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(54) **ACCESSORY FOR SAFE SHOOTING**

(57) A shooting device (10) configured to use laser beams to set a safe shooting angle, wherein the shooting device (10) comprises a holder or casing (12) and two laser pointers (14) mounted relative to the holder or casing (12) and each other. The holder or casing (12) in-

cludes one or more mount/locators, which are configured to locate and support the laser pointers (14) against movement and relative to each other at a predetermined angle such that the laser pointers (14) are operable to emit laser beams at the predetermined angle.

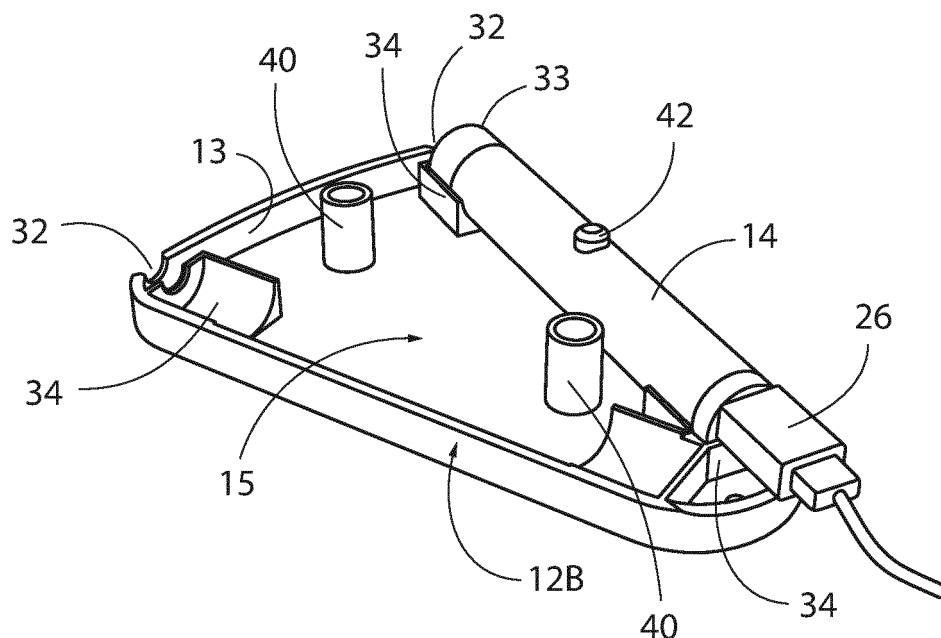


Fig. 3A

Description

FIELD OF INVENTION

[0001] The present invention relates to a hunting/shooting accessory. In particular, the present invention relates to a laser pointing device to assist a hunter/shooter to establish safe shooting angles.

BACKGROUND TO THE INVENTION

[0002] Throughout Europe different hunting methods, traditions and cultures exist. One organisation of moderating/regulating these methods, traditions and cultures in respect of hunters and sport shooters is the European federation for hunting and conservation (FACE). FACE calls on the European Commission to respect the rights of hunters and sport shooters, who represent the largest group of legal and responsible users of civilian firearms in the European Union and who are considered to be the most intensely controlled and law abiding social groups in the EU.

[0003] Hunting/shooting related accidents and incidents i.e. accidents/incidents where other members of a shoot or onlookers are shot is often due to the hunter/sport shooter not respecting shooting angles.

[0004] In some territories, for example France, it has become mandatory that hunters/sport shooters respect a shooting angle rule in relation to the position of their fellow hunters/sport shooters. On a shoot, hunters/sport shooters are typically positioned in a line i.e. to the left and right of fellow hunters. The shooting angle rule of 5x3 (30°) has been imposed to reduce, preferably eliminate, the number of hunting accidents, which are caused, mainly, by hunters/sports shooters not respecting a safe shooting angle.

SUMMARY OF INVENTION

[0005] The present invention provides a shooting device configured to use laser beams to set a safe shooting angle, wherein the shooting device comprises a holder and two laser pointers mounted relative to the holder and each other, wherein the holder includes one or more mount/locators for each laser pointer, wherein the mounts/locators are configured to locate and support the laser pointers relative to each other at a predetermined angle and to prevent movement of the laser pointers relative to each other such that the laser pointers are operable to emit laser beams to define a vertex having an included angle, which corresponds with the predetermined angle defined by the relative position of the mount/locators.

[0006] The holder may be a hollow casing, wherein the two laser pointers are housed within the hollow casing and wherein the casing includes one or more internal mount/locators, which are configured to locate and support the laser pointers relative to each other at a pre-

terminated angle such that the laser pointers are operable to emit laser beams at the predetermined angle.

[0007] The casing may be formed of two shell halves, wherein each shell half includes internally the one or more mounts/locators which are configured to locate and support the laser pointers relative to each other at a predetermined angle.

[0008] The mounts/locators may be arranged such that an included angle of a vertex defined by the laser beams emitted by the laser pointers is 30 degrees.

[0009] The one or more mounts/locators may be adjustable, such that angular placement/location of the laser pointers relative to each other can be adjusted.

[0010] The laser pointers may be configured to be activated in single mode or simultaneously.

[0011] Each laser pointer may include a push buttons. The casing may include an opening corresponding with each push button such that access to the push button is gained from outside the casing.

[0012] The holder may be substantially triangular, wherein the shape of the holder defines the predetermined angle of the laser pointers and the emitted beams.

[0013] A rear end of the casing may include an elongated opening, which permits access to a rear end of both laser pointers, wherein the rear end of each laser pointer includes a socket for recharging.

[0014] A front end of the casing may include two openings, where each opening aligns with a laser emitting end of one of the laser pointers. Alternatively, the front end of the casing may include an elongated opening, which facilitates, in use, emission of laser beams from the laser pointers regardless of the orientation of the laser pointers.

[0015] The shooting device maybe configured to transmit data, to an electronic device wherein data such as measured shooting angles, hunters' position, date and time can be saved/uploaded for future reference/access.

DESCRIPTION OF DRAWINGS

[0016] An embodiment of the present invention is described below, by way of example only, with reference to the accompanying drawings, in which:

Fig. 1A illustrates a perspective view of the rear, top and side face of a shooting safety device, which is an example of the present invention;

Fig.1B illustrates the rear face of a shooting safety device as illustrated in Fig. 1;

Fig. 1C illustrates a perspective view of a shooting safety device, showing the rear, top and side face opposite to that shown in Fig.1;

Fig. 2 illustrates the shooting safety device as shown in Fig. 1C with a charge cable;

Fig. 3A illustrates interior of a casing of the shooting safety device, showing a laser pointer and a charging cable attached to the laser pointer; and

Fig. 3B illustrates the interior of the shooting safety device, showing a single laser pointer and a charging cable in a different orientation than Fig.3A.

DESCRIPTION

[0017] Fig. 1A, 1B, 1C and Fig.2 illustrate external views of a shooting safety aid/device 10. The shooting safety device 10 is an accessory which can be used by a hunter/sports shooter to ensure they respect safe shooting angles.

[0018] In the illustrated example, the device 10 includes a hollow plastic casing 12, which is formed in two halves 12A, 12B to accommodate two laser pointers 14 within the casing 12 (see Fig. 1B, 1C, 3A and 3B). Please note, only one pointer is illustrated in each of Fig. 3A and 3B for illustrative purposes such that the interior arrangement of the casing halves 12A, 12B is apparent. It will be appreciated that two pointers are to be included, for example see the internal arrangement of the casing halves 12A, 12B in Fig. 3A and Fig. 3B and Fig.1B.

[0019] In the illustrated example, the external shape of the casing 12 is substantially triangular with curved vertices. The external shape of the casing 12 represents the angular arrangement of the laser pointers 14 within the casing 12 such that the required shooting angle is always set.

[0020] It will be appreciated the external shape of the casing 12 can be a shape other than triangular, but the internal arrangement of the laser pointers 14 is defined by the angular placement of the laser pointers 14 relative to each other to establish the required shooting angle.

[0021] Referring to Fig. 3A and 3B, each half 12A, 12B of the casing 12 is a hollow shell, with upturned edges 13, which define an interior space 15 into which the laser pointers 14 are accurately located/housed. Please note only casing half 12B is illustrated in Fig. 3A and 3B

[0022] A rear end 20 of the casing 12 includes an opening 22, which permits access to the rear end 24 of both laser pointers 14. The opening 22 allows insertion of a suitable charging plug 26 into a socket 28 provided on the rear end of the illustrated laser pointers 14. This allows laser pointers 14 with rechargeable batteries (not illustrated) to be used.

[0023] The front end 30 of the casing 12 includes two openings 32, where each opening 32 aligns with the front end/laser emitting end 33 of the laser pointers 14.

[0024] The interior space 15 includes locating members 34 complementing the exterior shape of the laser pointer 14 such that the laser pointers 14 can be placed securely, to prevent movement within the casing halves 12A, 12B and the casing 12, when the two halves 12A, 12B are joined together.

[0025] Each half 12A, 12B of the casing 12 includes

two pairs of locating pegs 40. Each peg 40 is configured to engage with a corresponding peg 40 in the opposite casing half 12A, 12B when the two halves 12A, 12B are brought together to secure the two halves 12A, 12B together. The pegs 40 can be configured to engage as a push fit or a screw fixing from the outside of the casing 12 may secure the two halves 12A, 12B together to provide the casing 12.

[0026] In the illustrated example, the laser pointers 14 each include a push button 42, 44. In use, the push buttons 42, 44 are depressed from outside the casing 12 to release a laser beam from the laser pointer 14. It will be appreciated the push buttons 42, 44 can be depressed singly/independently of each other or simultaneously such that a single or double laser beam is emitted.

[0027] The function of the shooting safety device 10 is to allow hunters/sports shooters to measure predetermined shooting angles, for example 5x3 (30°), by using the arrangement of the laser pointers 14 within the casing 12 to emit laser beams as a measurement device.

[0028] Depending on how the hunting/shooting territory is set (and therefore the line of fire), the shooting angles, for example 5x3 (30°) are measured/taken from the position of the hunter/sports shooter that is exposed to the greatest risk of gunfire.

[0029] When a hunter/sports shooter is established at his post, he can use the shooting safety device 10 to determine precisely a safe line of fire. To do so the hunter/sports shooter directs the front end i.e. the wider end 30 of the casing 12 towards a fellow hunter/sports shooter/colleague, who is typically positioned to the right-hand side. The hunter/sports shooter (user) who is using the device 10 then presses the button nearest his fellow hunter/sports shooter e.g. the right-most button 42 to emit a laser beam in the direction of his fellow hunter/sports shooter/colleague. The user then presses the other button 44 e.g. the left-most button towards the ground or an object e.g. a tree. (like a tree).

[0030] The position of the two laser beams are noted/marked by setting colour markers, for example bars, rods, twigs, tree branches etc. into the ground and marking those in colour e.g. wrapping a colour marker/bad around the marker.

[0031] By adopting the shooting device 10 to establish a safe shooting angle the hunter/sports shooter can safely and effectively determine a precise and safe line of fire for himself and his fellow hunters/sports shooters and colleagues.

[0032] In the illustrated example, whilst shown in monochrome, the casing 12 may be a vivid noticeable colour, for example orange, such that it is easily seen. The illustrated casing 12 is made of plastic e.g. moulded or 3-D printed.

[0033] As described above, with reference to Fig. 3A and 3B, in the illustrated example, the casing halves 12A, 12B include locators 34 to accurately locate the laser pointers 14 such that the emitted laser beams are fixed at a predetermined angle placement i.e. 30 degrees. It

will be appreciated that the interior locators 34 may be arranged at angles other than 30 degrees. For example, there may be multiple locators (not illustrated) arranged within the casing halves 12A, 12B such that the position of the laser pointers 14 can be adjusted/arranged to emit laser beams at a different predetermined angle i.e. not 30 degrees. In the illustrated example, the angle between the laser pointers is set to 30 degrees such that the laser beams define an angle of 30 degrees; 30 degrees is the shooting angle currently i.e. in 2020 defined by French legislation in 2020.

[0034] In the example illustrated in Fig. 1A, 1C and 2 the upper casing half 12A includes a hole 46, which is located towards the rear end 20 of the shooting safety device 10. The hole 46 facilitates the connection of a cord, a keychain, a carabiner or the like such that the user can conveniently attach the device 10 to clothing or a belt for easy access to the device 10.

[0035] The interior 15 of the casing halves 12A, 12B may include adjustable locators/mounts (not illustrated) such that the desired shooting angle can be set, by adjusting the relative position of each laser pointer 14. It will be appreciated that adjustable locators/mounts permit an easy and useful adaptation of the shooting device 10 to other shooting/line of fire angles should the legislated/regulated shooting angle change from 30 degrees in France or is a different angle in other territories.

[0036] The front end 30 of the casing 12 may include an elongated opening (not illustrated), where the elongated opening exposes the laser pointing end of the laser pointers 14 and facilitates, in use, emission of laser beams from the laser pointers 14 regardless of the orientation of the laser pointers 14 relative to each other. This feature improves the versatility of the casing when the mounts/locators are adjustable.

[0037] The example described includes a casing 12 in which the laser pointers 14 are encased. It should be appreciated, in an alternative (not illustrated) the shooting device 10 may be a holder to which laser pointers are attached externally at a predetermined or adjustable angle.

[0038] The shooting device 10 may include components within the casing 12 and/or as a component of each laser pointer 14, where the components provide technology, which facilitates connection of the shooting device 10, via Bluetooth or WIFI, to another electronic device e.g. smartphone, tablet, computer etc such that data e.g. measured shooting angles, hunters position, date and time can be saved/uploaded for future reference/access. This could be very important should evidence be required in the event of an accident.

[0039] Whilst specific embodiments of the present invention have been described above, it will be appreciated that departures from the described embodiments may still fall within the scope of the claims.

Claims

1. A shooting device (10) configured to use laser beams to set a safe shooting angle, wherein the shooting device (10) comprises a holder (12) and two laser pointers (14) mounted relative to the holder (12) and each other (14), wherein the holder includes one or more mount/locators (34) for each laser pointer, wherein the mounts/locators are configured to locate and support the laser pointers (14) relative to each other at a predetermined angle and to prevent movement of the laser pointers relative to each other such that the laser pointers (14) are operable to emit laser beams to define a vertex having an included angle, which corresponds with the predetermined angle defined by the relative position of the mount/locators.
2. A shooting device (10) as claimed in claim 1, wherein the holder (12) is a hollow casing, wherein the two laser pointers (14) are housed within the hollow casing (12) and wherein the one or more internal mount/locators (34) are positioned inside the hollow casing (12).
3. A shooting device (10) as claimed in claim 2, wherein the hollow casing (12) is formed of two shell halves (12A, 12B), wherein at least one shell half (12A, 12B) includes the one or more mounts/locators (34).
4. A shooting device as claimed in any preceding claim, wherein the mounts/locators (34) are arranged such that, in use, the laser beams emitted simultaneously from the laser pointers define a vertex having an included angle of 30 degrees.
5. A shooting device as claimed in any preceding claim, wherein the one or more mounts/locators (34) are adjustable, such that angular placement/location of the laser pointers (14) relative to each is adjustable.
6. A shooting device as claimed in any preceding claim, wherein the laser pointers (14) are configured to be activated in single mode or simultaneously.
7. A shooting device as claimed in any preceding claim, wherein each laser pointer includes a push button (42, 44).
8. A shooting device as claimed in any of claims 2 to 7, wherein the hollow casing (12) includes an opening corresponding with each push button such that access to the push button (42, 44) is gained from outside the casing (12).
9. A shooting device as claimed in any preceding claim, wherein a body of the holder (12) is shaped substantially triangular, and wherein the shape of the holder (12) corresponds with the orientation of the laser

pointers (14), the predetermined angle of the laser pointers (14) and the predetermined angle of the emitted laser beams.

10. A shooting device as claimed in any of claims 2 to 9, wherein a rear end (20) of the casing (12) includes an elongated opening (22), which permits access to a rear end of both laser pointers (14), wherein the rear end of each laser pointer (14) includes a socket (28) for recharging and/or downloading data. 5 10
11. A shooting device as claimed in any of claims 2 to 10, wherein a front end (30) of the casing (12) includes two openings (32), where each opening (32) aligns with a laser emitting end of one of the laser pointers (14). 15
12. A shooting device as claimed in any of claims 2 to 10, wherein a front end (30) of the casing (12) includes an elongated opening, which facilitates, in use, emission of laser beams from the laser pointers (14) regardless of the orientation of the laser pointers relative to each other. 20
13. A shooting device as claimed in any preceding claim, including a controller configured to transmit data from the device (10) to an electronic device, wherein data such as measured shooting angles, hunters position, date and time can be saved/uploaded for future reference/access. 25 30

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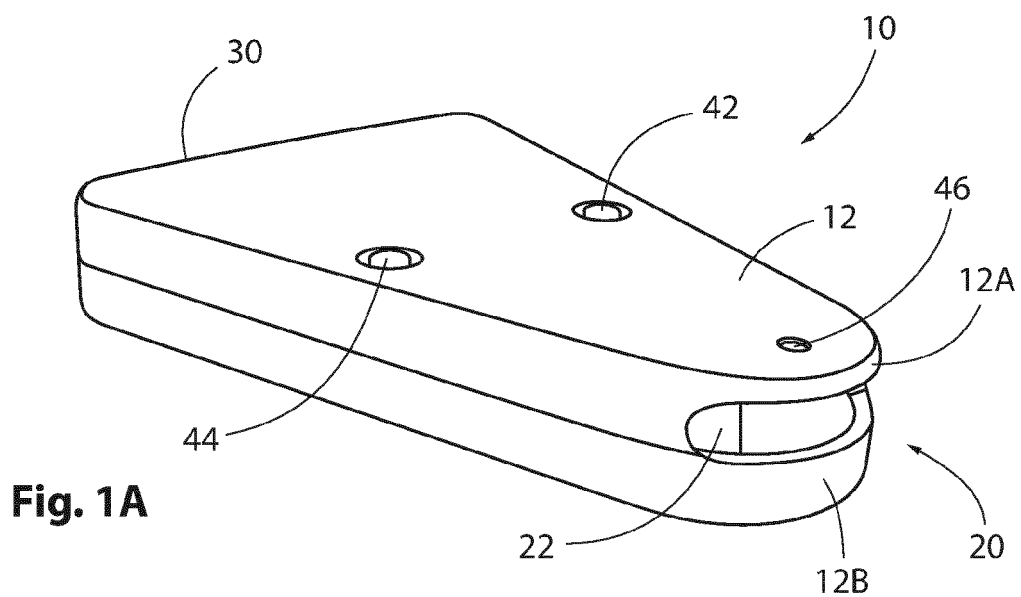


Fig. 1A

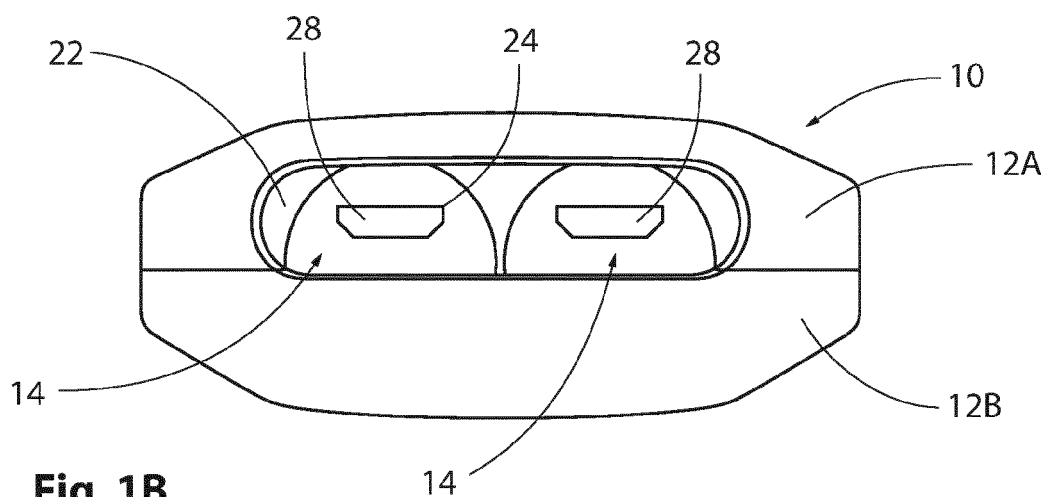


Fig. 1B

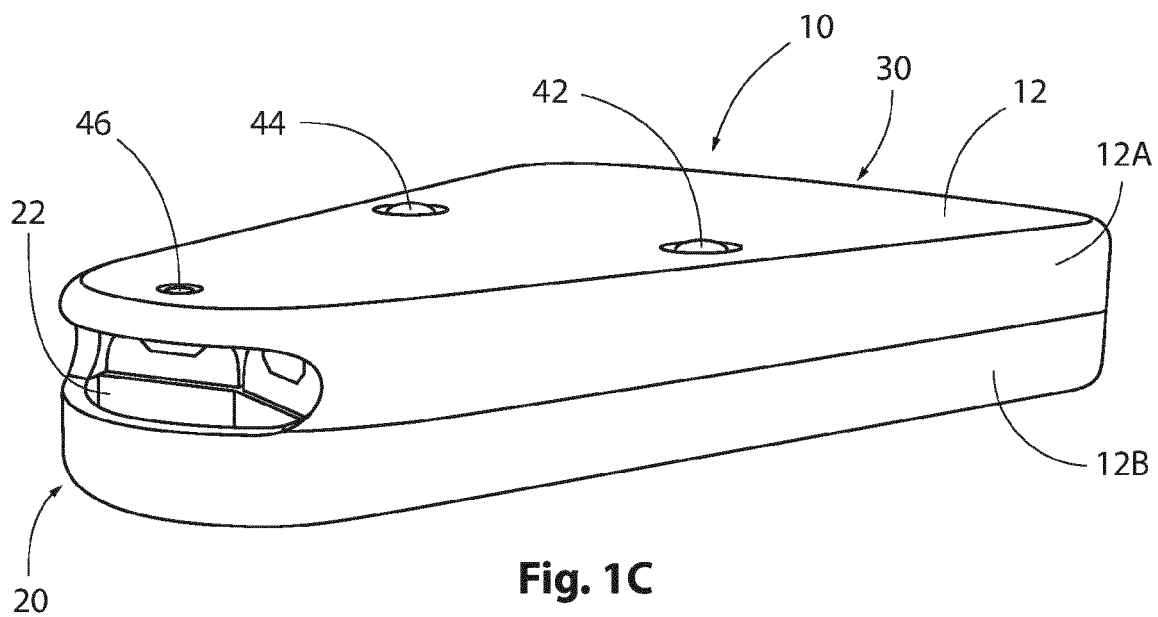
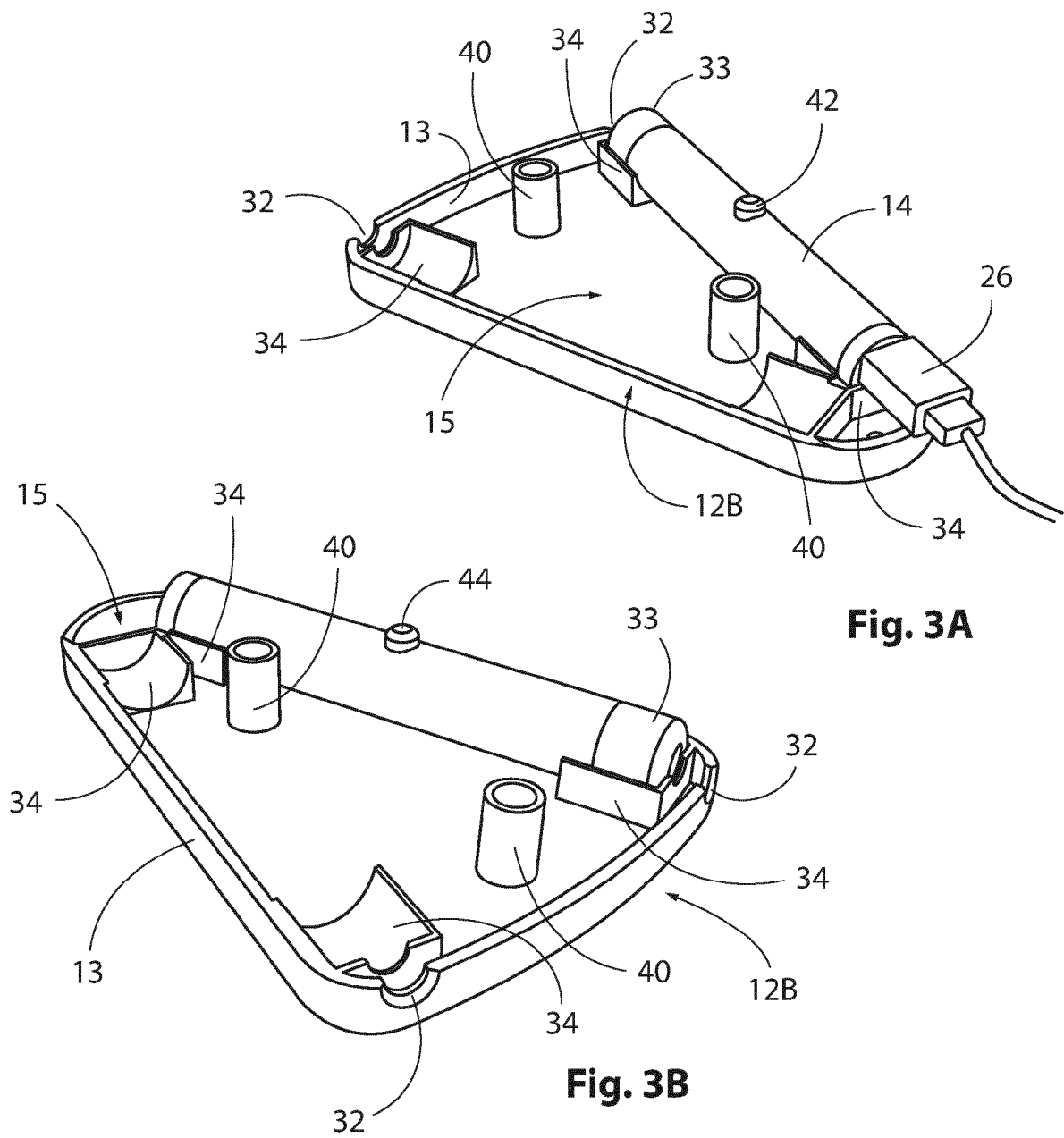
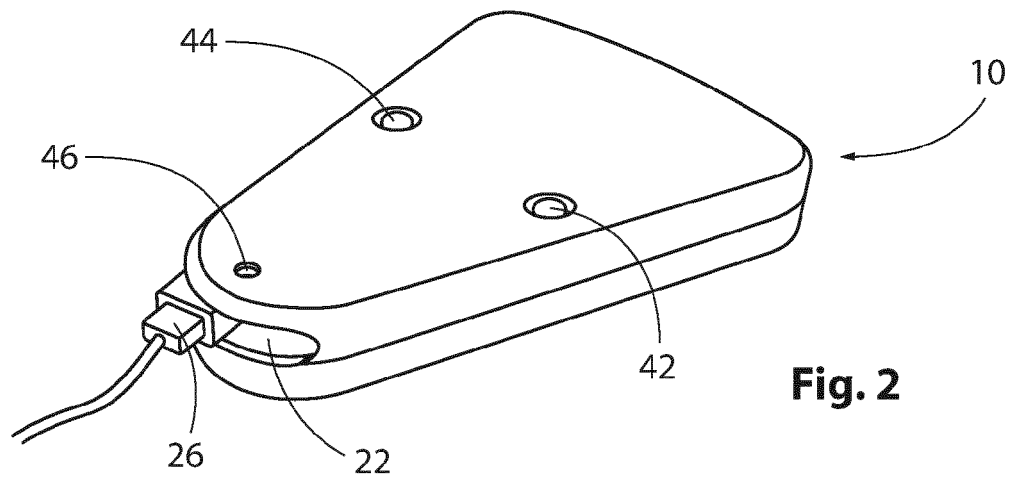


Fig. 1C





EUROPEAN SEARCH REPORT

 Application Number
 EP 20 20 0105

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	FR 3 080 675 A1 (DE STOOP ERIC [FR]) 1 November 2019 (2019-11-01)	1,2,4-13	INV. F41A35/00 F41A17/08 G02B27/20
Y	* paragraphs [0001], [0003] - [0005], [0007] - [0008] * * figure 1 * * claim 1 *	3	ADD. F41J11/02
Y	US 2014/322673 A1 (UHR OREN LOUIS [IL]) 30 October 2014 (2014-10-30)	3	
A	* paragraphs [0056], [0061] * * figures 1, 2, 5, 7, 10 *	1,2,4-13	
X	ANONYMOUS: "NEDO DIGITAL LASER ANGLE 605MM", INTERNET CITATION, 23 April 2018 (2018-04-23), XP002793203, Retrieved from the Internet: URL:http://www.nfk.com.au/glazing-tools-and-accessories/measuring-tools/electronic-digital-anglefinder-nedo-laser-winkeltronic-600mm [retrieved on 2019-07-25] * the whole document *	1,4-6,9	TECHNICAL FIELDS SEARCHED (IPC) F41A G02B F41J
A	US 9 116 348 B1 (NEUBAUER MICHAEL [US] ET AL) 25 August 2015 (2015-08-25) * column 1, line 27 - column 2, line 8 * * column 4, line 48 - column 5, line 1 * * figures 1, 2A, 3 *	1-13	
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 19 February 2021	Examiner Van Leeuwen, Erik
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 20 20 0105

5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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19-02-2021

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US 2014322673	A1	30-10-2014	NONE
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EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82