



(51) International Patent Classification:

B62J 37/00 (2006.01)

(21) International Application Number:

PCT/IN2021/050255

(22) International Filing Date:

13 March 2021 (13.03.2021)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

202041011353 17 March 2020 (17.03.2020) IN

(71) Applicant: TVS MOTOR COMPANY LIMITED

[IN/IN]; TVS Motor Company Limited, "Chaitanya", No.12, Khader Nawaz Khan Road, Nungambakkam, Chennai 600 006 (IN).

(72) Inventors: JOGHEE, Thirumal; TVS Motor Company

Limited, "Chaitanya", No.12, Khader Nawaz Khan Road,

Nungambakkam, Chennai 600 006 (IN). **LOHIT, Vishwanath Patil**; TVS Motor Company Limited, "Chaitanya", No.12, Khader Nawaz Khan Road, Nungambakkam, Chennai 600 006 (IN). **BALAGURU, Sridhar**; TVS Motor Company Limited, "Chaitanya", No.12, Khader Nawaz Khan Road, Nungambakkam, Chennai 600 006 (IN).

(81) Designated States (unless otherwise indicated, for every

kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, IT, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every

kind of regional protection available): ARIPO (BW, GH,

(54) Title: A MOTOR VEHICLE

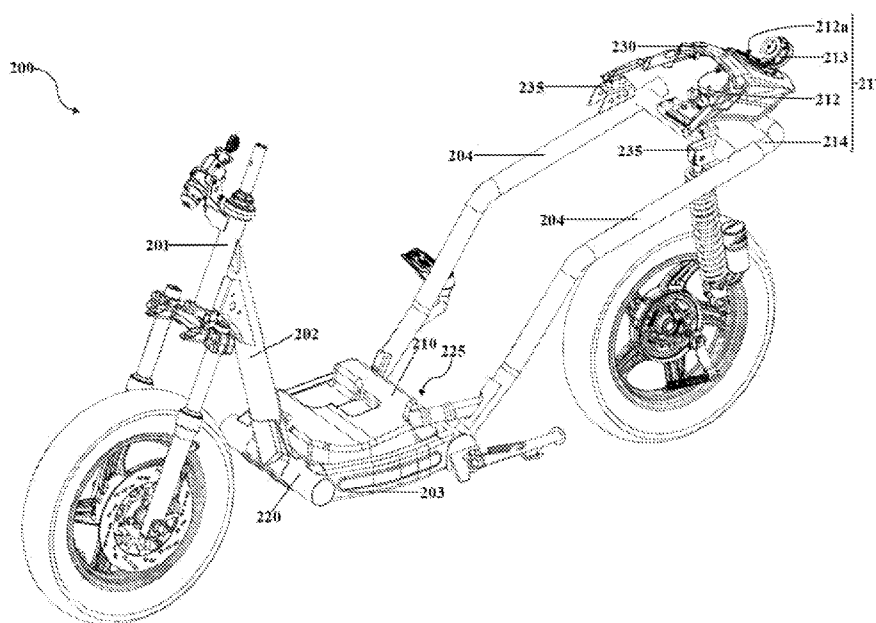


Fig.2

(57) **Abstract:** The present subject matter described herein relates to a motor vehicle having a frame structure (200). The frame structure (200) is constituted by a down frame member (202), a left and right main frame members (203) extending rearwardly and downwardly from a down frame member (202), and left and right rear frame members (204) extending rearwardly from the left and right main frame members. The left and right main frame members (203) constitute supporting frame members and support a fuel tank (210). The fuel tank (210) is connected to a fuel inlet assembly (211) including a fuel inlet hose (214) inserted into a connecting frame member including one of the left and right rear frame members (204). The above-mentioned connection ensures that the fuel inlet hose (214) is not damaged due to puncturing.



GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- *as to the identity of the inventor (Rule 4.17(i))*
- *of inventorship (Rule 4.17(iv))*

Published:

- *with international search report (Art. 21(3))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

A MOTOR VEHICLE

TECHNICAL FIELD

[0001] The present subject matter described herein generally relates to a motor vehicle powered by an internal combustion engine.

5

BACKGROUND

[0002] Typically, a frame is the main supporting structure of a motor vehicle, including saddle-type motor vehicles, and serves to support different parts of the motor vehicle. Besides acting as the main supporting structure of the motor vehicle, the construction of the frame also defines the outward appeal and looks of the motor vehicle. For example, saddle-type motor vehicles are majorly classified as saddle-type vehicles of the step over kind, and saddle-type vehicles of the step through kind, based on the construction of the frame defining such vehicles.

[0003] The structure and construction of the frame also plays a critical role for the packaging of components of the motor vehicle. For example, the frame supports the fuel tank of the motor vehicle. Typically, in a two-wheeled saddle-type vehicle of the step-through kind, the fuel tank is disposed in a rear portion of the vehicle and supported over a pair of rear frame members, the rear frame members being held adjacent to side body panels of the saddle-type vehicle. Fuel is supplied to the fuel tanks disposed in the rear portion of the saddle-type vehicle through a fuel inlet assembly which is also disposed in the rear portion of the saddle-type vehicle. Fuel is supplied to the fuel tank through the fuel inlet assembly comprising a fuel inlet hose. The fuel inlet hose emerging from a fuel inlet opening of the fuel inlet assembly is routed to the fuel tank by being supported on one of the rear frame members using a plurality of metal guides or clamps. Typically, the fuel inlet hose is routed along a length of the rear frame members, on an outer side of the rear frame members, disposed between one of the body side panels and one of the rear frame members. Similarly, when the fuel tank is disposed in a front portion of the vehicle, the fuel inlet hose is routed along

a length of a front frame member, on an outer side of the front frame member, routed between one of the body front panels and the front frame member.

[0004] Routing the fuel inlet hose along the outside of the rear frame/front frame member and next to the body panels results in potential interference of the fuel inlet hose with other components such as the wiring harness, leading to chances of damage of the fuel inlet hose due to entanglement with the wiring harness. Also, routing the fuel inlet hose along the outside of the rear frame member/front frame member increases the chances of damage/puncture due to contact with sharp edges of the frame members. Chances of damage due to puncturing also arises when the fuel inlet hose comes into contact with sharp edges or surfaces of the body panels. Moreover, the fuel inlet hose is also subjected to damage due to squeezing when the vehicle encounters an accident and the body panels squeeze against the frame member, thereby squeezing the fuel inlet hose between the body panels and the frame members. Therefore, routing the fuel inlet hose along the length of the frame members renders the fuel inlet hose prone to damage and potential safety risk from leakage of fuel. Damage to the fuel inlet hose may result in fire hazards which can be fatal for the rider and the pillion.

[0005] Moreover, in order to ensure that the body panels do not come in direct contact with the fuel inlet hose, in many vehicles known-in-the-art, the size of the body panels is kept large and a certain distance is maintained between the body panels and the frame members. As a result, the width of the body panels increases substantially, effectively resulting in increase in the overall width of the vehicle, which is undesirable. Further, the assembly of body panels also becomes inconvenient and time taking when the size of the body panels is enlarged.

[0006] Therefore, routing the fuel inlet hose over frame members involves several drawbacks and there is a need for providing an alternate means of routing the fuel inlet hose in order to overcome the above-mentioned problems and other problems known in the art.

BRIEF DESCRIPTION OF DRAWINGS

5 [0007] The detailed description has been described with reference to an embodiment of a motor vehicle such as a two-wheeled saddle-type vehicle along with the accompanying figures. Same numbers are used throughout the drawings to reference like features and components.

[0008] Fig.1 illustrates a right side view of a saddle-type vehicle in accordance with an embodiment of the present subject matter.

10 [0009] Fig.2 illustrates a left perspective view of a frame structure of the saddle-type vehicle in accordance with an embodiment of the present subject matter.

[00010] Fig.3 illustrates a detailed left perspective view of the frame structure depicting routing of a fuel inlet hose in accordance with a first embodiment of the present subject matter.

[00011] Fig.4 illustrates a detailed left perspective view of the frame structure depicting an enlarged view of an integrated hose stopper member in accordance with an embodiment of the present subject matter.

20 [00012] Fig.5 illustrates a detailed left perspective side view of a front portion of the frame structure depicting routing of a fuel inlet hose in accordance with a second embodiment of the present subject matter.

DETAILED DESCRIPTION OF THE INVENTION

[00013] The frame forms the core structure of any motor vehicle including saddle-type vehicles. It typically supports the engine, the front and rear
25 suspensions, the fuel tank etc. and also defines the location of parts such as the battery, motor, controller etc. Typically, besides supporting the fuel tank, the frame structure is also used for supporting parts associated with the fuel tank such as a fuel pump and parts of the fuel inlet assembly such as the fuel inlet hose. Conventionally, the fuel inlet hose is routed over frame members of the motor
30 vehicle using additional clamps or guides welded to the frame members.

Particularly, the fuel inlet hose is routed above or along the length of the frame members on an outer surface of the frame members and between the frame members and the body side panels. The routing of the fuel inlet hose above the frame members often results in some damage to the fuel inlet hose. Moreover,
5 several additional parts in the form of clamps or guides have to be used, adding to part count and weight of the vehicle.

[00014] Accordingly, the above and other objects are achieved by providing a motor vehicle such as saddle-type vehicle having a frame structure comprising a head tube, a down frame member extending downwardly and
10 rearwardly from the head tube, a left and right main frame members extending rearwardly from the down frame member, a left and right rear frame members extending upwardly and rearwardly from the left and right main frame members. Particularly, the left and right main frame members and the left and right rear frame members constitute the supporting frame members of the frame structure as
15 they support various parts of the vehicle including a fuel tank. For example, in one embodiment, the fuel tank is supported on the left and right main frame members and in another embodiment, the fuel tank is supported on the left and right rear frame members.

[00015] As per a first embodiment of the present subject matter, the fuel
20 tank disposed on the left and right main frame members is supplied with fuel from a fuel inlet assembly comprising a fuel inlet unit and a fuel inlet hose, wherein the fuel inlet hose emerges from a fuel inlet opening of the fuel inlet unit and enters the fuel tank. As per an aspect of the present subject matter, the fuel inlet hose emerging from the fuel inlet opening is inserted into one of the frame members
25 before being drawn out at the other end of said frame member. For example, in one embodiment, the fuel inlet hose is inserted into one end of one of said left and right rear frame members and is drawn out through other end of one of said left and right rear frame members. The other end of one of said left and right rear frame members is provided with an integrated hose stopper member for guiding
30 the fuel inlet hose outside the other end of one of said left and right rear frame members. The fuel inlet hose inserted into one of said left and right rear frame

members can thus be easily guided out for routing to the fuel tank in a secure and stable manner. In the present embodiment, since the fuel tank is disposed on the left and right main frame members, and is connected to the fuel inlet hose extending from the left and right rear frame members, the left and right rear frame members constitute as connecting frame members for the fuel tank.

[00016] Similarly, in a second embodiment the fuel inlet hose can be inserted into the down frame member and drawn out through the other end of said down frame member for routing towards the fuel tank disposed on the left and right main frame members. In this embodiment, the down frame member constitutes the connecting frame member for the fuel tank disposed on the left and right main frame members which in turn constitute the supporting frame members.

[00017] In a third embodiment, the fuel tank is supported on the left and right rear frame members and is connected to the fuel inlet hose extending from the down frame member, which constitutes the connecting frame member.

[00018] Thus, the routing of the fuel inlet hose as per the subject matter ensures that the fuel inlet hose does not get damaged due to puncturing since the fuel inlet hose does not remain exposed to sharp edges of parts surrounding the frame members. Moreover, routing of the fuel inlet hose as per the present subject matter ensures that no additional components such as guides or clamps have to be used, thereby minimising the part count as well as associated costs. Minimising part count also enables in ensuring that the overall assembly time for assembling the vehicle is effectively reduced.

[00019] Summary provided above explains the basic features of the invention and does not limit the scope of the invention. The nature and further characteristic features of the present invention will be made clearer from the following descriptions made with reference to an embodiment in the accompanying drawings.

[00020] Exemplary embodiments detailing features of the saddle-type vehicle and its layout, in accordance with the present subject matter will be described hereunder with reference to the accompanying drawings. Various

aspects of different embodiments of the present subject matter will become discernible from the following description set out hereunder. Rather, the following description provides a convenient illustration for implementing exemplary embodiments of the present subject matter. Further, it is to be noted that terms

5 “upper”, “lower”, “right”, “left”, “front”, “forward”, “rearward”, “downward”, “upward”, “top”, “bottom” and like terms are used herein based on the illustrated state or in a standing state of the saddle-type vehicle with a driver sitting thereon unless otherwise elaborated. Furthermore, a longitudinal axis refers to a front to rear axis relative to the saddle-type vehicle, defining a vehicle longitudinal

10 direction; while a lateral axis refers to a side to side, or left to right axis relative to said vehicle, defining a vehicle lateral direction. Also, it is to be understood that the phraseology and terminology used herein is for the purpose of description and should not be regarded as limiting.

[00021] The present invention along with all the accompanying

15 embodiments and their other advantages would be described in greater detail in conjunction with the figures in the following paragraphs. Although, the present invention has been exemplified for a two-wheeled saddle-type vehicle, the invention is applicable for all motor vehicles powered by an internal combustion engine.

20 **[00022]** With reference to **FIG.1**, a description is made of an entire schematic structure of a saddle-type vehicle **100** having a frame structure **200** (shown in **Fig.2**). The frame structure **200** supports different parts of said vehicle **100**. The frame structure **200** supports a steering assembly including a steering shaft (not shown), and a handlebar assembly **105** in a front portion of said vehicle

25 **100**. A front fork **121** is rotatably supported to the steering shaft through an upper bracket and a lower bracket (not shown). The handlebar assembly **105** provided above the front fork **121** allows steering of a front wheel **125**. A headlamp assembly **110** is disposed in front of the handlebar assembly **105**.

[00023] Further, a front cover **115** is provided to cover a forward-facing

30 side of the frame structure **200**. A front fender **120** is provided to cover an upper portion of the front wheel **125**. A leg shield **130** is disposed to cover an inward

facing side of the frame structure **200**, below the handlebar assembly **105**. The leg shield **130** protects the rider's legs rested on a floorboard **145** from running wind. The floorboard **145** protects a fuel tank **210** (shown in **Fig.2**) disposed below it. An under-seat cover **140** is provided that extends upwards from the floorboard **145** towards a lower side of a seat **135**. In an embodiment, the under-seat cover **140** serves to protect an internal combustion engine **102** disposed under the seat **135**. The seat **135** is disposed above the left and right side covers **175**. A pillion-handle **165** extending rearwardly behind the seat **135** is provided as a gripping means for a pillion rider seated on the seat **135**.

10 **[00024]** For safety of the rider and in conformance with the traffic rules, the headlamp assembly **110** and a turn signal lamp unit **111** are provided in a front portion of said vehicle **100**, and tail lamp unit **170** is provided in a rear portion of said vehicle **100**. Safety of said saddle-type vehicle **100** is also improved by providing a braking system, for example a linked type braking system which
15 controls braking operation of a front brake device (not shown) and a rear brake device (not shown) of the front wheel **125** and the rear wheel **190** respectively. The braking system includes a front brake lever **132** and a rear brake lever (not shown) to be operated by the rider and connected to said front brake device and said rear brake device respectively through one or more cables including a front
20 brake cable (not shown) and a rear brake cable (not shown).

[00025] For comfortable riding, suspension systems are provided for comfortable steering of said vehicle **100** on the road. The front fork **121**, which forms the front suspension system, serves as rigidity component just like the frame structure **200**. The front fork **121** clamped to the head tube **201** (shown in
25 **Fig.2**) is capable of being moved/steered to the left and right. Further, a rear suspension (not shown), which is a hydraulic damped arrangement, is connected to the frame structure **200** at a rear portion thereof. Particularly, at the rear portion of the frame structure **200**, the rear wheel **190** is suspended by the rear suspension **250**.

30 **[00026]** To enhance the overall aesthetics of said vehicle **100** and to prevent undesired foreign particles from entering parts of said vehicle **100**, left

and right side covers **175** are disposed to cover left and right side surfaces of a rear portion of the frame structure **200**. A rear fender **180** is also provided for preventing mud/water splashed by the rear wheel from entering other parts of said vehicle **100**.

5 **[00027]** As per one embodiment of the present subject matter and as may be seen in **Fig.1**, the saddle-type vehicle **100** is designed to be powered either by the only the IC engine **102**, or by only said one or more battery packs or by the IC engine and a motor. The IC engine **102** is equipped with an exhaust system that includes an exhaust pipe **184** connected to the IC engine **102** and a muffler **185**
10 connected to the exhaust pipe **184**. The muffler **185** extends rearwards along the right side of the rear wheel **190**.

[00028] Power from the IC engine **102** is transmitted to the rear wheel **190** through a transmission assembly (not shown), so as to drive and rotate the rear wheel **190**. The transmission assembly includes a gear unit containing gear train
15 and a drive mechanism connecting the gear unit to the rear wheel **190**. Thus, power from the IC engine **102** is transmitted to the rear wheel **190**.

[00029] **Fig.2** illustrates a left perspective view of the frame structure **200** of the saddle-type vehicle as per an embodiment of the present subject matter. The frame structure **200** comprises a head tube **201**, a down frame member **202**
20 extending downwardly and rearwardly from the head tube **201**, a left and right main frame members **203** extending rearwardly from both sides of the down frame member **202**, and a left and right rear frame members **204** extending rearwardly and upwardly from a rear portion of the left and right main frame members **203**. The left and right main frame members **203** are connected by a
25 front connecting bridge frame member **220** in a front portion thereof and by a rear connecting bridge frame member **225** in a rear portion thereof. As per an embodiment of the present subject matter, and as may be seen in **Fig.2**, the fuel tank **210** is supported over the left and right main frame members **203**. Thus, in the present embodiment, the fuel tank **210** is disposed in a front portion of the
30 frame structure **200**. In the present embodiment, the fuel tank **210** is connected with a fuel inlet assembly **211** disposed in a rear portion of the saddle-type

vehicle. The fuel inlet assembly **211** comprises a fuel inlet unit **212** having a fuel inlet opening **212a**, a fuel inlet cap **213** and a fuel inlet hose **214** emerging from the fuel inlet opening **212** and extending towards the fuel tank **210**. Particularly, in the present embodiment, the fuel inlet assembly **211** is disposed on a rear cover
5 **230**. In the present embodiment, the rear cover **230** is attached to a pair of rear brackets **235** secured on the left and right rear frame members **204**.

[00030] Fig.3 illustrates a left perspective view of the frame structure **200** of the saddle-type vehicle, depicting the routing of the fuel inlet hose **214** in accordance with an embodiment of the present subject matter. As may be seen and
10 as per a first embodiment of the present subject matter, the fuel inlet hose **214** emerging downstream of the fuel inlet opening **212a** is routed through one of the left and right rear frame members **204**. More particularly, as per the first embodiment of the present subject matter, the fuel inlet hose **214** is inserted into one of the left and right rear frame members **204**. Further, the fuel inlet hose **214**
15 is routed and drawn out through another end of one of the left and right rear frame members **204**. Thus, the fuel hose **214** is made to traverse the entire length of one of the left and right rear frame members **204**, especially through an inner side of one of the left and right rear frame members **204**. In order to ensure that the fuel inlet hose **214** can be easily inserted into one of the left and right rear frame
20 members **204**, an outer cross section profile of the fuel inlet hose **214** is maintained to be smaller than an inner cross section profile of the left and right rear frame members **204**. Also, the length of the fuel inlet hose **214** is maintained to be slightly longer than the length of the left and right rear frame members **204**, so that the fuel inlet hose **214** drawn out through one of the left and right rear
25 frame members **204** can be connected to the fuel tank **210** disposed in close proximity to the left and right rear frame members **204**. The fuel inlet hose **214** thus inserted into one of the left and right rear frame members **204** is drawn out through a cut-out or opening **215** formed in the corresponding rear frame member through which the fuel inlet hose **214** is inserted. Since a cut-out **215** is formed
30 on an upper surface of one of the left and right rear frame members **204**, and in order to ensure that there is no compromise made in the strength of one of the left

and right rear frame members **204**; a stiffener member **216** is integrated with the upper surface of one of the left and right rear frame members **204**, and around the cut-out **215**. Further, in order to ensure that the fuel inlet hose **214** thus inserted is easily drawn out, an integrated hose stopper member **217** is provided that is
5 integrated with one of the left and right rear frame members **204**.

[00031] Fig.4 illustrates an enlarged view of a portion of the frame structure in order to depict the integrated hose stopper member **217**. In the present embodiment and as may be seen in Fig.4, the integrated hose stopper member **217** is permanently attached to a portion of one of the left and right rear frame
10 members **204**, wherein the cut-out **215** is formed for withdrawing or routing out the fuel inlet hose **214**. Providing the integrated hose stopper member **217** at the cut-out **215** ensures that the fuel inlet hose **214** is prevented from slipping downwards towards a terminal portion **218** of one of the left and right rear frame members **204**, and rather the fuel inlet hose **214** is guided outside the cut-out **215**
15 for connection with a corresponding inlet hose **400** of the fuel tank **210**. Therefore, the fuel inlet hose **214** inserted through one of the left and right rear frame members **204** can be easily routed to the fuel tank **210** without involving any intermittent manual intervention during its assembly. Moreover, the routing of the fuel inlet hose **214** does not involve the use of any additional guide or clamp
20 for holding the fuel inlet hose **214**.

[00032] Fig.5 illustrates a left perspective partial view of a front portion of the frame structure and depicts a second embodiment of the present subject matter. As may be seen, the front portion of the frame structure comprises the head tube **201**, the down frame member **202** extending rearwardly and
25 downwardly from the head tube and the left and right main frame members **203** extending sidewardly and rearwardly from the down frame member **202**. Further, the fuel tank **210** is disposed over the left and right main frame members **203**. In the present embodiment, the fuel tank **210** is connected to the fuel inlet assembly **211** including the fuel inlet opening **212a** disposed in the down frame member
30 **202**. The fuel inlet hose **214** emerging downstream from the fuel inlet opening **212a** is inserted into the down frame member **202** and is drawn out through the

cut-out 215 formed in the down frame member 202. In order to enable easy withdrawal of the fuel inlet hose 214, the down frame member 202 is provided with the integrated hose stopper member 217. Particularly, the integrated hose stopper member 217 is integrated to a portion of the down frame member 202 at the cut-out 215. Providing the integrated hose stopper member 217 at the cut-out 215 ensures that the fuel inlet hose 214 is prevented from slipping downwards towards a terminal portion 219 of the down frame member 202, and rather the fuel inlet hose 214 is guided smoothly outside the cut-out 215 for connection with a corresponding inlet hose 400 of the fuel tank 210 without any undesirable scratches or damage to the fuel inlet hose 214 during the assembly process. The stiffener member 216 is integrated with a front surface of the down frame members 202, and around the cut-out 215 for strengthening the down frame member 202. As per another embodiment, the fuel tank 210 may be disposed around the vicinity of the head tube and the inlet opening for the fuel inlet hose may be configured on the downtube or the head tube of the frame structure. As per another embodiment, the disposition of the fuel tank may be at the rear portion of the vehicle & the fuel inlet opening can be towards the front portion of the vehicle in vicinity of the head tube and the fuel inlet hose is routed in the same manner as per present invention to achieve the intended safe, secure & reliable routing.

[00033] The routing of the fuel inlet hose as per the present subject matter enables in isolating the fuel inlet hose from external surfaces of frame parts or plastic body panels, which typically have sharp edges or corners capable of puncturing the fuel inlet hose. Moreover, since the fuel inlet hose is not routed by being supported between a portion of the frame and a portion of one of the plastic body panels or any other peripheral aggregate systems of the vehicle, it is ensured that fuel inlet hose is not squeezed between them during assembly or during accidents. Thus, potential damage to the fuel inlet hose is prevented. Further, the routing of the fuel inlet hose as per the present subject matter also aids in eliminating the use of additional hose routing/guiding members such as clamps. The present invention also enables in achieving a compact layout configuration in

form of enabling flexibility of disposition of the fuel storage tank at a location of preferred choice while addressing all potential problems that arise out of such flexibility viz. need to have a ease of access of the refilling fuel inlet opening for a user of the vehicle while still being able to route the fuel hose in a secure, safe and reliable manner. The present subject matter thereby enables in achieving part count reduction and thereby easing assembly of the vehicle.

Reference Numerals:

10	100 – Saddle-type vehicle	204 – Left and right rear frame members
	102 – Internal combustion engine	210 – Fuel tank
	105 – Handlebar assembly	211 – Fuel inlet assembly
	110 – Headlamp Assy	212 – Fuel inlet unit
	115 – Front cover	212a – Fuel inlet opening
15	120 – Front fender	213 – Fuel inlet cap
	121 – Front fork	214 – Fuel inlet hose
	125 – Front wheel	215 – Cut-out
	130 – Leg shield	216 – Stiffener member
	135 – Seat	217 – Integrated hose stopper member
20	140 – Under-seat cover	218,219 – Terminal portion
	145 – Floorboard	220 – Front connecting bridge frame member
	165 – Pillion-handle	225 – Rear connecting bridge frame member
	170 – Tail lamp unit	230 – Rear cover
	175 – Left and right side covers	235 – Pair of rear brackets
25	180 – Rear fender	250 – Rear suspension
	185 – Muffler	400 – Corresponding inlet hose
	190 – Rear wheel	

200 –Frame structure

201 – Head tube

202 – Down frame member

203 – Left and right main frame members

We Claim:

1. A motor vehicle (100) comprising:
a frame structure (200);
a fuel tank (210) supported on at least one of a supporting frame members
5 (203,204) constituting the frame structure (200);
a fuel inlet assembly (211) including a fuel inlet hose (214) connected to
the fuel tank (210) for supplying fuel, with the fuel inlet hose (214) being
connected to the fuel tank (210) by being inserted into one end of a
connecting frame member (204, 202) connected to the fuel inlet assembly
10 (211) and extending up to the fuel tank (210).
2. The motor vehicle (100) as claimed in claim 1, wherein the fuel inlet hose
(214) extends out of a cut-out (215) formed in the connecting frame
member (204, 202).
3. The motor vehicle (100) as claimed in claim 1, wherein the connecting
15 frame member (204, 202) is integrated with an integrated hose stopper
member (217).
4. The motor vehicle (100) as claimed in claim 3, wherein the integrated hose
stopper member (217) is disposed above a terminal portion (218,219) of
the connecting frame member (204,202).
- 20 5. The motor vehicle (100) as claimed in claim 2, wherein the connecting
frame member (204, 202) is fixed with a stiffener member (216) on a
surface opposed to a one on which the cut-out (215) is formed.
6. The motor vehicle (100) as claimed in claim 1, wherein the supporting
frame members (203, 204) include a left and right main frame members
25 (203) and a left and right rear frame members (204).
7. The motor vehicle (100) as claimed in claim 1, wherein the connecting
frame member (204, 202) includes a left and right rear frame members
(204) and a down frame member (202).

8. The motor vehicle (100) as claimed in claim 1, wherein the fuel inlet hose (214) has a cross section profile smaller than a cross section profile of the connecting frame member (204,202).

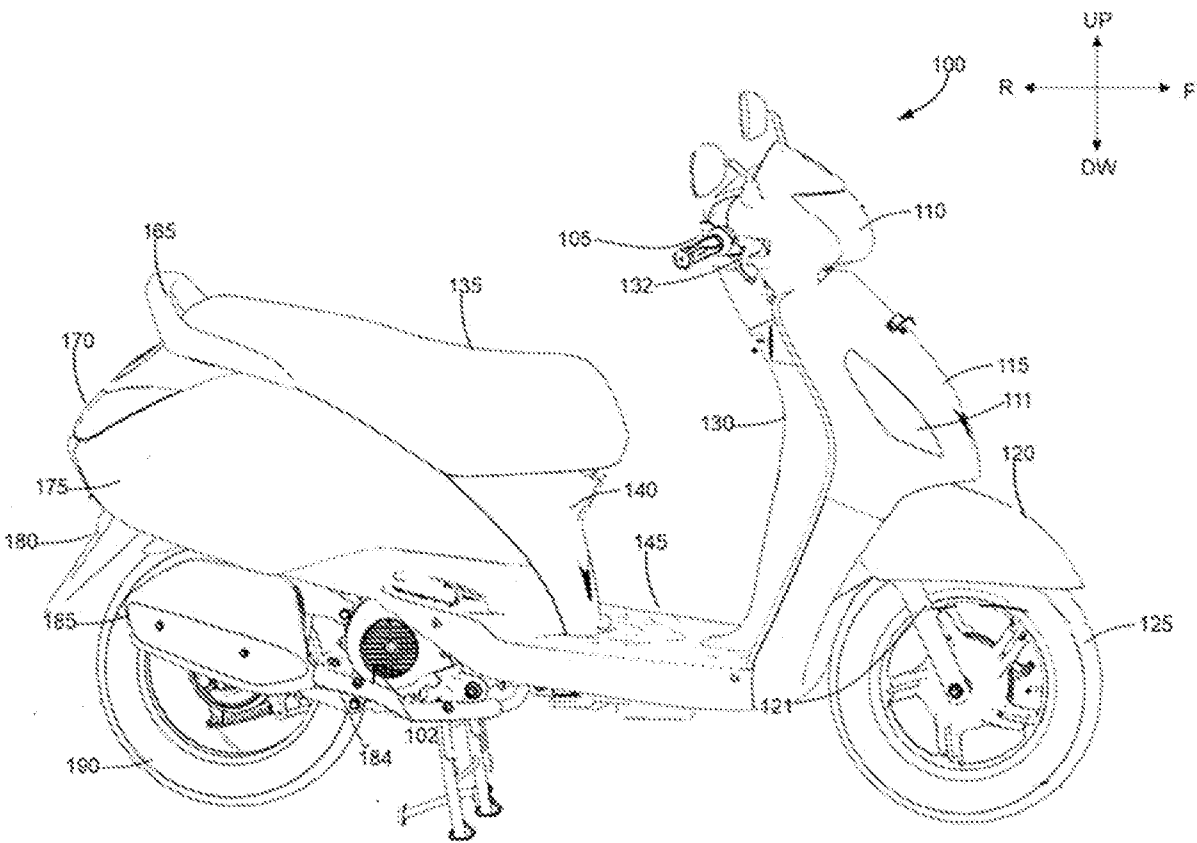


Fig.1

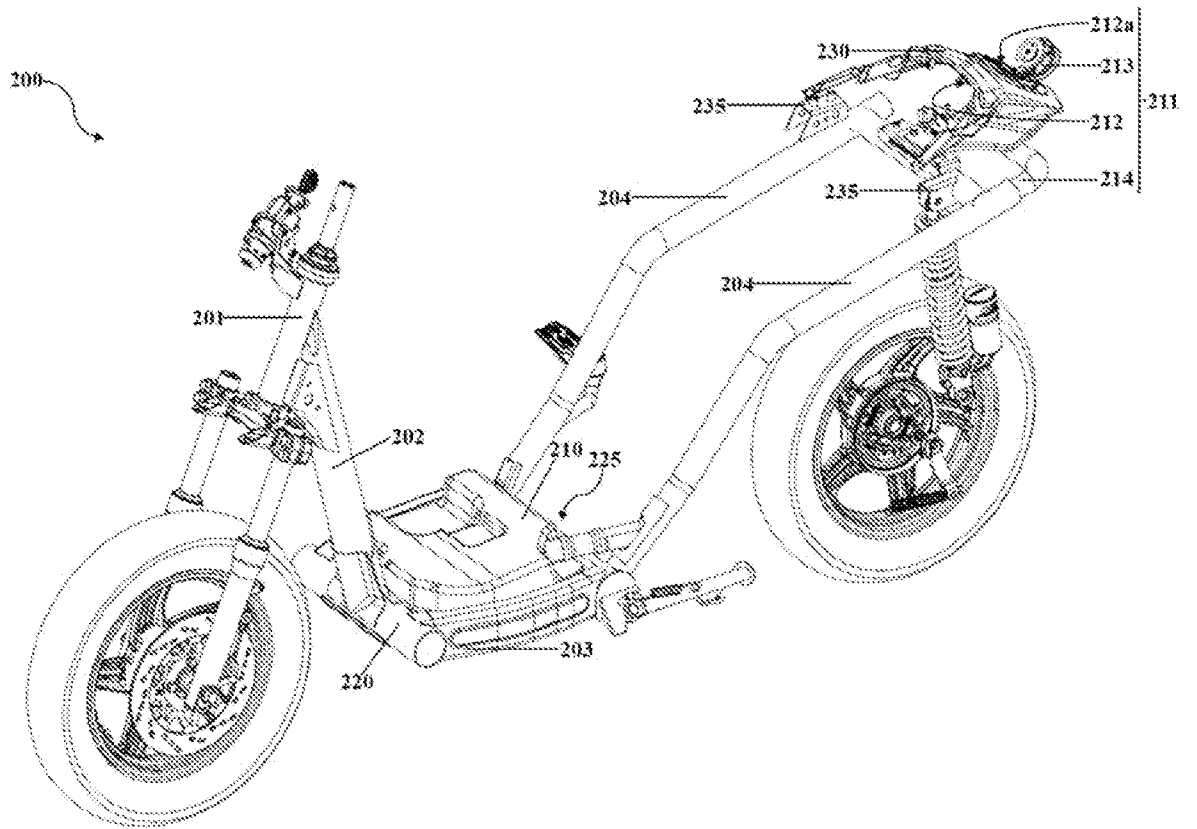


Fig.2

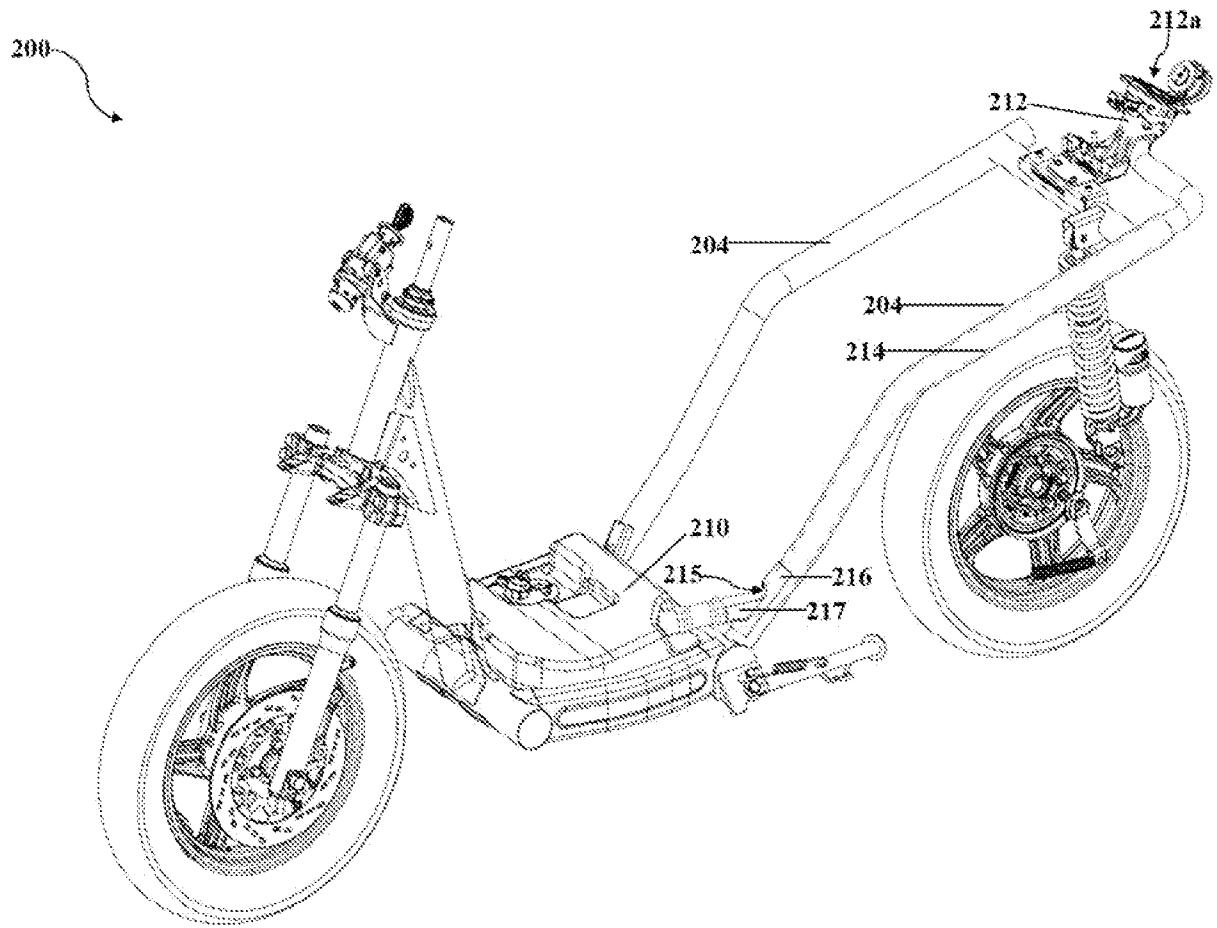


Fig.3

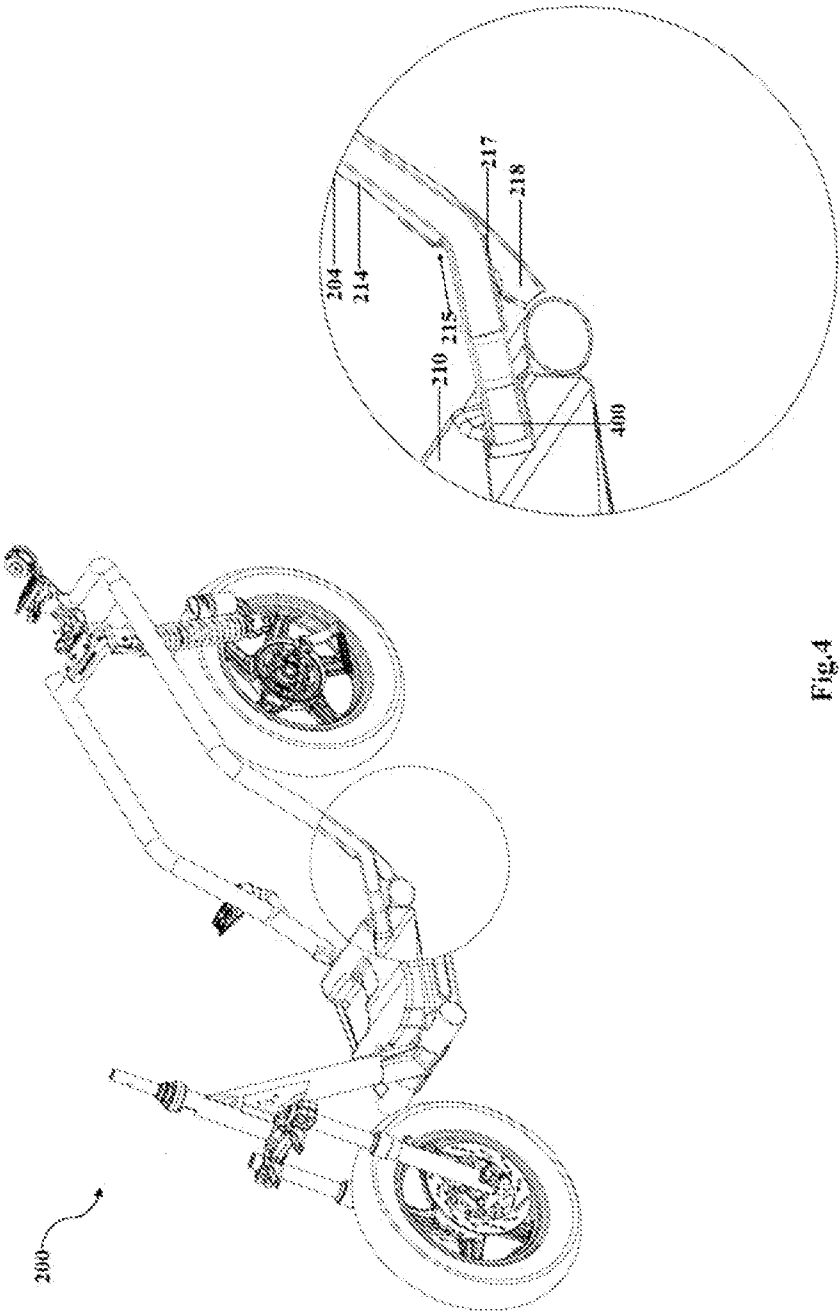


Fig.4

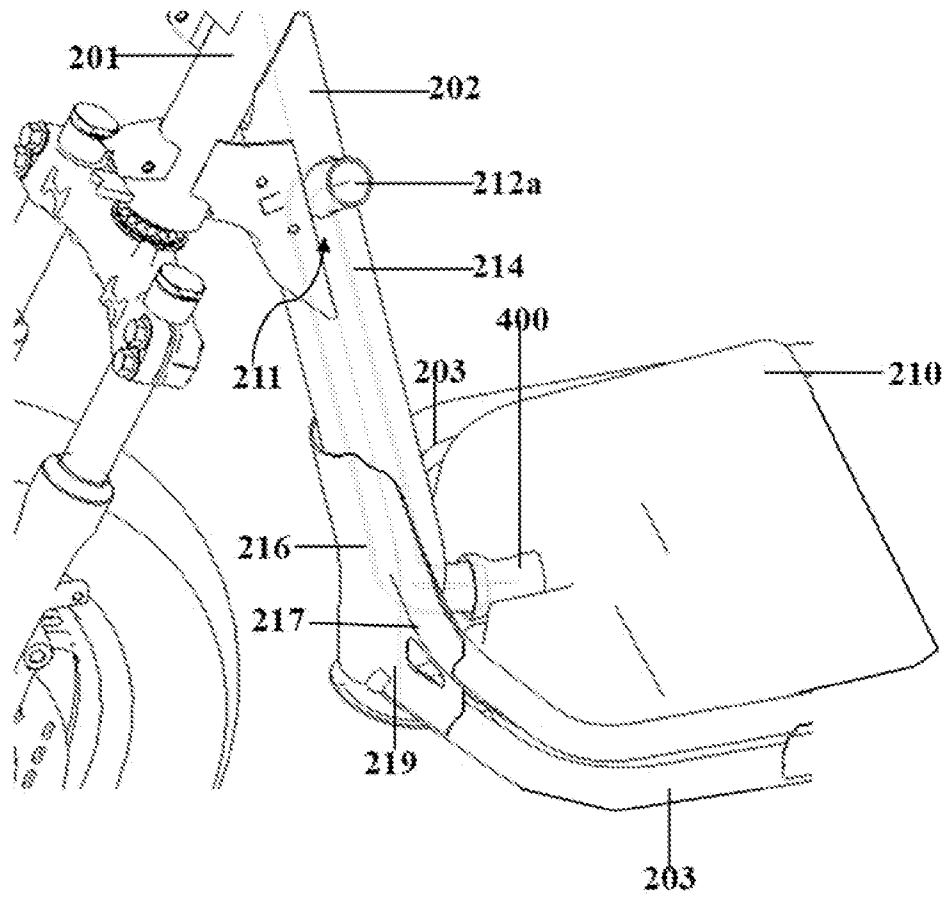


Fig.5

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IN2021/050255

A. CLASSIFICATION OF SUBJECT MATTER
B62J37/00 Version=2021.01

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)

B62J37/00

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

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

TotalPatent One, IPO Internal Database

Keywords: vehicle, frame, fuel tank, hose, stopper.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 2007145132 A (YAMAHA MOTOR CO LTD (JP)) 14 June 2007 (14.06.2007) Abstract & No Family	1-8
Y	EP 2022710 B9 (YAMAHA MOTOR CO LTD (JP)) 01 May 2019 (01.05.2019) Claims 5&9 & No Family	2-8
Y	JP 200515369 3A (TOYODA GOSEI KK (JP)) 16 June 2005 (16.06.2005) Abstract	1-8

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"D" document cited by the applicant in the international application

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

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"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

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

28-07-2021

Date of mailing of the international search report

28-07-2021

Name and mailing address of the ISA/

Indian Patent Office
Plot No.32, Sector 14, Dwarka, New Delhi-110075
Facsimile No.

Authorized officer

Atul Raj

Telephone No. +91-1125300200

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/IN2021/050255

Citation	Pub.Date	Family	Pub.Date
JP 2005153693 A	16-06-2005	US 2005121105 A1	09-06-2005