 and 20 until the front prongs 5–7 pass over the bridge, and then the mute is forced down into position as shown in Figure 4A. The middle prong 3 flares at its base, forming two shoulders 27 and
15 28 (see Figure 1) which prevent the mute from being inadvertently lifted off the strings during this process. The mute can be fitted to the strings or removed, however, using a twisting action, if this is needed.

When the mute is to be removed from the bridge, it is simply lifted off and allowed to fly back into position against the tailpiece, or guided back to ensure a silent movement.

20 *(Claims omitted)*

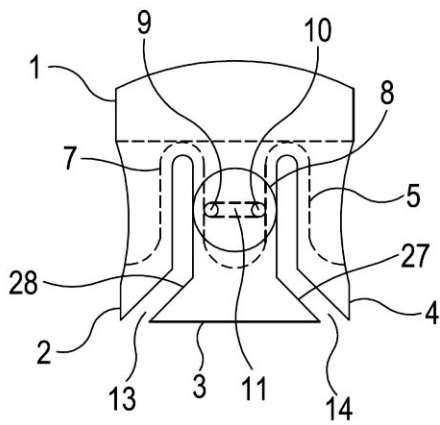


FIG. 1

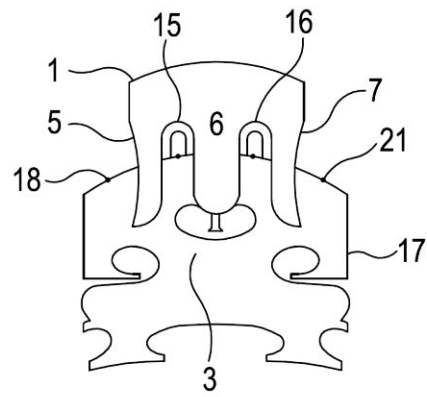


FIG. 2

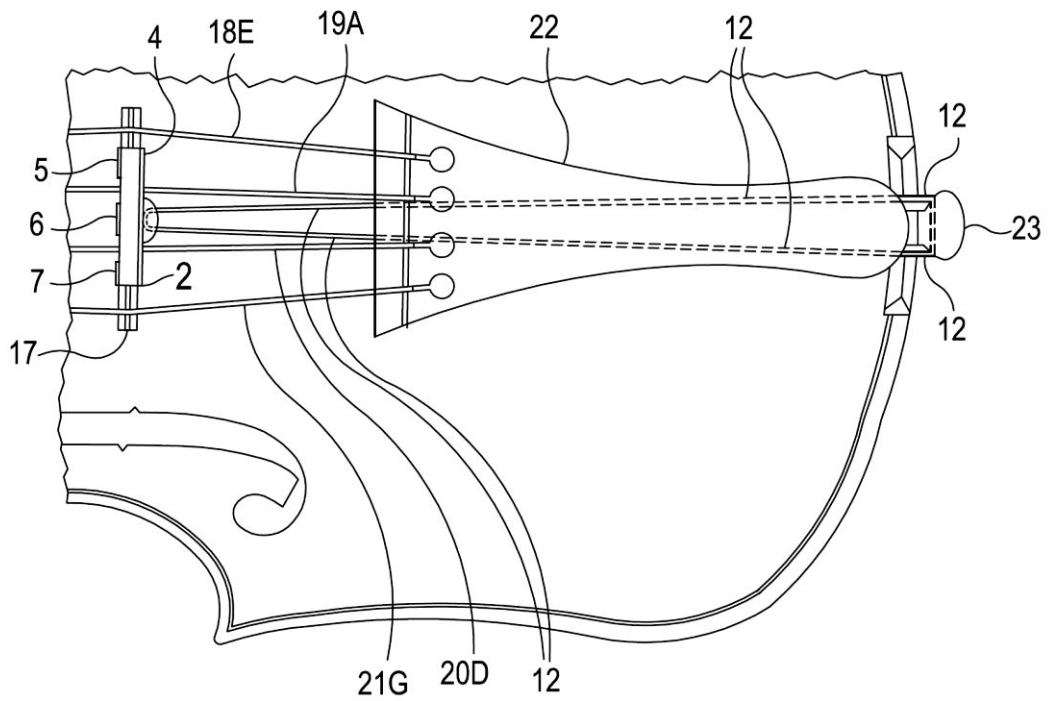


FIG. 3

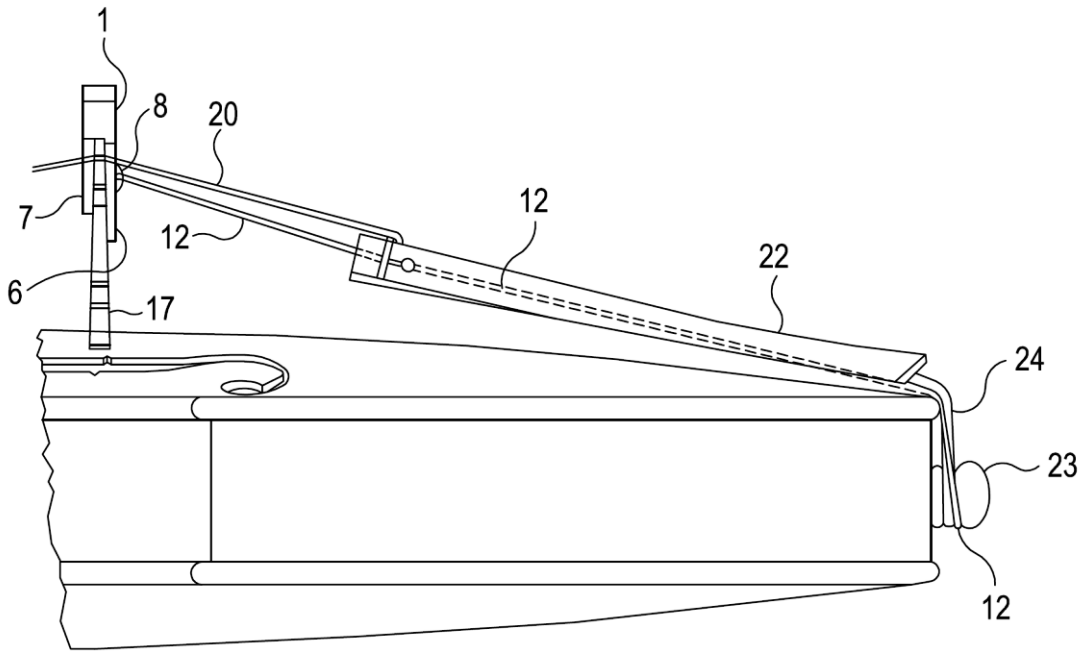


FIG. 4A

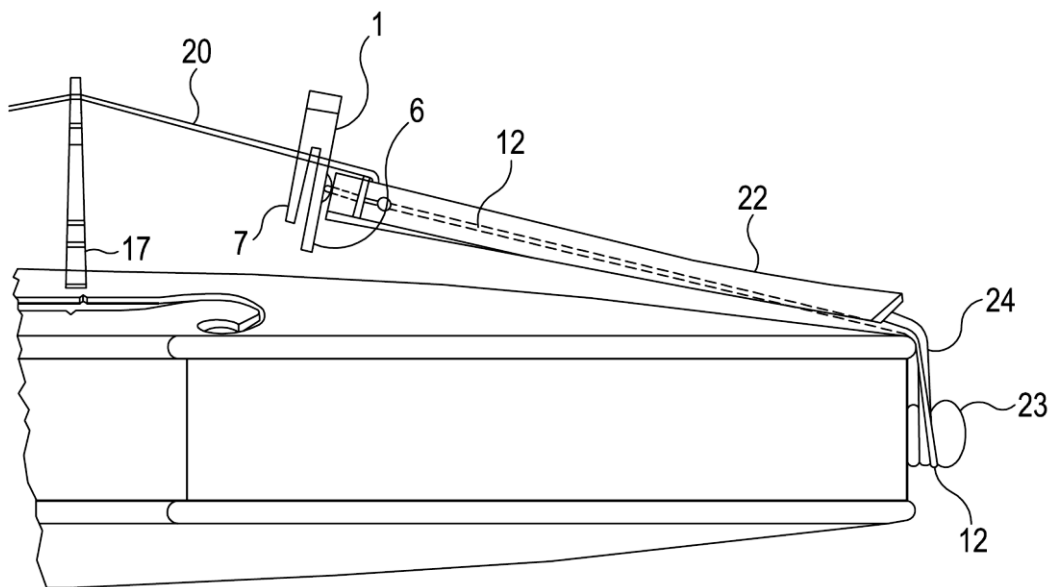


FIG. 4B

Prior art reference D2

US 4,321,321
Granted June 27, 1998
Softies, Inc.

FIELD OF THE INVENTION

The invention relates to mutes for stringed instruments and, in particular, to a novel mute having at least one passageway through which one or more strings passes and a portion that clamps the mute onto the bridge of a stringed instrument.

5 BACKGROUND OF THE INVENTION

Musicians may carry a number of mutes in their pockets to be sure to have one readily available when it is needed during a performance, since it is quite common to lose a mute while it is being put on or after it has been taken off, and normally it would be impossible or at least inconvenient to search for a lost mute during a performance.

10 BRIEF DESCRIPTION OF THE INVENTION

In accordance with the present invention, a mute is provided with one or more channels through its body and one or more cuts to permit the mute to be slipped onto one or more of the strings and left there. In addition to the body with the passageway through it, the mute comprises a second part that serves as a clamp to attach the mute to the bridge. For
15 example, the mute may be made of rubber or other relatively soft elastic material formed with a groove substantially perpendicular to the passageway. The groove partially divides the mute into two parts elastically joined together, forming a clamping shape. The size of the passageway must be sufficient to allow the clamping portion to be raised up over the edge of the bridge without completely disengaging the mute from the string.

20 BRIEF DESCRIPTION OF THE DRAWINGS:

FIG. 1 shows a violin with a mute constructed according to this invention;

FIG. 2 is a perspective view of the mute of the type used in FIG. 1; and

FIG. 3 is a rear view of the mute in FIG. 2.

The violin 11 shown in **FIG. 1** is conventional and need not be described in detail. It has a
25 body 12 and a neck 13 on which four strings 15–18 are strung between four tuning pegs 20–23 at the end of the neck and a tailpiece 24. Standing on the body is a bridge 26 with notches over which the strings are guided. The active part of each of the strings is between the bridge and the tuning pegs, while the other part of each string between the bridge 26 and the tailpiece 24 is considered the inactive, or non-sound-producing, part.

Document D

A mute 38 is shown on the central two strings at the bridge. The mute is also shown in dotted lines in its other, inoperative, position, shown as 38a. The latter position is that occupied by the mute when the violinist is playing normal, un-muted passages.

FIGS. 2 and 3 show the mute 38 close up. It has two passageways 39 and 41 with centres spaced apart a distance equal to the spacing between two of the strings, for example the strings 16 and 17, of the violin. The body of the mute 38 has the general configuration of a circular cylinder, a main body portion 42 of which is behind the bridge 26, part of which is here shown in broken lines. The cross section of the cylindrical body need not be circular, although that shape is easiest to make. The other part of the body of the mute 38 is an extension 43, semi-circular in section, separated from the main portion 42 by a groove 44 so that the mute can be pressed down upon the upper edge of the bridge with the larger portion 42 behind the bridge 26 and the extension, or clamping portion, 43 in front of it and serving to clamp the mute to the bridge by frictional engagement.

The dimensions of the passageways 39 and 41 relative to the depth of the groove 44 are such that the mute can be lifted vertically upward so as to be disengaged from the edge of the bridge 26 and clear the bridge.

In order to slip the mute onto the strings 16 and 17, two slits 46 and 47 are cut, leading to the passageways 39 and 41, respectively, to the outer edge of the body 38. In the embodiment shown, these slits are in the major portion 42 of the body and they go directly from the passageways 39 and 41 to approximately the closest part of the body portion 42. They are just wide enough to allow the string to pass through, ensuring no accidental detachment of the mute.

The mute 38 may be attached by being placed in a position more or less parallel to the strings 16 and 17 and between the bridge 26 and the tailpiece 24 (FIG. 1) and then twisting the mute to force the strings 16 and 17 through the slits 46 and 47 and into the passageways 39 and 41. The mute will then remain attached to these strings and can either be placed on the bridge 26, as indicated, or allowed to rest freely on that part of the strings between the bridge and the tailpiece when no muting action is desired. Because the mute 38 fits around two strings, there is no danger that it will slip upside down or out of sight.

When the mute is to be moved from the active to the inactive position, the mute is lifted so that the clamping portion 43 clears the bridge, and the mute is drawn back towards the tailpiece. Thereafter, the mute may be dropped, whereupon it will hang freely on the inactive portion of the string.

(Claims omitted)

D2 drawings

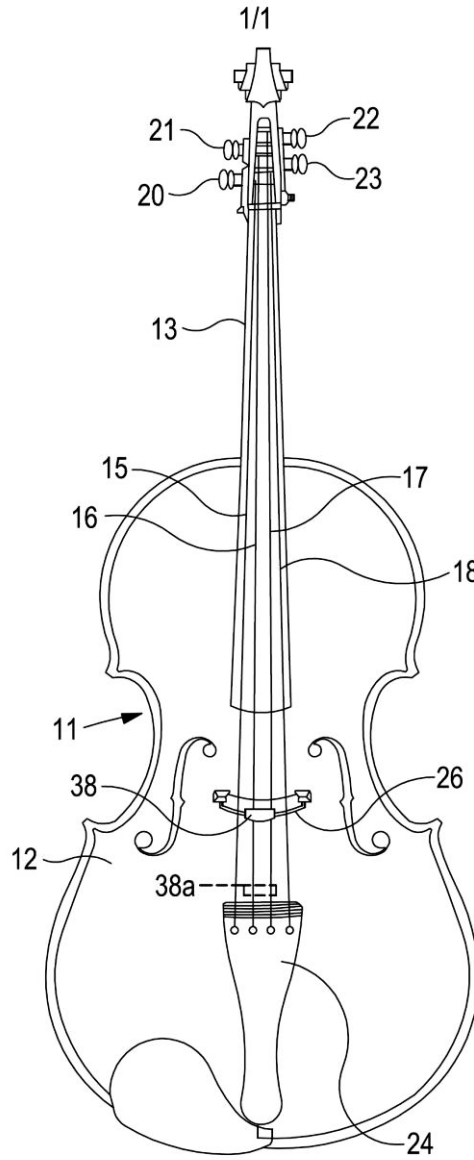


FIG. 1

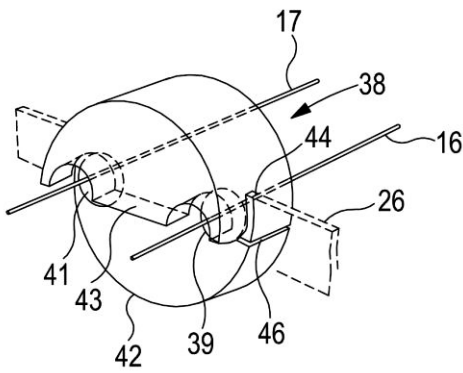


FIG. 2

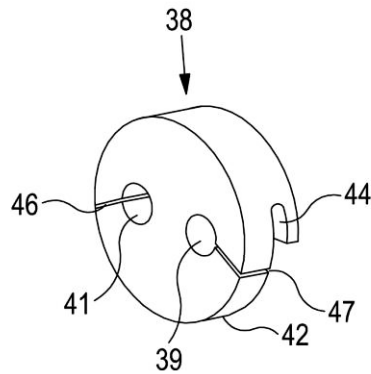


FIG. 3

MUSICIANS SUPPLIES – 2015 CATALOGUE

Accessories:

Pencil holder



The spring-loaded pencil holder includes a magnet for fixing to metal stands for easy access to pencils during rehearsals. Also useful for household use on fridges, cupboards, standard lamps, etc.

| Paper Ref |
|-----------|
| FD3 |

| Sheet | of |
|-------|----|
| | |

| Your Candidate No. |
|--------------------|
| |

Document F

A copy of the claims

CLAIMS

1. A violin mute comprising: a clamping portion (7); anti-rotation legs (8a, 8b) extending down on either side of the two middle strings of the violin; a central leg (10) extending under the strings, preventing the mute from coming loose and acting as a guide as the mute is moved between a rest position and a working position; two downwardly and outwardly extending channels (9) for the strings between the anti-rotation legs (8) and the central leg (10), providing unrestricted movement of the mute between the rest position and the working position; and a retaining means (6) holding the mute against the end of the tailpiece when not in use.
2. A mute according to claim 1, having a further leg (4) on the side of the mute remote from the tailpiece, forming a channel (7) for application of the mute to the violin bridge.
3. A mute according to claim 1 or 2, wherein the retaining means is constituted by an inbuilt magnet (6) in the mute.

| Paper Ref |
|-----------|
| FD3 |

| Sheet | of |
|-------|----|
| | |

| Your Candidate No. |
|--------------------|
| |

Document F

4. A mute according to claim 1 and being made of moulded rubber or plastics material.

5. A mute according to claim 1 and having a circular outline, with the channels (9) being approximately radial.