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Patents Form 1
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Application number **GB 1619317.9**

1. Your reference	P118456GB00		
2. Full name, address and postcode of the applicant or of each applicant	University of Ulster Cromore Road Coleraine BT52 1SA County Londonderry United Kingdom	11584489001	
Patents ADP number (if you know it)			
3. Title of the invention	Hand support for a bow		
4. Name of your agent (if you have one) "Address for service" to which all correspondence should be sent. This may be in the European Economic area or Channel Islands (see warning note below) (including the postcode)	FRKelly FRKelly 4 Mount Charles Belfast BT7 1NZ Northern Ireland United Kingdom		
Patents ADP number (if you know it)	10246577001		✓
5. Priority declaration: Are you claiming priority from one or more earlier-filed patent applications? If so, please give details of the application(s)			
	Country	Application number	Date of filing
6. Divisionals etc: Is this application a divisional application, or being made following resolution of an entitlement dispute about an earlier application. If so, please give the application number and filing date of the earlier application			Number of earlier UK application
			PDAS Access Code
			Date of filing (day / month / year)
7. Inventorship: (Inventors must be individuals not companies)			
Are all the applicants named above also inventors?	No		
8. Are you paying the application fee with this form?	Yes		

Patents Form 1

9. Accompanying documents: please enter the number of pages of each item accompanying this form.

Continuation sheets of this form

Description: **6**
Claim(s): **2**
Abstract: **n/a**
Drawing(s): **2**

If you are not filing a description, please give details of the previous application you are going to rely upon

Country	Application number	Date of filing	PDAS Access Code
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10. If you are also filing any of the following, state how many against each item.

Priority documents: **0**
Statement of inventorship and right to grant of a patent
(Patents Form 7): **0**
Request for search (Patents Form 9A): **1**
Request for a substantive examination (Patents Form 10): **0**

Any other documents (please specify): **PDAS Registration Form**

11. I/We request the grant of a patent on the basis of this application.

Signature: **Subject: Stephen Waller 20582; Issuer: European Patent Office, European Patent Office CA G2** Date: **15 Nov 2016**

12. Name, e-mail address, telephone, fax and/or mobile number, if any, of a contact point for the applicant **Waller, Stephen
Email: s.waller@frkelly.com
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Hand support for a bow

FIELD OF THE INVENTION

- 5 This invention relates to a hand support for facilitating the holding of a bow for use with a fiddle, violin or viola.

BACKGROUND OF THE INVENTION

- 10 Playing related hand injuries affect many Irish traditional fiddle players. The bowing hand has recorded a high prevalence of injury in this area due to the limited contact surface between the player's fingers and the bow. This is a particular problem in Irish traditional music due to the tempo of the music and the frequent need for aggressive bowing to produce a sufficiently loud tone. Injury in the thumb is force
15 related, as many of these causes indicate that an increase of force (tensing/tightening grip) is required to maintain the desired level of control over the bow.

- Prior art devices are known for teaching player's to position their fingers in the
20 "correct" position on the bow and these devices can, by their nature, enhance the player's grip on the bow. Examples of such known devices are shown in WO 2007/040299 and GB16975, both showing training devices that are attachable to a bow and which have rings or loops formed therein into which the fingers are to be inserted to facilitate correct positioning of the hand on the bow. Such rings are
25 generally formed from a substantially rigid material and are fixed in position, and thus undesirably constrain the positioning of the player's fingers on the bow.

- Player's often require a variance in hand posture and position while holding the bow during playing to facilitate different bowing techniques, in particular during Irish
30 traditional music. Therefore any device to enhance the player's grip on the bow would require a level of customisation in the finger positioning of the player which is not available within such known devices and is also contrary to the objective of the prior art devices which is to constrain the positioning of the fingers of the player.

An object of the present invention is to provide a bow support which can be attached or located to any point along the shaft of a bow and which enables the player to adjust their finger positioning it to suit their individual bowing technique while providing enhanced grip and thus reducing the risk of injury.

5

SUMMARY OF THE INVENTION

According to the present invention there is provided a hand support for a bow comprising a body adapted to be clamped around the shaft of a bow, said body
10 incorporating a plurality of mounting points, at least one strap formed from an elastic material extending between two or more of said mounting points to define loops through which one or more digits of the player's hand can be inserted to provide enhanced grip on the bow.

15 In a preferred embodiment said plurality of mounting points may be defined by apertures formed in said body through which said strap can be passed. Each mounting point may comprise a pair of apertures. At least four pairs of apertures may be provided at spaced locations along the length of the body to define at least three loops when one or more straps are threaded therebetween.

20

In one embodiment a single strap is provided threaded through selected apertures along the length of the body to defined loops at desired locations along the length of the body through which selected digits of the player's hand can be passed.

25 Said body may comprise an elongate tube adapted to engage a portion of the shaft of the bow. Said tube may incorporate an opening along its length to allow the tube to be placed over the shaft of the bow at any desired position therealong.

In a preferred embodiment said body is formed from two parts adapted to be
30 fastened together to clamp the body around a portion of the shaft of the bow. Each part of the body may comprise an arcuate gripping portion, the two parts including or supporting cooperating fastening devices for securing the two parts together with the shaft of the bow clamped between the gripping portions of the two parts. The two parts of the body may include at least one pair of cooperating mounting portions

extending from the respective gripping portion thereof, the cooperating mounting portions being adapted to receive a suitable fastening device therebetween to secure the two parts of the body together. Cooperating pairs of mounting portions may be provided at each end of the body. The at least one pair of cooperating mounting portions may be shaped such that the gripping portions of the two parts of the body are urged towards one another to grip the shaft of a bow therebetween when the respective fastening device is tightened, drawing the mounting portions together. In one embodiment said at least one pair of cooperating mounting portions may define non-parallel mating faces defining a V shaped gap opening towards the gripping portions of the two parts such that the gripping portions are drawn towards one another to clamp the shaft of the bow therebetween when the mating faces of the cooperating mounting portions are drawn towards one another during tightening of the respective fastener.

15 BRIEF DESCRIPTION OF THE DRAWINGS

A hand support for a bow in accordance with an embodiment of the present invention will now be described, by way of example only, with reference to the accompanying drawings, in which :-

20

Figure 1 is a perspective view of a hand support in accordance with an embodiment of the present invention;

Figure 2 is a first side view of the hand support of Figure 1;

25

Figure 3 is an end view of the hand support of Figure 1;

Figure 4 is a plan view of a strap for fitment to the hand support of Figure 1;

30 Figure 5 is a second side view of the hand support of Figure 1;

Figure 6 is a plan view from above of the hand support of Figure 1;

Figure 7 is an exploded view of the hand support of Figure 1; and

Figure 8 illustrates the different strap arrangements that can be obtained using the hand support of Figure 1 with the strap of Figure 4.

5 DETAILED DESCRIPTION OF THE DRAWINGS

As illustrated in the drawings, a hand support for a bow in accordance with a preferred embodiment of the present invention comprises a two part elongate body 2 adapted to be clamped onto the shaft of a bow at any desired position therealong, the body having a plurality of axially spaced pairs of mounting apertures 4,6,8,10 formed therealong through which can be inserted an elongate elastic strap 12 to define loops along the length of the body through which the fingers of the player may be inserted to facilitate grip of the bow.

15 The two parts 14,16 of the body 2 are symmetrical and each comprise an arcuate bow gripping portion 18, 20 arranged to be located on opposite sides of the shaft of the bow. Enlarged base portions 22,24,26,28 are provided at either end of each part 14,16 of the body 2, the base portions 22,24,26,28 comprising opposed mating surfaces 30,32 arranged to engage on another when the gripping portions 18,20 are
20 position on opposite sides of the shaft of a bow, the base portions 22,24,26,28 including through holes 34,36 arranged to receive threaded fastening devices 38,40 for securing the two parts 14,16 of the body 2 together with the shaft of the bow clamped between the gripping portions 18,20 thereof.

25 The apertures 4,6,8,10 are provided on one part 14 of the body 2 in the embodiment shown. However, it is envisaged that apertures may be provided on both parts 14,16 of the body 2 if desired to provide greater options for positioning of the strap 12 or straps.

30 As shown in Figure 3, the mating surfaces 30,32 of the two parts 14,16 are not arranged parallel to one another but define a V shaped gap therebetween prior to tightening of the fastening devices 38,40, an open side of the gap facing the gripping portions 18,20 of the body 2, such that the opposing gripping portions 18,20 of the two parts 14,16 of the body 2 are drawn together, clamping the bow

shaft therebetween, as the fasteners 38,40 are tightened. In the embodiment shown the fastening devices comprise threaded inserts 38 received in apertures in one part 14 of the body receiving bolts 40 inserted through holes in the other part 16 of the body 2. The apertures/holes formed in the base portions 22,24,26, 28 of the body 2
5 may be dimensioned to allow pivoting of the two parts 14,16 of the body about the fulcrum defined by the base of the V shaped gap defined between the mating faces of the two parts 14,16 to allow the gripping portions 18,20 to be moved together, gripping the shaft of the bow therebetween, as the bolts 40 are tightened.

10 Four pairs of equi-spaced strap receiving apertures 4,6,8,10 are formed in at least one part 14 of the body 2 spaced along the length thereof, through which can be inserted the elongate strap 12, formed from a flexible elastic material, such the strap 12 can be threaded through selected pairs of apertures 4,6,8,10 to define loops for receiving selected digits of the players hand at desired positions on the body 2 of
15 the hand support, as best shown in Figure 8.

A flexible grip 42 is fitted over the outer faces of the bow gripping portions 18,20 to provide greater comfort and enhanced grip for the players fingers. The grip 42 includes apertures 4,6,8,10 formed therein aligned with and corresponding to the
20 apertures 4,6,8,10 in the body 2 of the hand support. The grip 42 may be formed from rubber or any other suitable elastomeric and/or flexible material. The grip 42 may be embossed or patterned to enhance grip and/or to provide brand markings. The grip 42 may be adhered to the outer surfaces of the gripping portions 18,20 of the body 2 by a suitable adhesive.

25

As illustrated in Figure 8, the loops 44 defined by the strap 12 threaded through selected apertures 4,6,8,10 allows the fingers 50 of the player to fit securely in place which aid in holding the bow. This requires the user to apply less force than typically applied when bowing, allowing the hand to remain in a relaxed posture,
30 reducing the effect fatigue has over normal and excessive periods of play.

The hand support of the present invention differs from the prior art in that the loops defined by the strap 12 can be reconfigured in different positions, as shown in Figure 8, to suit the preference of the player, allowing the hand position to be varied

as desired. The two-part body 14,16, comprising opposing gripping portions 18,20 adapted to clamp the shaft of the bow therebetween, allows the hand support to be secured to the bow at any desired position along its length.

- 5 The invention is not limited to the embodiment(s) described herein but can be amended or modified without departing from the scope of the present invention.

CLAIMS

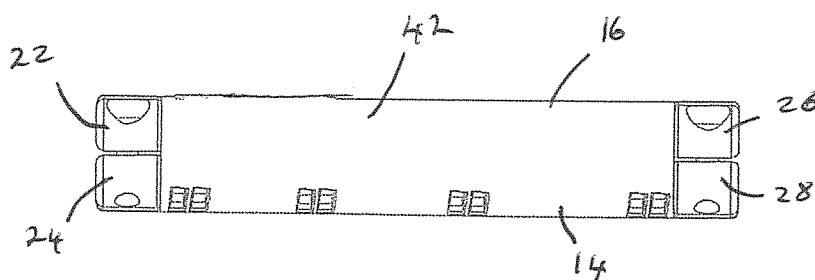
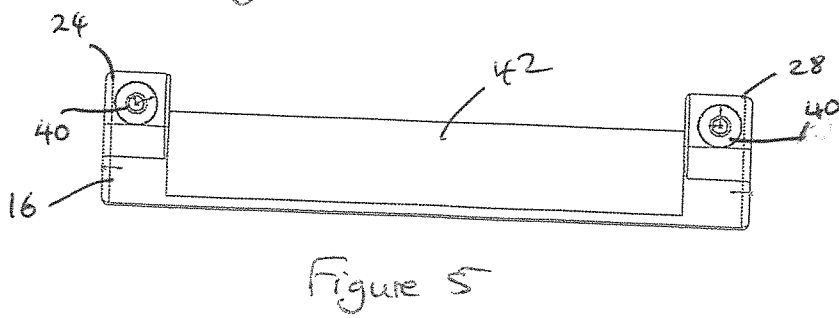
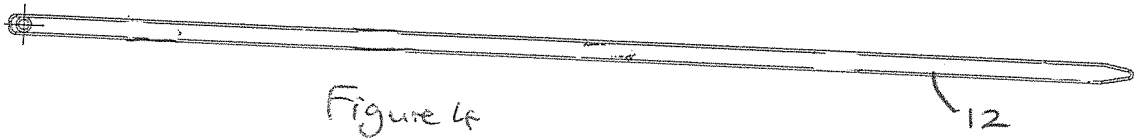
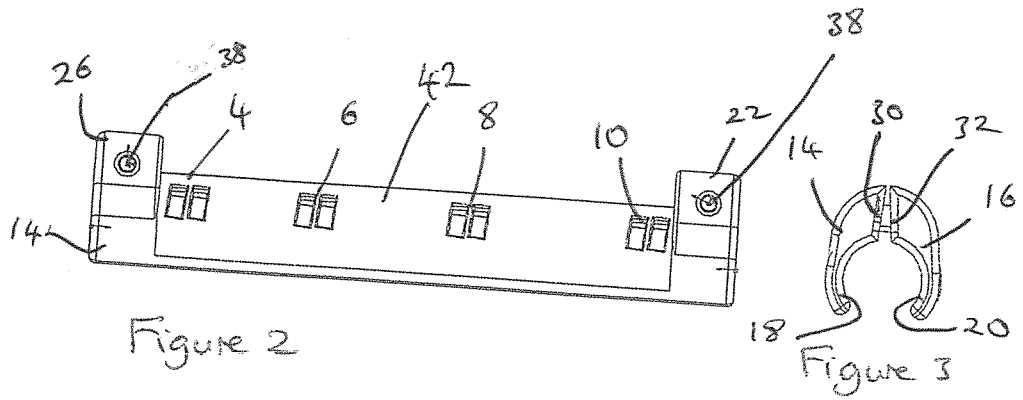
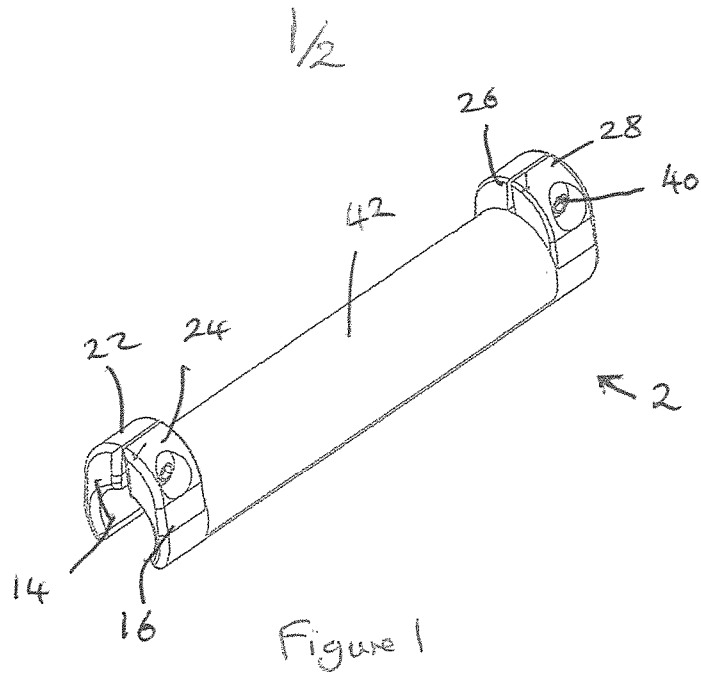
1. A hand support for a bow comprising a body adapted to be clamped around the shaft of a bow, said body incorporating a plurality of mounting points, at least one
5 strap formed from an elastic material extending between two or more of said mounting points to define loops through which one or more digits of the player's hand can be inserted to provide enhanced grip on the bow.
2. A hand support as claimed in claim 1, wherein said plurality of mounting points
10 are defined by apertures formed in said body through which said strap can be passed.
3. A hand support as claimed in claim 2, wherein each mounting point comprises a pair of apertures.
15
4. A hand support as claimed in claim 3, wherein at least four pairs of apertures are provided at spaced locations along the length of the body to define at least three loops when one ore more straps are threaded therebetween.
- 20 5. A hand support as claimed in claim 3 or claim 4, wherein a single strap is provided threaded through selected apertures along the length of the body to defined loops at desired locations along the length of the body through which selected digits of the player's hand can be passed.
- 25 6. A hand support as claimed in any preceding claim, wherein said body comprises an elongate tube adapted to engage a portion of the shaft of the bow.
7. A hand support as claimed in claim 6, wherein said tube incorporates an opening along its length to allow the tube to be placed over the shaft of the bow at any
30 desired position therealong.
8. A hand support as claimed in any preceding claim, wherein said body is formed from two parts adapted to be fastened together to clamp the body around a portion of the shaft of the bow.

9. A hand support as claimed in claim 8, wherein each part of the body comprises an arcuate gripping portion, the two parts including or supporting cooperating fastening devices for securing the two parts together with the shaft of the bow
5 clamped between the gripping portions of the two parts.

10. A hand support as claimed in claim 9, wherein the two parts of the body includes at least one pair of cooperating mounting portions extending from the respective gripping portion thereof, the cooperating mounting portions being
10 adapted to receive a suitable fastening device therebetween to secure the two parts of the body together.

11. A hand support as claimed in claim 10, wherein the at least one pair of cooperating mounting portions are shaped such that the gripping portions of the two
15 parts of the body are urged towards one another to grip the shaft of a bow therebetween when the respective fastening device is tightened, drawing the mounting portions together.

12. A hand support as claimed in claim 11, wherein said at least one pair of
20 cooperating mounting portions define non-parallel mating faces defining a V shaped gap opening towards the gripping portions of the two parts such that the gripping portions are drawn towards one another to clamp the shaft of the bow therebetween when the mating faces of the cooperating mounting portions are drawn towards one another during tightening of the respective fastener.



2/2

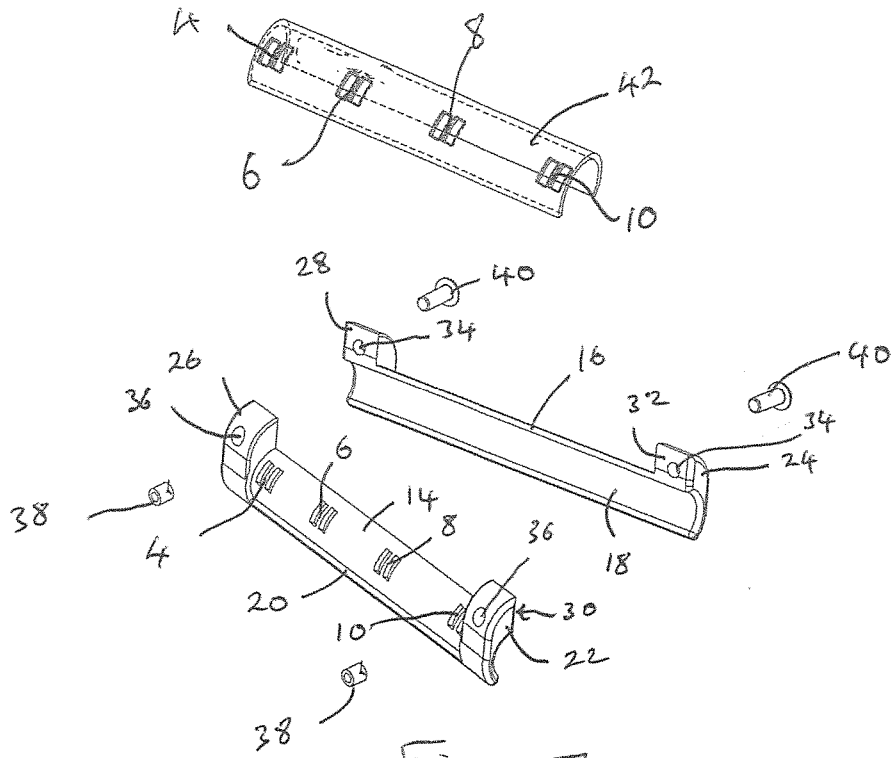


Figure 7

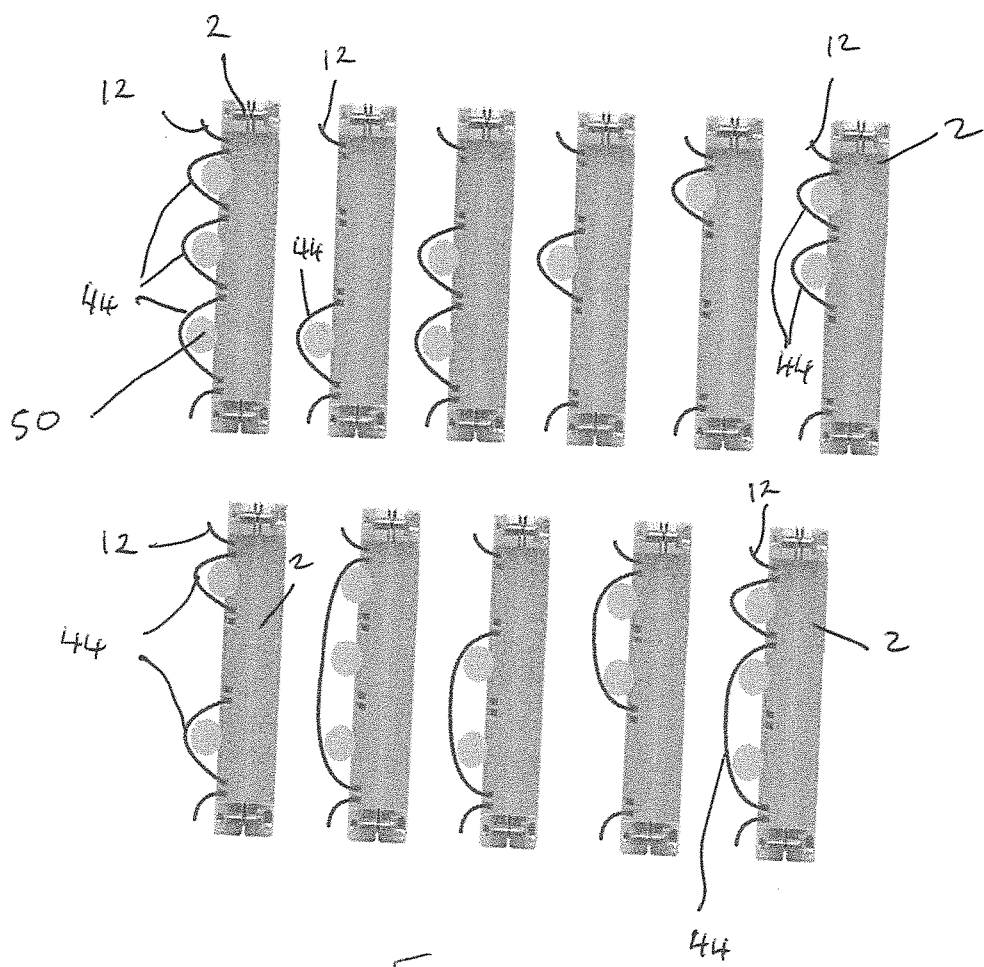


Figure 8