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चिह्न|भौगोलिक उपदर्शन



सत्यमेव जयते

भारत सरकार
GOVERNMENT OF INDIA
वाणिज्य एवं उद्योग मंत्रालय
MINISTRY OF COMMERCE & INDUSTRY
पेटेंट कार्यालय
THE PATENT OFFICE

जिस किसी से संबन्धित हो
TO WHOMSOEVER IT MAY CONCERN

मैं, अधोहस्ताक्षरी जो पेटेंट अधिनियम, 1970 की धारा 73(3) के तहत महानियंत्रक एकस्व, अभिकल्प एवं व्यापार चिह्न की ओर से प्रमाणपत्र हस्ताक्षर व जारी करने के लिए प्राधिकृत अधिकारी हूँ, एतद्वारा यह प्रमाणित करता (ती) हूँ कि निम्नलिखित पेटेंट आवेदन के संबंध में फाइल दस्तावेज़(जों) की सही प्रतिलिपि इसके साथ संलग्न है:

I, the undersigned, being an officer duly authorized to sign and issue the certificate on behalf of the Controller General of Patents, Designs and Trademarks in accordance with the provisions of Section 73(3) of the Patents Act, 1970, hereby certify that annexed hereto is a True Copy of the document (s) as filed in connection with the following Patent Application:

क) आवेदन संख्या/ a) Application Number: **201911036331**

ख) फाइल करने की तारीख/ b) Date of Filing: **10th September, 2019**

ग) अनुरोधित दस्तावेज़(जों) का नाम/ c) Name of the document (s) requested:

1) Application Form-1

2) Provisional Specification filed on dated 10th September, 2019 (As per e-filing record) and

3) Drawings (As per e-filing record)

यह प्रमाणपत्र पेटेंट अधिनियम, 1970 की धारा 147(1) के अधीन मुझमें निहित शक्तियों के तहत जारी किया गया है। This certificate is issued under the powers vested in me U/S 147(1) of The Patents Act, 1970.

दिनांक/ Dated this **11th** day of **September, 2020**

(Rishu Bharti)

नियंत्रक पेटेंट व डिजाइन/ Controller of Patents and Designs
(प्राधिकृत हस्ताक्षरी/ Authorised Signatory)

FORM 1 THE PATENTS ACT 1970 (39 of 1970) and THE PATENTS RULES, 2003 APPLICATION FOR GRANT OF PATENT (See section 7, 54 and 135 and sub-rule (1) of rule 20)				(FOR OFFICE USE ONLY)			
		Application No.:					
		Filing date:					
		Amount of Fee paid:					
		CBR No:					
		Signature:					
1. APPLICANT'S REFERENCE / IDENTIFICATION NO. (AS ALLOTTED BY OFFICE)							
2. TYPE OF APPLICATION [Please tick (✓) at the appropriate category]							
Ordinary (✓)		Convention ()		PCT-NP ()			
Divisional ()	Patent of Addition ()	Divisional ()	Patent of Addition ()	Divisional ()	Patent of Addition ()		
3A. APPLICANT(S)							
Name in Full		Nationality	Country of Residence	Address of the Applicant			
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3B. CATEGORY OF APPLICANT [Please tick (✓) at the appropriate category]							
Natural Person ()		Other than Natural Person					
		Small Entity ()	Startup ()	Others (✓)			

4. INVENTOR(S) [Please tick (✓) at the appropriate category]Are all the inventor(s)
same as the applicant(s)
named above?

Yes ()

No (✓)

If "No", furnish the details of the inventor(s)

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			City	Sonipat
			U.T./State	Haryana
			Country	India
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5. TITLE OF THE INVENTION: LIGHTING DEVICE**6. AUTHORISED REGISTERED
PATENT AGENT(S)**

IN/PA No.

Name

Mobile No.

**7. ADDRESS FOR SERVICE OF
APPLICANT IN INDIA**

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8. IN CASE OF APPLICATION CLAIMING PRIORITY OF APPLICATION FILED IN CONVENTION COUNTRY, PARTICULARS OF CONVENTION APPLICATION

Country	Application Number	Filing date	Name of the applicant	Title of the invention	IPC (as classified in the convention)

9. IN CASE OF PCT NATIONAL PHASE APPLICATION, PARTICULARS OF INTERNATIONAL APPLICATION FILED UNDER PATENT CO-OPERATION TREATY (PCT)

International application number	International filing date

10. IN CASE OF DIVISIONAL APPLICATION FILED UNDER SECTION 16, PARTICULARS OF ORIGINAL (FIRST) APPLICATION

Original (first) application No.	Date of filing of original (first) application

11. IN CASE OF PATENT OF ADDITION FILED UNDER SECTION 54, PARTICULARS OF MAIN APPLICATION OR PATENT

Main application/patent No.	Date of filing of main application

12. DECLARATIONS

(i) Declaration by the inventor(s)

(In case the applicant is an assignee: the inventor(s) may sign herein below or the applicant may upload the assignment or enclose the assignment with this application for patent or send the assignment by post/electronic transmission duly authenticated within the prescribed period).

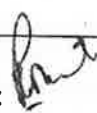
We, the above named inventor(s) are the true & first inventor(s) for this Invention and declare that the applicant(s) herein are our assignee or legal representative.

(a) Date: 10-Sep-2019

(b) Signature(s): 

(c) Name(s): Ajay

(a) Date: 10-Sep-2019

(b) Signature(s) : 

(c) Name(s): SHARMA, Rohit

(ii) Declaration by the applicant(s) in the convention country

(In case the applicant in India is different than the applicant in the convention country: the applicant in the convention country may sign herein below or applicant in India may upload the assignment from the applicant in the convention country or enclose the said assignment with this application for patent or send the assignment by post / electronic transmission duly authenticated within the prescribed period)

I/ We, the applicant(s) in the convention country declare that the applicant(s) herein is / are my / our assignee or legal representative.

(a) Date

(b) Signature(s)

(c) Name(s) of the signatory

(iii) Declaration by the applicant(s)

We the applicant(s) hereby declare(s) that: -

- ☒ (✓) We are in possession of the above-mentioned invention.
- ☒ (✓) The provisional specification relating to the invention is filed with this application.
- ☐ The invention as disclosed in the specification uses the biological material from India and the necessary permission from the competent authority shall be submitted by me/us before the grant of patent to me/us.
- ☒ (✓) There is no lawful ground of objection(s) to the grant of the Patent to me/us.
- ☐ I am/we are the true & first inventor(s).
- ☒ (✓) We are the assignee or legal representative of true & first inventor(s).
- ☐ The application or each of the applications, particulars of which are given in Paragraph-8, was the first application in convention country/countries in respect of my/our invention(s).
- ☐ I/We claim the priority from the above mentioned application(s) filed in convention country/countries and state that no application for protection in respect of the invention had been made in a convention country before that date by me/us or by any person from which I/We derive the title.
- ☐ My/our application in India is based on international application under Patent Cooperation Treaty (PCT) as mentioned in Paragraph-9.
- ☐ The application is divided out of my /our application particulars of which is given in Paragraph-10 and pray that this application may be treated as deemed to have been filed on _____ under section 16 of the Act.

- ☐ The said invention is an improvement in or modification of the invention particulars of which are given in Paragraph-11.

13. FOLLOWING ARE THE ATTACHMENTS WITH THE APPLICATION

(a) Form 2

Item	Details		Fee	Remarks
Provisional specification	No. of pages	9	8000	
No. of Claim(s)	No. of claims and No. of pages			No claims are being filed at this stage.
Abstract	No. of pages			No abstract is being filed at this stage
No. of Drawing(s)	No. of drawings and No. of pages	3 and 3		

(b) Statement and Undertaking on Form 3;

(c) Declaration of Inventorship on Form 5;

Total fee Rs.8000/- in Cash/banker's Cheque/ Bank Draft No _____ Date _____
on _____ Bank.

I/We hereby declare that to the best of my/our knowledge, information and belief the fact and matters slated herein are correct and I/We request that a patent may be granted to me/us for the said invention.

Dated this 10th day of September 2019.

Signature:



Sagar Sudhir Dhatrak

Assistant General Manager & Section Head-COC (EDD)

Hero MotoCorp Limited

To,
The Controller of Patents
The Patent Office,
at New Delhi

FORM 2

THE PATENT ACT, 1970
(39 of 1970)

&

THE PATENT RULES, 2003

PROVISIONAL SPECIFICATION
(See Section 10, Rule 13)

LIGHTING DEVICE

APPLICANT:

HERO MOTOCORP LIMITED, an Indian Company at: 34, Community center,
Basant lok, Vasant Vihar, New Delhi, India – 110057

The following specification describes the invention.

FIELD OF INVENTION

[0001] The present invention relates to a lighting device and, more particularly, to the lighting device of a two wheeled vehicle.

BACKGROUND

5 [0002] In the recent years, a number of lighting devices such as headlights integrated with additional LEDs (Light Emitting Diodes) or reflectors which are using as cornering lamps have become common in the lighting device domain. A patent reference IN201847036678 is one such example. This patent reference discloses a
10 headlight unit that provides a headlight device for a saddled vehicle. An LED is used as a light source and the illumination range at the time of turning traveling can be enlarged upward in the turning direction. An outer reflection section is provided on the reflector that reflects emitted light from the light source located on an outer side in regard of the vehicle width direction. The light source corresponding to the reflector provided with the outer reflection section is turned ON only when a roll angle of the
15 vehicle is equal to or greater than a predetermined value.

[0003] However, this type of arrangement in the headlight doesn't necessarily enhance the visibility as the primary function of headlight is to provide visibility in the forward direction of the vehicle and not at a cornering direction during the banking of the vehicle. Further, the arrangement is costly and increases the overall cost of the
20 headlight. Thus, the headlight integrating with cornering light functionality is not preferable.

BRIEF DESCRIPTION OF DRAWINGS

[0004] The invention itself, together with further features and attended advantages, will become apparent from consideration of the following detailed
25 description, taken in conjunction with the accompanying drawings. One or more embodiments of the present invention are now described, by way of example only wherein like reference numerals represent like elements and in which:

[0005] Figure 1 illustrates a side view of an exemplary vehicle, according to an embodiment of the present invention;

[0006] Figure 2 illustrates an exploded view of a lighting device, according to an embodiment of the present invention; and

5 [0007] Figure 3 illustrates a cross sectional view of the lighting device, according to an embodiment of the present invention

[0008] The drawings referred to in this description are not to be understood as being drawn to scale except if specifically noted, and such drawings are only exemplary in nature.

10

DETAILED DESCRIPTION

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[0009] While the invention is susceptible to various modifications and alternative forms, an embodiment thereof has been shown by way of example in the drawings and will be described here below. It should be understood, however that it is not intended to limit the invention to the particular forms disclosed, but on the contrary, the invention is to cover all modifications, equivalents, and alternative falling within the spirit and the scope of the invention.

20

[00010] The term "comprises", comprising, or any other variations thereof, are intended to cover a non-exclusive inclusion, such that a setup, structure or method that comprises a list of components or steps does not include only those components or steps but may include other components or steps not expressly listed or inherent to such setup or structure or method. In other words, one or more elements in a system or apparatus preceded by "comprises... a" does not, without more constraints, preclude the existence of other elements or additional elements in the system or apparatus.

25

[00011] For better understanding of this invention, reference would now be made to the embodiment illustrated in the accompanying Figures and description here

below, further, in the following Figures, the same reference numerals are used to identify the same components in various views.

[00012] While the present invention is illustrated in the context of a vehicle, however, lighting device and aspects and features thereof can be used with other type of vehicles as well. The terms "vehicle", "two wheeled vehicle" and "motorcycle" have been interchangeably used throughout the description. The term "vehicle" comprises vehicles such as motorcycles, scooters, bicycles, mopeds, scooter type vehicle, all-terrain vehicles (ATV) and the like.

[00013] The terms "front / forward", "rear / rearward / back / backward", "up / upper / top", "down / lower / lower ward / downward, bottom", "left / leftward", "right / rightward" used therein represents the directions as seen from a vehicle driver sitting astride and these directions are referred by arrows Fr, Rr, U, Lr, L, R in the drawing Figures.

[00014] Referring to Figure 1, a vehicle (100) according to an embodiment of the present invention is depicted. The vehicle (100) referred to herein, embodies a motorized scooter vehicle. Alternatively, the vehicle (100) may embody any other ridden vehicles such as scooter, all-terrain vehicles (ATV) etc. without limiting the scope of the invention.

[00015] The vehicle (100) comprises a front end structure (102) and a rear end structure (104). The front end structure (102) forms the front portion of the vehicle (100). The rear end structure (104) forms the rear portion of the vehicle (100).

[00016] The front end structure (102) comprises a front ground engaging member (114), a front cowl (124), and a steering mechanism (116). The front ground engaging member (114) is operatively connected to the steering mechanism (116). The steering mechanism (116) comprises a handle bar (118). The handle bar (118) is configured to be rotated by the rider to steer the vehicle (100).

[00017] The front end structure (102) comprises a headlight (24) and a lighting device (200). The lighting device (200) supported on the front cowl (124) of the vehicle (100). Further, the front end structure (102) may further comprise additional components such as mirrors, front fenders, brake etc. without limiting the scope of the invention.

[00018] The rear end structure (104) comprises a seat (240), a rear ground engaging member (20), and an engine (22). The seat (240) provides seating for a rider and a passenger of the vehicle (100). The rear ground engaging member (20) underlies the seat (108) and is driven by the engine (22). Further, the rear end structure (104) may comprise additional components such as suspension system/s, tail light/s etc. without limiting the scope of the invention.

[00019] Referring further to Figure 1, the vehicle (100) further comprises one or more body parts, such as a frame (12), and a fuel tank (26). The frame (12) supports the engine (22) in middle portion of the vehicle (100). In the illustrated example, the engine (22) provides necessary power required to drive the rear wheel (20) of the vehicle (100). Alternatively, the engine (22) may provide necessary power to the drive the front wheel (114), or both the front wheel (114) and the rear wheel (20) simultaneously, without limiting the scope of the invention. The rear wheel (20) is linked to the engine (22) through a transmission mechanism (not numbered). The fuel tank (26) provides necessary fuel to the engine (22) to generate power within the vehicle (10).

[00020] Referring to Figure 2 and Figure 3, the lighting device (200) for the vehicle (100) is disclosed. In an embodiment, the lighting device (200) encompasses a winker, such as a front winker of the vehicle (100). The winker (200), blinks to produce direction indication signals to other vehicles while the vehicle (100) is driven. In still same embodiment, the lighting device (200) provides an illumination in the downward direction of the vehicle (100) while banking of the vehicle (100). The lighting device (200) comprises an outer base (202), at least one first light source

(220a) mounted on an upper surface of a board (220), and at least one second light source (220b) mounted on a lower surface of the board (220), refer figure 3.

5 [00021] The lighting device (200) comprises a reflector assembly (208) having an upper reflector assembly (206a), a lower reflector assembly (206b), a bezel member (210) disposed in front of the reflector assembly (208), and an outer lens (212) mounted on a front side of the outer base (202).

10 [00022] Referring to Figure 1 and Figure 2, the outer base (202) has a proximal end, which is mounted on the front cowl (124) of the vehicle (100). The proximal end provided with a threaded mounting means (216) and a lock member (218) for anti-rotation purpose to mount the lighting device (200) on the front cowl (124). The outer base (202) has a cup like cross sectional shape with the outer board (220) housed therein. The outer base (220) is molded from a synthetic resin or a like material.

15 [00023] The outer board (220) includes an upper an upper surface and a lower surface. The outer board (220), mounted inside the cup shaped outer base (202), may be of elongated plate with the at least one first light source (220a) mounted on the upper surface of the outer board (220) and at least one second light source (220b) mounted on a lower surface of the outer board (220, refer figure 3). The at least one first light source (220a) mounted on the upper surface of a board (220) acts as a directional indicator for the other vehicles when a turn switch is activated.

20 Additionally, the at least one second light source (220b) mounted on a lower surface of a board (220, refer figure 3) acts as cornering light source and turns ON when a vehicle banks above a predetermined value. In an embodiment, the predetermined value of the banking of the vehicle (100) is obtained from the bank angle sensor mounted on the vehicle (100). In an embodiment, the at least one first light source

25 (220a) and the at least one second light source (220b) includes a light emitting diode (LED). In another embodiment, the at least one first light source (220a) and the at least one second light source (220b) may include a bulb.

[00024] As the at least one first light source (220a) and the at least one second light source (220b) are mounted on the upper and lower surfaces of the single board (220), reduction in size of the lighting device (200) is achieved.

5 [00025] The reflector assembly (208) includes the upper reflector assembly (206a) and the lower reflector assembly (206b). In an embodiment, the reflector assembly (208) has an upper plate on which the upper reflector assembly (206a) is mounted and a lower plate on which the lower reflector assembly (206b) is mounted. Through holes (225) corresponding to the at least one first light source (220a) are provided on the upper plate such that light rays emitted from the at least one first light source (220a) pass through these through holes (225) and are reflected by a corresponding reflector of the upper reflector assembly (206a). The light ray reflected by the corresponding reflector of the upper reflector assembly (206a) corresponds to the directional indication to the other vehicles while driving. Similarly, through holes (not shown) corresponding to the at least one second light source (220b) provided on the lower plate such that a light ray emitted from the at least one second light source (220b) pass through these through holes (not shown) and reflected by a corresponding reflector of the lower reflector assembly (206a). The light rays reflected by the corresponding reflector of the lower reflector assembly (206b) refers to a cornering light direction while banking the vehicle (100). The light direction directed towards the side of the vehicle and in the downward direction. As the lighting device (200) is mounted more towards the vehicle outer side direction and outwardly, thus the cornering light direction provided by the corresponding reflector of the lower reflector assembly (206b) of the lighting device (200) enhances the visibility of the rider while banking of the vehicle (100).

25 [00026] In an embodiment, the board (220) is accommodated in between the upper plate and the lower plate such that the light sources (206a, 206b) correspond to the through holes (225) and these through holes (225) are disposed corresponding to the at least one first light source (220a) and to the at least one second light source

(220b) such that the light emitted from the light sources (206a, 206b) passes through the holes (225) configured in the reflector assembly (208).

[00027] The bezel (210) is provided in front of the reflector assembly (208) to provide a clear separation of the light emitted from the at least one first light source (220a) provided on the upper plate and the at least one second light source (220b). In an embodiment, the bezel (210) blocks the light ray in its path and provides a dark zone when seen from the front side of the vehicle (100).

[00028] The outer lens (212) mounted on a front side of the outer base (202). The outer lens (212) configured to diffuse the light reflected by the reflector assembly (208).

[00029] Referring to Figure 3, the light emitted by the at least one first light source (220a) illuminates an area (302a) which is an upper direction. Similarly, the light emitted from the at least one second light source (220b) illuminates an area (302b) which is in a downward direction and side of the vehicle (100). In an embodiment, the at least one first light source (220a) and the at least one second light source (220b) illuminates simultaneously when a winker switch is activated, i.e., the winker function (direction indication) and cornering function of the lighting device (200) functions simultaneously. In another embodiment, the at least one first light source (220a) illuminates to function as the direction indication while winker switch is activated while the at least one second light source (220b) illuminates based on the signal received from the bank angle sensor.

[00030] Based on the foregoing, it is quite clear that a light source acting as cornering lamp and another light source for a direction indication function as a winker on a single board is advantageous obtaining a compact design of the lighting device (200). Additionally, the lighting device (200) placed outwardly on the vehicle side, thus light emitted from the light source placed on the lower surface of the board (220) enhances the visibility of the rider while banking the vehicle (100).

[00031] While few embodiments of the present invention have been described above, it is to be understood that the invention is not limited to the above embodiments and modifications may be appropriately made thereto within the spirit and scope of the invention.

5 [00032] While considerable emphasis has been placed herein on the particular features of this invention, it will be appreciated that various modifications can be made, and that many changes can be made in the preferred embodiments without departing from the principles of the invention. These and other modifications in the nature of the invention or the preferred embodiments will be apparent to those skilled
10 in the art from the disclosure herein, whereby it is to be distinctly understood that the foregoing descriptive matter is to be interpreted merely as illustrative of the invention and not as a limitation.

Dated this 10th day of September, 2019

15

----Digitally Signed---
Sagar Sudhir Dhattrak
Assistant General Manager & Section Head- COC(EDD)
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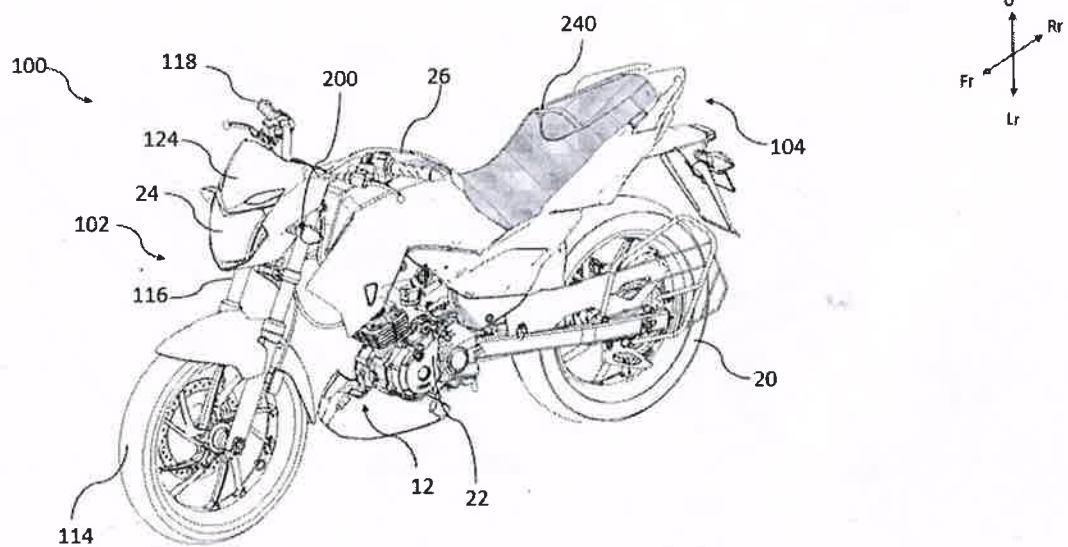


Figure 1

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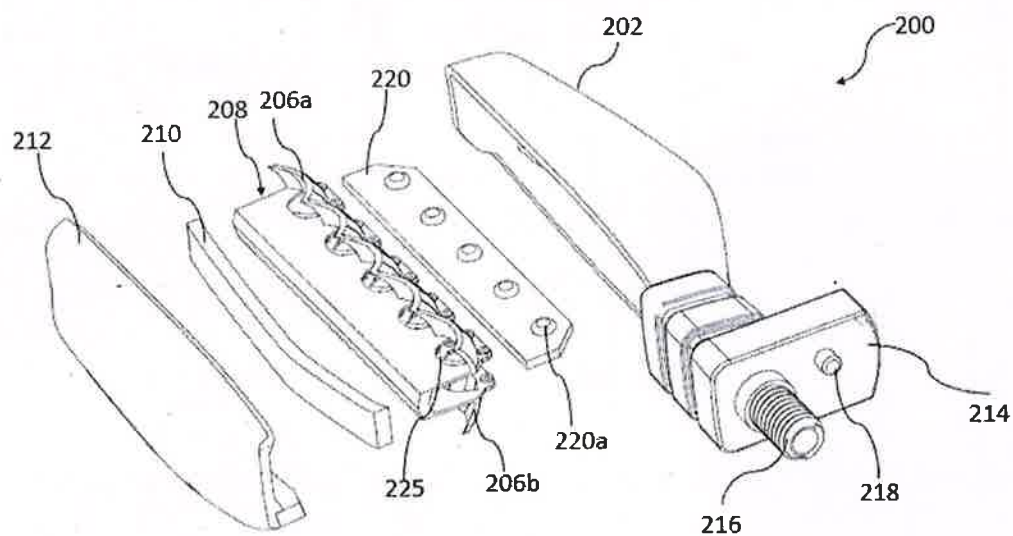


Figure 2

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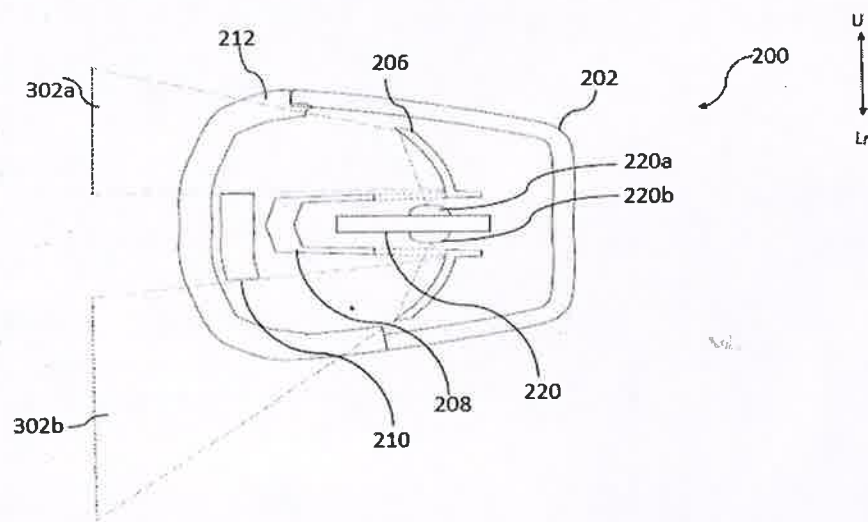


Figure 3

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