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(54) Title: DETACHABLE HEADLAMP UNIT FOR TWO-WHEELED VEHICLE

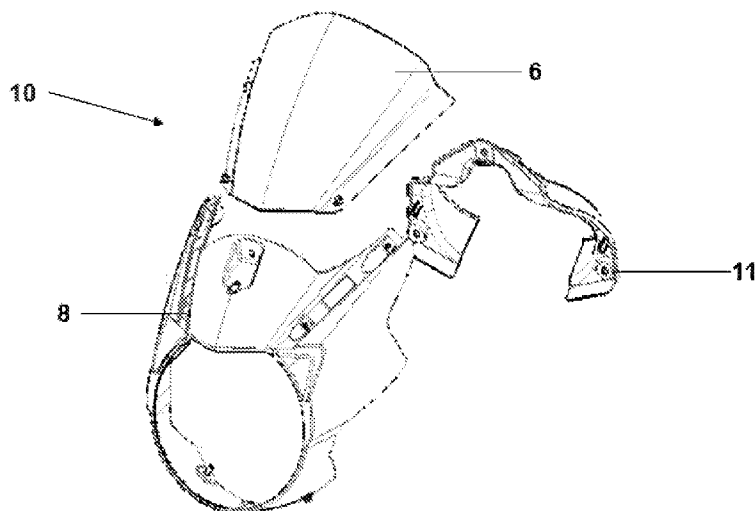


FIG. 9

(57) Abstract: The present invention relates to a two-wheeled vehicle (100) enabled with a mobile charger assembly (9) and bottle holder (15) disposed in the most accessible locations with respect to a rider. The vehicle is also enabled with a detachably attached headlamp unit (10) such that the rider himself can attach or detach it and change aesthetic feature of the vehicle as per his desire. In an embodiment, the mobile charger assembly (9) and holder unit (15) is disposed in the headlamp unit (10) itself.



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DETACHABLE HEADLAMP UNIT FOR TWO-WHEELED VEHICLE

TECHNICAL FIELD

[0001] The present subject matter relates generally to a two-wheeled motor vehicle, and more particularly to a headlamp unit of the motorcycle.

BACKGROUND

5 [0002] Generally, a two-wheeled vehicle comprises of a frame assembly extending rearwardly from a head tube. The frame assembly acts as a skeleton and a structural member for the vehicle that supports the vehicle loads. A front wheel is connected to a front portion of the frame assembly through one or more front suspension(s). The frame assembly extends towards a rear portion of the vehicle. A rear wheel is connected to a
10 frame assembly through one or more rear suspension(s). The frame assembly comprises of an engine assembly mounted to it. The engine assembly is functionally connected to the rear wheel, which provides forward motion to the vehicle. A muffler assembly is provided at a lateral side of the vehicle mounted to the frame assembly or the vehicle through a mounting bracket. Typically, plurality of panels is mounted to the frame
15 assembly of the vehicle that covers various vehicle parts mounted thereon.

[0003] Conventionally, in two-wheeled vehicle a mobile charger slot is provided for the rider to charge his/her mobile instantaneously while the vehicle is running. In some vehicles a space for holding a water bottle is also provided. Generally such systems are provided to make the ride convenient and the rider comfortable by providing as many
20 amenities as possible. The above discussed systems are provided with an objective to solve the daily arising problems of a rider.

[0004] Convenience is one of the important factors which need to be kept in mind before implementing such systems. There are vehicle known which implement such systems, however are not placed uniformly. Location of such systems should be such that
25 it can easily be accessible for the rider whenever he/she wants to. However, the known vehicles do not implement it in such a fashion.

[0005] Thus there is a need for a system which provides a construction which resolves the above stated problems by improvising the accessibility for mobile charger slot, bottle holder as per the rider's convenience.

BRIEF DESCRIPTION OF THE DRAWINGS

5 [0006] The detailed description of the present subject matter is described with reference to the accompanying figures. Same numbers are used throughout the drawings to reference like features and components.

[0007] Fig. 1 illustrates a left side view of an exemplary two-wheeled motor vehicle, in accordance with an embodiment of the present subject matter.

10 [0008] Fig. 2 illustrates a front view of a headlamp unit of a two wheeled vehicle as shown in Fig. 1, in accordance with an embodiment of the present subject matter.

[0009] Fig. 3 illustrates a rear view of the headlamp unit of the two wheeled vehicle shown in Fig. 1, in accordance with an embodiment of the present subject matter.

15 [0010] Fig. 4 illustrates an exploded view of a housing rear portion of the two wheeled vehicle shown in Fig. 1, in accordance with an embodiment of the present subject matter.

[0011] Fig. 5 illustrates a side view of the headlamp unit of the two wheeled vehicle as shown in Fig. 1, in accordance with an embodiment of the present subject matter.

20 [0012] Fig. 6 illustrates a rear view of the headlamp unit of the two wheeled vehicle shown in Fig. 1, in accordance with an embodiment of the present subject matter.

[0013] Fig. 7 illustrates a rear view of the headlamp unit of the two wheeled vehicle shown in Fig. 1, in accordance with an embodiment of the present subject matter.

[0014] Fig. 8 illustrates a top view of the headlamp unit of the two wheeled vehicle shown in Fig. 1, in accordance with an embodiment of the present subject matter.

[00015] Fig. 9 illustrates a side view of the headlamp unit of the two wheeled vehicle shown in Fig. 1, in accordance with an embodiment of the present subject matter.

DETAILED DESCRIPTION

[00016] Typically, a two-wheeled type motor vehicle is operated through an engine
5 assembly mounted to the frame assembly in a front portion and a fuel tank disposed above the engine assembly. Air fuel mixture is supplied to the engine assembly by means of a carburetor. Thereafter combustion of the air fuel mixture takes place so that a piston disposed in the engine assembly is set into motion. The piston is operated in a linear motion, after which said liner motion is converted to a rotational motion, wherein said
10 rotational motion is transferred to the rear wheel finally resulting into motion of the vehicle. This mechanism also results in generation of power and torque by the engine assembly.

[00017] Moreover, with increasing competition more and more extra features are being added to a two-wheeled vehicle to make the ride as easy and comfortable as
15 possible. To achieve this purpose many features are being added to a two wheeled vehicle which tend to solve the daily arising problems of a rider. These features include a mobile charger slot which the rider can use to charge his/her mobile while riding. The rider always experiences space constraint issues while keeping a water bottle. The rider may have basic need like a water bottle on a frequent basis; hence a special reserved holder for
20 a water bottle is something which a two-wheeled vehicle is generally provided with these days. It also happens that the rider on some occasions needs a change in the aesthetic design of the two wheeled vehicle, since the same design gets too monotonous for him/her, hence a change is needed. Such change is not feasible in a given vehicle known in the prior art.

25 [00018] Generally a mobile charger slot is provided beneath the seat assembly which the rider can use it for charging his/her mobile while riding. In some cases the mobile charging slot is also provided beneath the fuel tank assembly. For holding a water bottle a special holder and space is reserved in the utility box of the two wheeled vehicle. To change the aesthetic design of the two wheeled vehicle some adjustable systems are

provided which can be attached or detached on the two wheeled vehicle, bringing in the required change.

[00019] However, such known systems and features added on a two wheeled vehicle face some critical challenges with respect to its operation. The mobile charger slot placed
5 beneath the seat assembly is not a convenient place as the rider would have to open and close the seat each and every time there is a requirement for the mobile. In fact the space beneath the seat assembly is also prone to mud and dust hence creating a problem. A space provided beneath the tank assembly for charging the mobile is not suggested because in that case it poses safety related issues. Whereas when it comes to space
10 provided for bottle holder, the area in the utility box is also not convenient since the rider again would have to open and close the seat each and every time he/she requires the bottle. On the other hand measures provided to change the aesthetic and design of the two wheeled vehicle is not durable, neither is it simple which the rider can use or change as per his/her convenience.

15 [00020] The present subject matter overcomes the above stated problems of the system known in the prior art. One of the objectives of the present subject matter is to provide a two-wheeled vehicle with a mobile charger unit which is easily accessible to the rider even in a driving or seated condition and is safe as well. Another objective of the present subject matter is to provide a bottle holder which holds the bottle in a stable yet in
20 an easily accessible location. In an embodiment, yet another objective of the present subject matter is to provide an aesthetic attachment for the two wheeled vehicle which the rider himself can change as per his/her convenience when he/she wants a change.

[00021] In an embodiment in accordance with the present subject matter, a two-wheeled vehicle employed with a mobile charger is provided. Generally the frame
25 assembly for a two wheeled vehicle comprises of a head tube assembly placed between the handlebar assembly and the front fork assembly. A headlamp unit is mounted onto the head tube assembly of the two wheeled vehicle. The headlamp unit comprises of a headlamp housing front disposed around the headlamp. In an embodiment, a visor structure is attached to the headlamp unit in a space provided in the headlamp housing

front and extending in an upward direction. Furthermore, a housing rear portion is formed behind the headlamp housing front, extending in a substantial rearward fashion from the headlamp unit when viewed from a rear side of the vehicle. The housing rear portion also comprises of a speedometer fixed in it. In another embodiment a visor structure is provided extending upwards from the headlamp unit in a space provided in a substantial central region of the headlamp housing front. In an embodiment, a mobile charger port is formed in the space formed in the rear housing just above the speedometer assembly. The charger provided in this space solves the problems stated in the prior art. It is easily accessible for the rider and needs no extra effort of opening the seat or stopping the vehicle, it is not prone to mud and dust and is safe too.

[00022] In an embodiment, the headlamp unit comprises of a headlamp stay which holds the headlamp to the head tube, and a set of connecting arms which attach the headlamp housing front to the head tube assembly respectively. The headlamp stay acts like an attachment portion welded upon the head tube assembly extending forward from it in a straight horizontal direction to allow the headlamp to be detachably attached to it. In an embodiment the space and area provided in the headlamp stay is used to detachably attach a rectangular shaped mounting bracket to it. In an embodiment, the mounting bracket comprises of at least one opening through which the bracket is detachably secured to the headlamp stay. In an embodiment, a mounting plate is welded to the mounting bracket with at least one mounting hole through which a bottle holder is detachably attached to it. In an embodiment the bottle holder comprises of a partial plain surface and a partial semi circular curved surface. The plain surface comprises of a second mounting hole through which it is mounted onto the mounting plate, whereas the other partial curved surface is formed opposite to the plain surface in such a fashion so as to accommodate the bottle perfectly.

[00023] In an embodiment, the headlamp unit comprises of a headlamp housing front, housing rear portion, a headlamp stay, a first pair of mounting bracket and a visor structure. Generally the headlamp is mounted to the head tube assembly using the headlamp stay. The housing headlamp stay is welded to the head tube assembly and comprises of couple of openings through which the headlamp is mounted over it. In an

embodiment, the whole system also comprises of a couple of connecting arms which are welded to the head tube assembly below the headlamp stay. The first pair of mounting bracket comprises of an opening through which the headlamp housing front is detachably attached to it. The headlamp housing front is disposed at the sides of the headlamp and acts as a front fairing for aesthetic purposes. In an embodiment, the headlamp housing front comprises of a substantial empty space at a substantial central location to accommodate a visor structure in it. The visor structure is detachably attached to the headlamp housing front through a first set of mounting holes provided in the top most corner of the housing headlamp front. In one embodiment, the housing rear portion is detachably attached to the headlamp housing front through a second set of mounting holes. It is formed around the periphery of the headlamp housing front, though disposed at its rear portion when viewed from a back side of the vehicle. In an embodiment, the housing rear unit is shaped in such a fashion that it perfectly accommodates a speedometer in itself.

[00024] The present subject matter provides a system which makes the vehicle ride as friendly as possible after addition of various accessible features to it. In an embodiment, the present subject matter provides a mobile charger port which is easy accessible for the rider and is safe as well. It also provides a bottle holder which is stable, safe and is also easily accessible to the rider. In addition to it the present subject matter also provides a detachably attached styling and fairing unit which can be removed or attached by the rider himself as per his/her convenience and wish.

[00025] The aforesaid and other advantages of the present subject matter would be described in greater detail in conjunction with the figures in the following description.

[00026] Arrows provided in the top right corner of each figure depicts direction with respect to the vehicle, wherein an arrow F denotes front direction, an arrow R indicated R direction, an arrow Up denotes upward direction, an arrow Dw denoted downward direction, an arrow Rh denotes right side, an arrow Lh denoted left side, as and where applicable.

[00027] Fig. 1 illustrates a left side view of an exemplary two wheeled vehicle (100), in accordance with an embodiment of the present subject matter. The vehicle (100) includes a frame assembly (not shown) that extends from a head tube (not shown), which is disposed in the front portion of the vehicle. An engine assembly (4) is supported by the main frame of the frame assembly. The engine assembly (4) acts as the power unit of the vehicle (100), wherein the power unit may also include a traction/electrical motor (not shown). The rear wheel (30) is functionally coupled to the engine assembly (4) through a transmission system. A rear fender (29) disposed upwardly of the rear wheel (30) covers at least a portion of the rear wheel (11). A pair of front forks (23) supports a front wheel (25) and is steerably supported by the head pipe. A handlebar assembly (2) is connected to an upper portion of the pair of front fork (23) through a head tube assembly (26). Further, a front fender assembly (24) covers at least a portion of the front wheel (25) and the front fender assembly (24) is mounted to the front forks (23).

[00028] A fuel tank (3) is mounted to the main tube of the frame assembly and disposed rearwardly of the handlebar assembly (2). A seat assembly (27) is disposed rearwardly of the fuel tank assembly (3) and supported by the pair of rear tubes. Further, the vehicle (100) comprises a visor structure (6) that is disposed forwardly over the headlamp (7). A pillion handle (28) is provided at the end of a seat assembly for the pillion's support.

[00029] Fig. 2 illustrates a front view of the headlamp unit (10) of the two-wheeled motor vehicle (100) shown in Fig. 1, in accordance with an embodiment of the present subject matter. In an embodiment, the headlamp unit (10) comprises of a headlamp housing front (8) disposed above the headlamp (7), which also acts as a front fairing. A visor structure (6) is detachably attached to the headlamp housing front (8) in a substantial space provided at a substantial central portion of the headlamp housing front (8). The visor structure (6) is disposed just above the headlamp (7) extending in an upward direction. The present embodiment comprises of a housing rear portion (shown in Fig. 3) detachably attached to the headlamp housing front (8) detachably attached to it at a substantial rearward portion when viewed from a backside of the vehicle (100). A dotted space shown in a substantial centre portion of the visor structure (6) depicts a

mobile charger port (9) as per the present subject matter. It is formed behind the visor (6) in an area of the housing rear portion.

5 [00030] Fig. 3 illustrates a rear view of the headlamp unit (10) of the two wheeled vehicle (100) as shown in Fig. 1, in accordance with an embodiment of the present subject matter. In an embodiment, the headlamp unit (10) comprises of a housing rear portion (11) detachably attached to the headlamp housing front (8). The housing rear portion (11) is formed around the headlamp housing front (8) projecting a crown shaped structure at a substantial centre but rear portion of the headlamp housing front (8) when viewed from a back side of the vehicle (100). In an embodiment, the mobile charger port (9) is disposed in the rear housing portion (11) at its substantial centre. In an embodiment, the mobile charger port (9) can also be seen to be disposed at substantial centre of said headlamp unit (10) when viewed from back side of said vehicle (100). In one embodiment, the headlamp unit (10) comprises of a bottle holder unit (15) detachably attached at its sides.

15 [00031] Fig. 4 illustrates an enlarged view of the housing rear portion (11) of the two-wheeled motor vehicle (100) shown in Fig. 1, in accordance with an embodiment of the present subject matter. In an embodiment, the mobile charger (9) can be seen to be disposed in the housing rear portion (11) at its substantial centre. The mobile charger (14) is placed in the slot such that it is detachably attached to the housing rear portion (11) through at least couple of screws. The housing rear portion (11) defines a slot such that the mobile charger (19) is accommodated thereat and the mobile charger (19) is accessible from a top portion thereof. Further, the mobile charger (19) includes a flap cover that protects the mobile charger (19) from external matter like moist.

25 [00032] Fig. 5 illustrates a side view of the headlamp unit (10) of the two-wheeled vehicle (100) shown in Fig. 1 without the bottle holder unit (15) attached to it, in accordance with an embodiment of the present subject matter. The two-wheeled vehicle (100) comprises of a headlamp stay (16) which acts as an attachment portion and holds the headlamp (7) to the head tube assembly (26). In an embodiment, the headlamp stay (16) is welded to the head tube assembly (26) extending forward in a horizontal direction

enabling the headlamp (7) to be detachably attached to it. In one embodiment, a set of connecting arms (20) is also provided to detachably attach the headlamp housing front (8) to the head tube assembly (26) of the two wheeled vehicle (100).

[00033] Fig. 6 illustrates a rear view of the headlamp unit (10) with the assembly process of the bottle holder unit (15) of the two wheeled vehicle (100) as shown in Fig. 1, in accordance with an embodiment of the present subject matter. The bottle holder unit (15) is detachably attached to the headlamp stay (16) of the two wheeled vehicle (100). In an embodiment, the bottle holder unit (15) comprises of a set of mounting bracket (17), a mounting plate (18) and a bottle holder (19). The second mounting bracket (17) is detachably attached to the headlamp stay (16) through at least one mounting hole. In an embodiment, the mounting plate (18) is a flat surfaced plate welded onto the second set of mounting bracket (17). The mounting plate (18) comprises of at least one opening through which the bottle holder (19) is mounted on the mounting plate (18). In an embodiment, the bottle holder (19) has a partial flat surface through which it mounted onto the mounting plate, whereas the remaining partial surface is a semi-circular curved shaped structure similar to that as of the surface of the bottle, such that a bottle can easily be accommodated in it. The bottle holder (19) are disposed substantially to the rear of the turn signal indicators & adjacent to the headlamp housing front (8) & the headlamp mounting structure thus minimizing space utilization as well as maximizing access convenience & comfort to the rider.

[00034] Fig. 7 illustrates a rear view of the headlamp unit (10) of the two wheeled vehicle (100) shown in Fig. 1 without the headlamp unit (7) attached in it, in accordance with an embodiment of the present subject matter. The headlamp housing front (8) is detachably attached to the head tube assembly (26) of the vehicle (100) through couple of connecting arms (20) (shown in FIG. 5). In an embodiment the headlamp housing front (8) comprises of a first set of mounting holes (21) through which the visor (6) is detachably attached in the space provided in the housing headlamp front (8). In an embodiment, the housing rear portion (11) is attached to housing headlamp front (8) through second set of mounting holes (22). The second set of mounting holes (22) being placed at the end corners and at a substantial central portion of the housing rear portion

(11) makes sure that the housing rear portion (11) is detachably attached to the housing headlamp front (8) and is formed around its surface.

[00035] Fig. 8 illustrates a top view of the headlamp unit (10) of the two wheeled vehicle (100) as shown in Fig. 1, in accordance with an embodiment of the present subject matter. In an embodiment, the housing rear portion (11) is detachable attached around the rear surface of headlamp housing front (8). In one embodiment, the visor (6) is detachably attached in the space provided in a substantial central portion of the housing headlamp front (8) through a second set of mounting holes.

[00036] Fig. 9 illustrates a side exploded view of the headlamp unit (10) of the two wheeled vehicle (100) shown in Fig. 1, in accordance with an embodiment of the present subject matter. The headlamp unit (10) can be seen to be comprising of a housing headlamp front (8) which is detachably attached to a headlamp (7). The visor (6) is detachably attached to the headlamp housing front (8) at substantial central portion of the headlamp housing front (8). In an embodiment the housing headlamp rear (11) is detachably attached at a back portion of the housing headlamp front (8) when viewed from a back side of the vehicle (100). The housing headlamp front (8), housing headlamp rear (11) and a visor (6) are detachably attached to each other in such a fashion that even the rider can remove it and create a different aesthetics as per his/her desire.

[00037] It is to be understood that the aspects of the embodiments are not necessarily limited to the features described herein. Many modifications and variations of the present subject matter are possible in the light of above disclosure. Therefore, within the scope of claims of the present subject matter, the present disclosure may be practiced other than as specifically described.

We Claim:

1. A headlamp unit (10) for a two wheeled vehicle (100), said headlamp unit (10) comprising:

5 a headlamp (7) connected to a head tube assembly (26) of said two wheeled vehicle (100) through a pair of a headlamp stay (16) extending forward in a horizontal direction from said head tube assembly (26) when viewed from a side of said vehicle (100), a headlamp housing front (8) placed above said headlamp (7) acting as a faring structure covering said headlamp (7), wherein said headlamp housing (8) capable of being detachably attached to said head tube
10 assembly (26).

2. The headlamp unit (10) as claimed in claim 1, wherein said headlamp unit (10) includes a housing rear portion (11) detachably attached to said headlamp housing front (8) at a substantial central region on a rear portion when viewed from a backside of said vehicle (100), and said housing rear portion (11) comprises a mobile charger port (9)
15 disposed therein

3. The headlamp unit (10) as claimed in claim 1, wherein said housing rear portion (11) is formed around periphery of said headlamp housing front (8) forming a crown shaped structure thereof.

4. The headlamp unit (10) as claimed in claim 2, wherein said mobile charger (9) port is
20 disposed at a central portion of said housing rear portion (11) when viewed from a rear side of said vehicle (100), said housing rear portion (11) defines a slot such that the mobile charger (19) is accommodated thereat and said mobile charger (9) is accessible from a top portion thereof.

5. The headlamp unit (10) as claimed in claim 1, wherein said headlamp stay (16)
25 comprises a bottle holder unit (15) detachably attached thereto, said bottle holder unit (15) comprises of a mounting bracket (17), a mounting plate (18), and a bottle holder (19) disposed substantially rearward of turn signal lamp, and adjacent of said head tube assembly (26) and headlamp housing front (8).

6. The headlamp unit (10) as claimed in claim 1 or claim 5, wherein said mounting bracket (17) is detachably attached to said headlamp stay (16) and said mounting plate (18) is welded to said mounting bracket (17) thereof, and said bottle holder (19) is detachably attached to said mounting plate (18) such that said bottle holder unit (15) is detachably attached to said headlamp unit (10) at its sides, and wherein said mounting bracket (17) comprises of a first plate and a second plate welded together forming a V-shaped structure.

7. The headlamp unit (10) as claimed in claim 1, wherein said headlamp unit (10) includes a visor structure (6) detachably attached to said headlamp housing front (8), said visor structure (6) is secured through a first set of mounting holes (21) placed at corners of said headlamp housing front (8).

8. The headlamp unit (10) as claimed in claim 1, wherein said headlamp housing front (8) is detachably attached to said head tube assembly (26) through a pair of connecting arms (20) extending forward in a horizontal direction from said head tube assembly (26) when viewed from a side of said vehicle (100).

9. The headlamp unit (10) as claimed in claim 1, wherein said headlamp housing front (8) comprises of second set of mounting holes (22) to accommodate said housing rear portion (11).

10. The headlamp unit (10) as claimed in claim 1, wherein said headlamp housing front (8), said housing rear portion (11) and said visor structure (6) are detachably attached in such a fashion that said headlamp housing front (8), said housing rear portion (11) and said visor structure (6) can be removed from said headlamp unit (10).

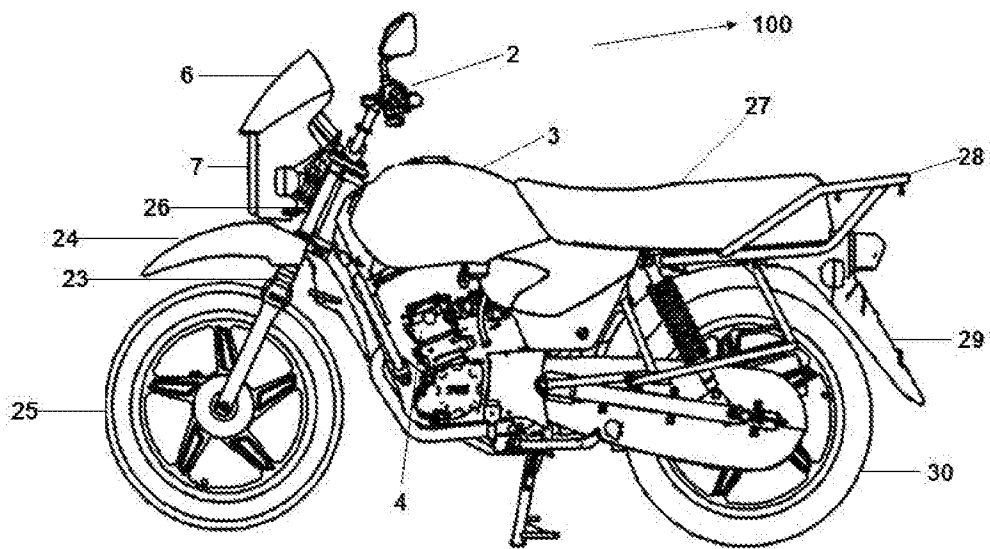


FIG. 1

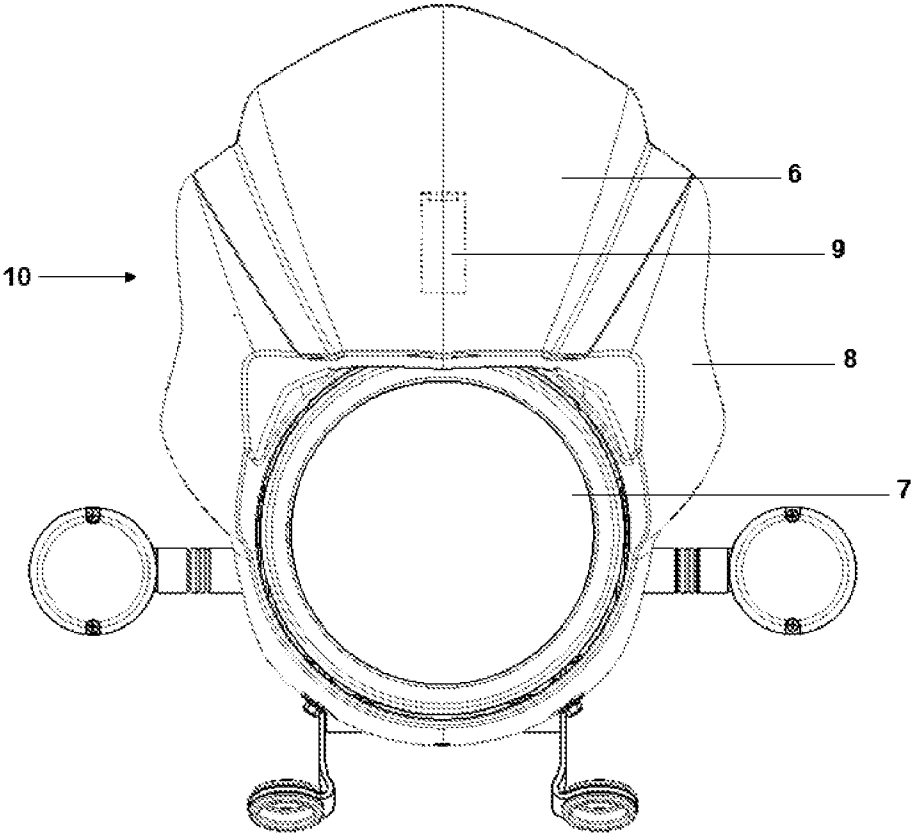


FIG. 2

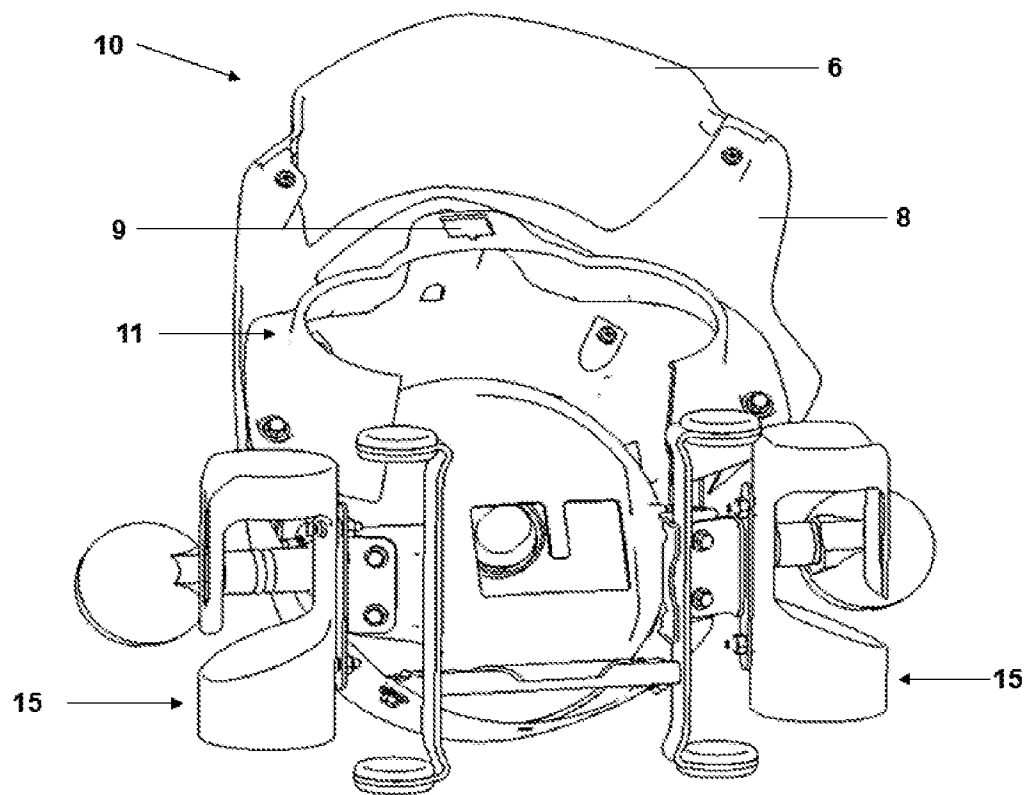


FIG. 3

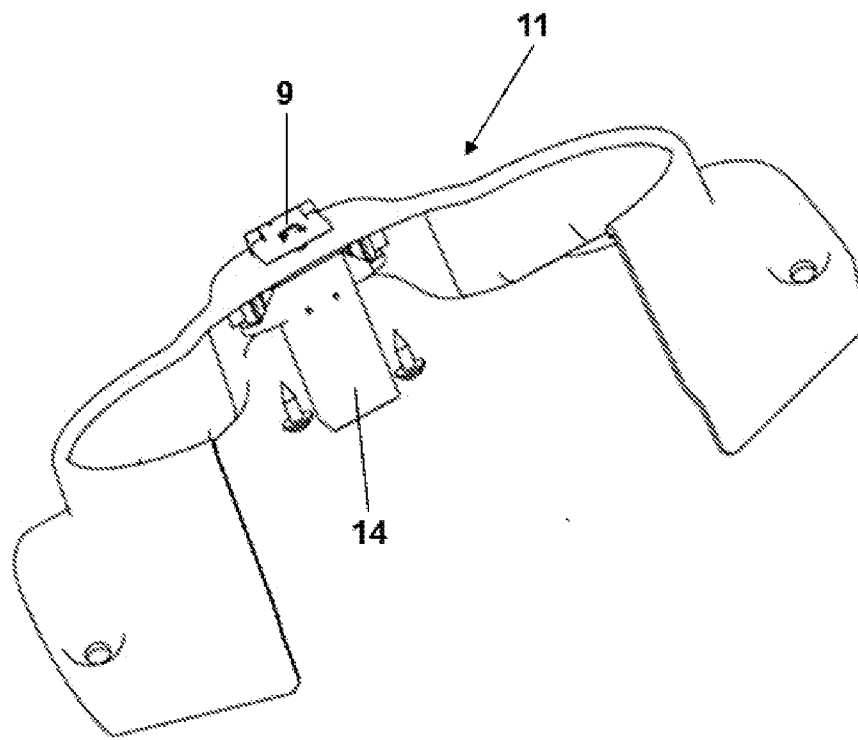


FIG. 4

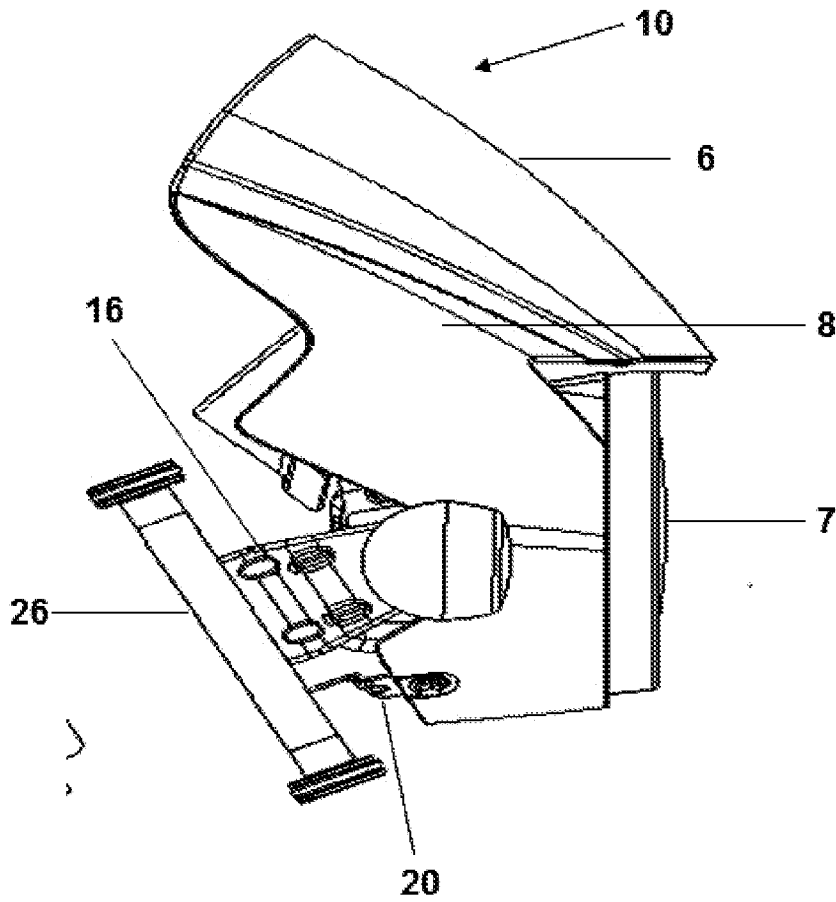


FIG. 5

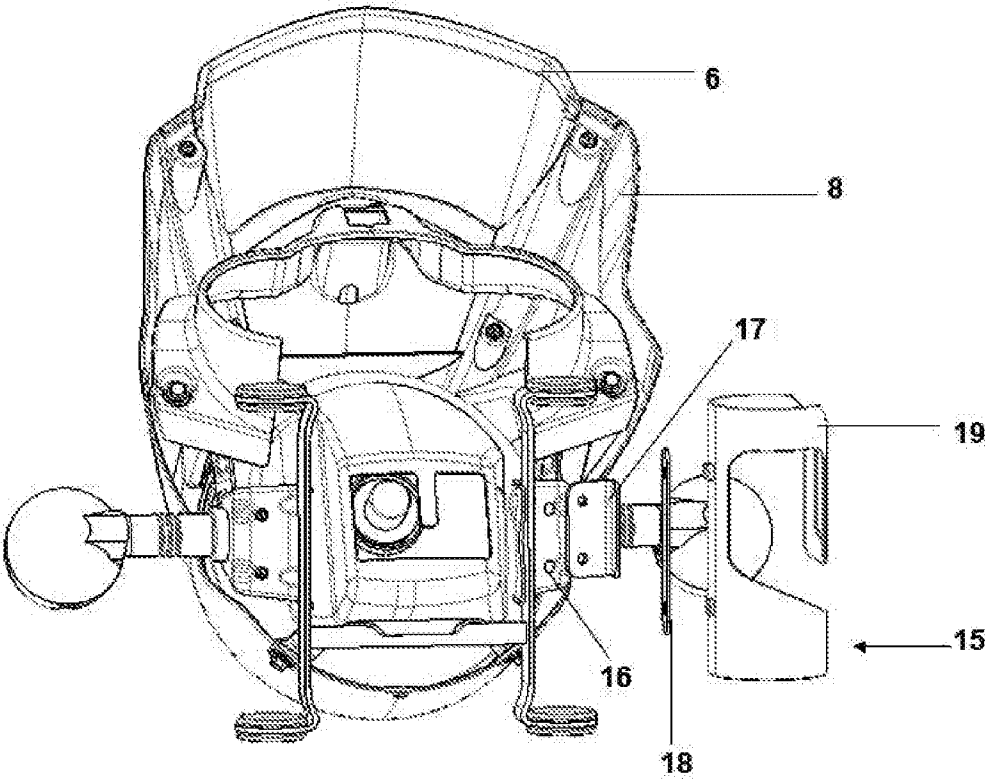


FIG. 6

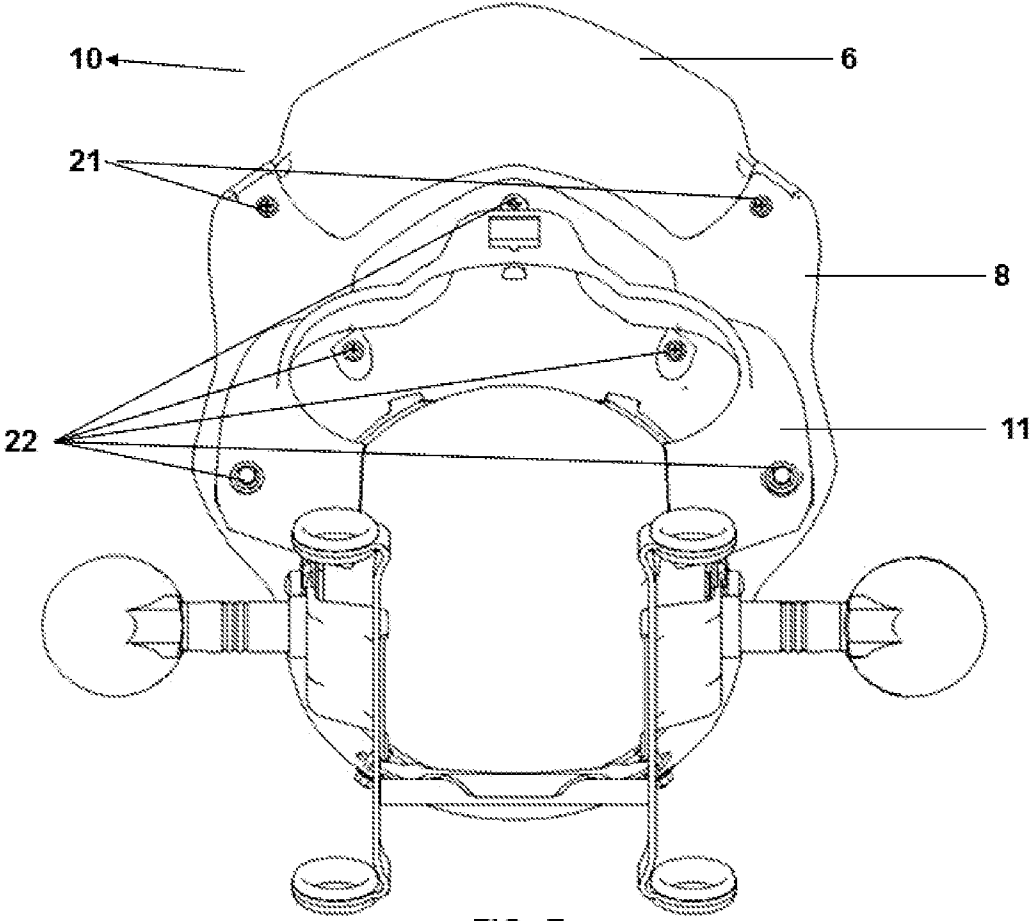


FIG. 7

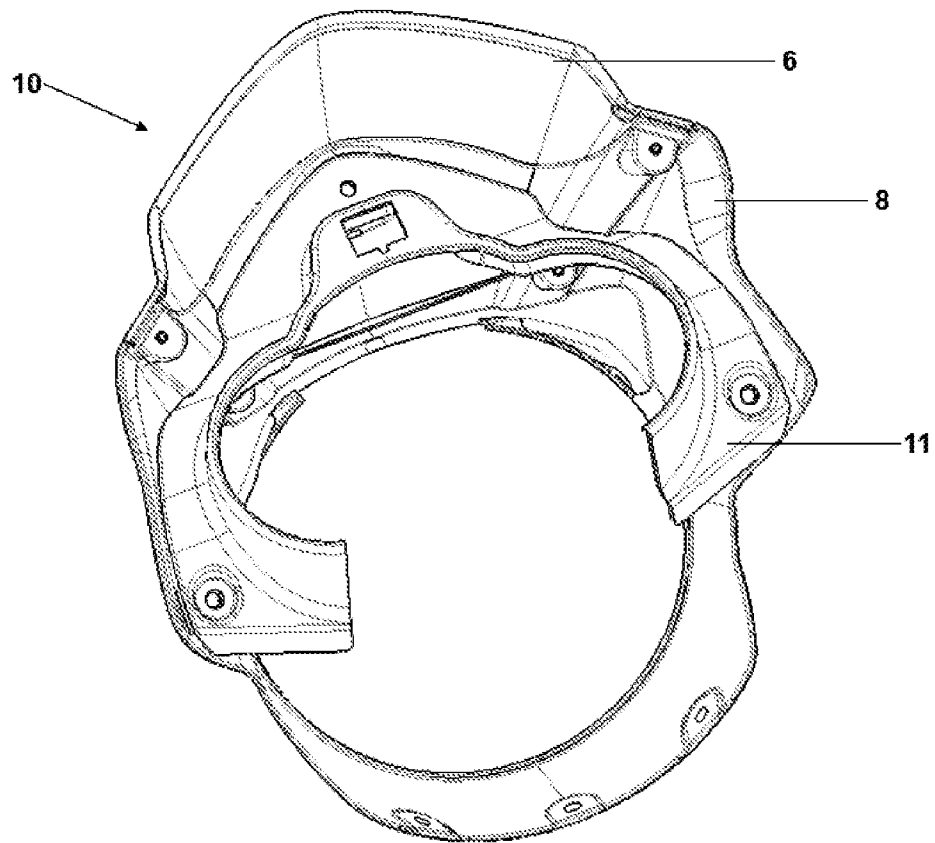


FIG. 8

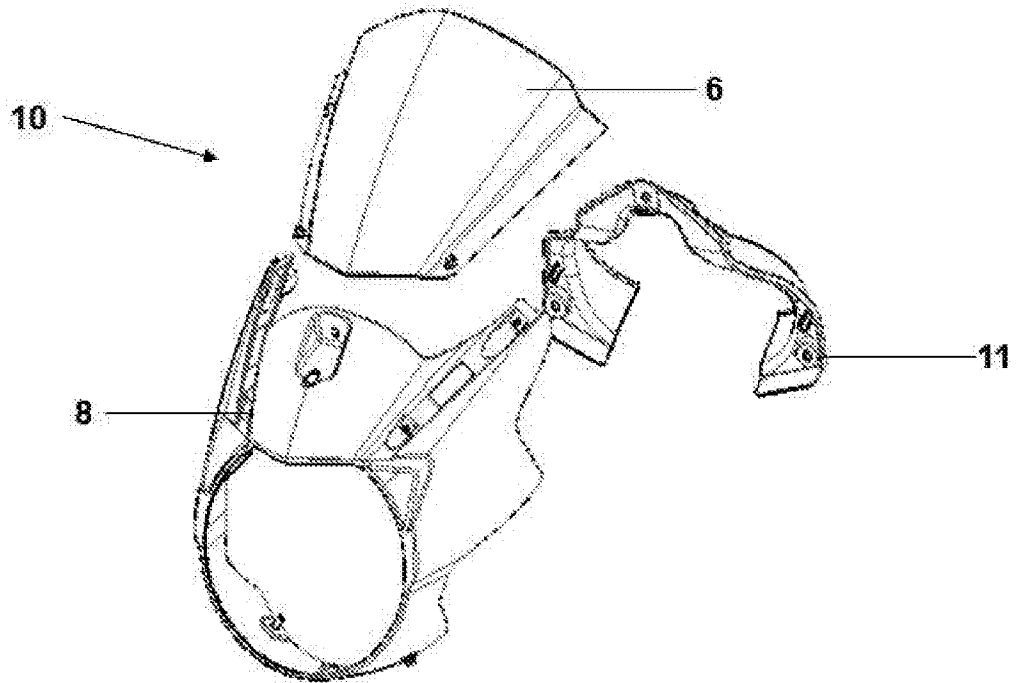


FIG. 9

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

B60R

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

B62J11/00

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

TotalPatent One, IPO Internal Database

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CN201401712 Y (WUHAN NO 11 MIDDLE SCHOOL) 10-02-2010 (10 Feb 2010) "NO FAMILY" abstract,	1
Y	Fig 1,2; claim 1	2-10
Y	CN203864868 U (MA YONG) 08-10-2014 (08 Oct 2014) "NO FAMILY" Fig 1, claim 1	2-4
Y	US20090184147 A1 (YUAN HUNG WEN) 23-07-2009 (23 July 2009) "NO FAMILY" Fig 4	5-6
Y	US7032915B2 (BOMBARDIER RECREATIONAL PRODUCT INC) 25-04-2006 (25 Apr 2006) Fig 7-9	7-10



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

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"E" earlier application or patent but published on or after the international filing date

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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"&" document member of the same patent family

Date of the actual completion of the international search

18-09-2018

Date of mailing of the international search report

18-09-2018

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/IB2018/053747

Citation	Pub.Date	Family	Pub.Date
US 7032915 B2	25-04-2006	US 20020084126 A1	04-07-2002
		CA 2365195 A1	14-06-2002